Preparation for MCAT Verbal Reasoning

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Preface

The MCAT verbal reasoning section is at least as important as any other section of the MCAT. It accounts for one-third of your composite score. However, many MCAT candidates are uncertain as to how to prepare for it. As a result, this area is often neglected and candidates are often disappointed when they receive their MCAT scores. This book will help prepare candidates for the verbal reasoning section.

Verbal reasoning is a skill and so requires practice to be good at it. Further, a systematic approach to developing this skill will make maximum use of a candidate's time. This book is based on these two premises: it provides a great deal of practice and its approach is systematic. It first explains the types of questions one will encounter and the logic used to answer them. Test-taking techniques are also described. Then it provides twelve warm-up passages and seventy MCAT-like passages for extensive practice. As your skills develop, you should impose time limits for each passage so that you become faster and accustomed to the kind of pressure you will face in the MCAT exam.

The passages approximately progress from relatively easy to relatively difficult. If you find the earlier passages too easy, you can make them more challenging by giving yourself less time to complete them. This develops speed, which is crucial in the MCAT verbal reasoning sub-test.

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1. There are no printing and shipping costs so the price can be set low.
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If you decide to use this book, please send a check or money order for U.S. $5, or the equivalent Canadian or Australian amount, made out to **Ken Evans**. Also include your e-mail address so we can send you the answers and explanations. Please send to the address indicated at http://members.tripod.com/mcatest/order.html

We are confident that this book will help you to achieve a higher verbal reasoning score. Thank you for your interest in this publication and good luck on the MCAT.

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Cover: "The Thinker." This statue was sculpted by Auguste Rodin (1840-1917) in Paris between 1879 and 1900.

Contents

Chapter 1 Types of Questions

The following is a list of typical questions you can expect to find on the Verbal Reasoning section of the MCAT.

Main idea questions

These test your comprehension of the theme of the article. Questions may ask you for the *main idea, central idea, purpose, a possible title for the passage,* and so on. You may be asked to determine which statement best expresses the author's arguments or conclusions.

Inference questions

These require you to understand the logic of the author's argument and then to decide what can be reasonably inferred from the article and what cannot be reasonably inferred.

Analysis of evidence questions

These ask you to identify the evidence the author uses to support his argument. You may be required to analyze relationships between given and implied information. You may be asked not only to understand the way the author uses different pieces of information but also to evaluate whether the author has built sound arguments.

Implication questions

You may be asked to make judgements about what would follow if the author is correct in his argument or what a particular discovery might lead to. You may be given new information and then asked how this affects the author's original argument.

Tone questions

You may be asked to judge the attitude of the author towards his subject.

1.1 Main Idea Questions

To find the main idea, ask the following three questions.

What is this passage about (the topic)?
What is the most important thing the author says about the topic (the main idea)?
Do all of the other ideas in the passage support this main idea?

Read the following passage and find the main idea.

For most immigrants, the journey to America was long and often full of hardships and suffering. The immigrants often walked the entire distance from their villages to the nearest seaport. There the ships might be delayed and precious time and money lost. Sometimes ticket agents or ship captains fleeced the immigrants of all they owned.

The most important idea in this paragraph is:

A. Immigrants had to walk long distances to get to seaports.
B. Ship schedules were very irregular.
C. Ship captains often stole all the possessions of immigrants.
D. The journey of immigrants to America was very difficult and often painful.

What is this passage about? This paragraph is about the immigrants' journey to America. This is the topic of the paragraph.

What is the most important thing the author says about the topic? The author says that the immigrants' journey "was long and often full of hardships and suffering." This is the main idea of the paragraph.

To be absolutely sure that this is the main idea, ask yourself*: Do all of the other ideas in the passage support this main idea?* There are other ideas in the paragraph, but each one is an example of some kind of hardship suffered by the immigrants. Thus, the correct choice is D.

The Main Idea at the Beginning of a Passage

Did you notice that the main idea was contained in the first sentence? Often the main idea is in the first sentence.

Read the following passage and find the main idea.

> Working conditions in the factories were frequently unpleasant and dangerous. A workday of 14 or 16 hours was not uncommon. The work was uncertain. When the factory completed its orders, the men were laid off. Often the pay was inadequate to feed a man's family. This meant that often an entire family had to work in factories in order to survive.

This paragraph is most concerned with

A. dangerous and difficult working conditions in factories.
B. the passage of child-labor laws.
C. the lack of job security in early factories.
D. the low pay scale of early factories.

What is this passage about? The topic of the passage is working conditions in the factories.

What is the most important thing the author says about these working conditions? Working conditions in the factories were frequently dangerous and unpleasant.

Do all of the other ideas in the passage support this main idea? All of the other sentences give examples of dangerous or unpleasant working conditions.

The correct choice is A.

The Main Idea in the Middle of a Passage

Sometimes the main idea it is stated somewhere in the middle of a paragraph. That is why the three questions about the main idea are so helpful.

What is this passage about?—will help you focus on the main idea.
What is the most important thing the author says about the topic?—will point out the main idea.
Do all of the other ideas in the passage support this main idea?—will help you to be sure you have chosen the most important idea rather than one of the less important ideas.

If you can answer these three questions, you will find the main idea no matter where it is placed in the paragraph.

Read the following passage carefully and ask yourself the three key questions. Then answer the question following the passage.

> Many who had left the Catholic Church during the Protestant upheaval eventually returned to their original faith. However, the religious struggle of the sixteenth century destroyed the unity of Western Christendom. No longer was there one Church, nor one people, or one empire.

The main point the author makes in this paragraph is that:

A. The Protestant Reformation destroyed the Catholic Church.
B. The Protestant Reformation did not affect the Catholic Church.
C. Some Protestants rejoined the Catholic Church.
D. Western Christendom was never again unified after the Protestant Reformation.

The topic is the Protestant upheaval. The most important thing the author says about the Protestant upheaval is that it destroyed the unity of Western Christendom. The first sentence gives an example of unity. The second sentence points out that this example of unity was of very minor importance compared to the disunity. The third sentence expands this idea of disunity and tells how extensive the disunity was. The main idea is contained in the second sentence. All of the other ideas support that sentence. Thus, the correct choice is D.

The Main Idea in Several Sentences

The main idea is not always contained in a single sentence. Sometimes it takes more than one sentence to express a complex idea. Then you must piece together ideas from two or more sentences to find the main idea. The three questions are particularly helpful with paragraphs like this one:

> Locke, of course, was no lone voice. The climate was right for him. He was a member of the Royal Society, and was thus intimately concerned with the work of the great seventeenth-century scientists. He argued that property—the possession of land and the making of money—was a rational consequence of human freedom. This promise linked him to other great developments of the period—the formation of the powerful banks, the agricultural revolution, the new science, and the Industrial Revolution.

The main idea of this paragraph is

A. John Locke believed that property was a product of human freedom.
B. John Locke was linked to the agricultural and industrial revolutions as well as to the new science and the formation of banks.
C. Property is the possession of land and the making of money.
D. John Locke's views on property linked him to all the other great developments of the seventeenth century.

You probably took a little more time to piece together the main idea. Notice that all of the choices are true statements. All of them are found in the passage. But now you are asked to judge which is the most important.

What is the passage about? The topic is John Locke. More precisely, the passage is about how John Locke was linked to the great events of the seventeenth century.

What is the most important thing the author says about John Locke and the events of his time? Locke's idea that property was a natural result of human freedom linked him to the great developments of his period.

Do all of the other ideas in the passage support your main idea? The first sentence says that Locke was not "a lone voice"; the second sentence says that the "climate was right for him." These sentences support the idea that Locke was linked to the developments of his period. The third sentence states explicitly that Locke was "intimately concerned with the work of seventeenth-century scientists." The fourth sentence states Locke's ideas on property (part of the main idea). The last sentence links Locke with the great developments of his period (part of the main idea) and it lists those developments. Since all of the sentences in the paragraph support your statement of the main idea, you may be confident that you have the complete main idea. All of the other statements support the main idea, but they do not state it completely. Choice D is therefore correct.

The Main Idea in Several Paragraphs

So far, you have learned to find the main idea of paragraphs. To find the main idea of passages consisting of several paragraphs, first find the main idea of each paragraph. In the passage below, the main idea of each paragraph has been underlined.

> Americans have long believed that George Washington died of injuries he received from a fall from a horse. We now know that his doctors killed him. Oh, it was no political assassination. They killed him by being what they were—physicians practicing good eighteenth-century medicine (which prescribed bleeding for every disease and injury). Washington, was bled of two quarts of blood in two days.
>
> It is commonly thought that the practice of blood-letting died with the eighteenth century, but even today leeches are sold in every major city in the United States. These blood-sucking little worms are still used by ignorant people to draw off "bad blood," the old-world treatment for every disease of body and spirit.
>
> The cities of America are infested with an even worse kind of bloodsucker than the leech. Like the leech, he is not a cure-all, but a cure-nothing. Like the leech, he transmits diseases more dangerous than those he is supposed to cure. And like his brother, the primordial worm, he kills more often than he cures. His name is "pusher"; his treatment is not bloodletting, but addiction.
>
> The purpose of the passage is to
> **A.** explain how George Washington died.
> **B.** describe the eighteenth-century practice of using leeches to treat diseases.
> **C.** denounce the practice of blood-letting.
> **D.** make a comparison between leeches and drug pushers.

Re-read only the underlined portions of the passage. These sentences can be used to form a summary of the passage:

> George Washington died of bleeding. Leeches are still used by ignorant people for treating diseases. The cities of America are infested with an even worse kind of blood-sucker than the leech. His name is "pusher."

Now ask yourself the same questions you used to find the main idea of a single paragraph.

What is the passage about? The topic is leeches, blood-letting, and drug pushers.

What is the most important thing the author says about this topic? Drug pushers are worse than leeches and do more harm than blood-letting.

Do all of the other ideas in the passage support this main idea? Yes, the first paragraph explains that leeches were used in the eighteenth century and could kill people. The second paragraph explains that ignorant people still use leeches. The third paragraph compares leeches and drug-pushers and stresses that drugs are the more harmful.

The answer is D.

In addition to asking the three questions, you could also ask whether each of the answer choices is too narrow or too broad. For example, in the previous question choices A, B, and C are all too narrow to be the main idea.

1.2 Inference Questions

Some questions ask you to make inferences. An inference is a conclusion not directly stated in the text, but implied by it. Read the following passage. The topic is not directly stated, but you can infer what the paragraph is about.

> Dark clouds moved swiftly across the sky blotting out the sun. With no further warning, great cracks of thunder and flashes of lightning disturbed the morning's calm. Fortunately, the deckhands had already tied everything securely in place and closed all portholes and hatches or we would have lost our gear to the fury of wind and water.

1. This passage most likely describes
- **A.** a storm during an African safari.
- **B.** a storm at sea.
- **C.** an Antarctic expedition.
- **D.** a flash flood.

2. Which of the following statements is false?
- **A.** The storm was unexpected.
- **B.** The storm came suddenly.
- **C.** It was windy.
- **D.** It was cloudy.

Nowhere in the paragraph are the words "sudden storm at sea" but, obviously, that is what the paragraph is about. The words *dark clouds*, *thunder*, *lightning*, *wind,* and *water* all suggest a storm. The word *deckhands* suggests a ship at sea. Several other words give you the feeling of the suddenness of the storm. You are justified in inferring that the writer was caught in a sudden and terrible storm at sea. The answer to question 1 is B.

But are you justified in concluding that the storm was unexpected. You know that things that happen suddenly are often unexpected. Was that the case with this storm? The last sentence tells you that the deckhands had already tied everything down and closed all portholes and hatches. That sentence indicates the storm was expected. The answer to question 2 is A.

Read the paragraph below. You will be asked to examine the cause-effect relationships implied by it later.

> Bo went to the play-off game with several of his friends. At the stadium Bo ate four frankfurters with mustard and relish, two hamburgers with chilli, drank several bottles of soda, and ate an assortment of candy, potato chips, pretzels, and ice cream. Suddenly Bo felt dizzy, feverish, and sick. When he got home, he took something to calm his stomach and went to bed.

Bo got sick because
A. he took something to calm his stomach.
B. he went to the play-off game.
C. he felt dizzy and feverish.
D. he ate too much.

It is easy to see that Bo got sick because he ate too much – choice D. What is wrong with the other answers?

Choice A is wrong because the cause and effect are mixed up. Bo took something to calm his stomach because he was sick. He was not sick because he took something to calm his stomach.

Choice B is wrong because going to the play-off game really had nothing to do with his nausea later. If he had eaten the same food at home, he probably would have been just as sick. There is no real causal connection between the game and the sickness.

Choice C is incorrect because the feverishness and dizziness probably had the same cause as Bo's sickness. They were signs or symptoms of his illness, but not its cause.

Read the following paragraph. The question following it is concerned with the relationships between the main idea and supporting details.

> Do we live in a revolutionary age? Our television and newspapers seem to tell us that we do. The late twentieth century has seen the governments of China and Cuba, among others, overthrown. The campuses of our universities erupted into violence; above the confusion of voices could be heard slogans of social revolution. We are constantly reminded that we live in a time of scientific and technological revolution. Members of militant racial groups cry for the necessity and inevitability of violent revolution. Even a new laundry detergent is described as "revolutionary!" Many causes, many voices, all use the same word.

Revolutionary ages are generally marked by:
A. violence, slogans, science.
B. violence, television coverage, governments overthrown.
C. peace, science, technology.
D. violence, confusion, governments overthrown.

Notice that the author does not answer his own question in the first sentence (the main idea). All of the other sentences give illustrations of or examples of "revolution." The question asks you to make a generalization about

the nature of revolution from these examples. Choices A and B include examples from a particular revolution (if one does exist). They are not true generalizations. Choice C is patently contrary to the ideas of the passage. Choice D is correct.

1.3 Analysis of Evidence Questions

Some questions ask you to check back in the text to see if the passage confirms or refutes a particular detail. This is the easiest kind of question to answer. In fact, the answer may be so obvious, you may be tempted to feel that some kind of trick is involved. Relax! If you can find the answer in the passage, you are almost certainly right.

> The Fertile Crescent has been called the cradle of civilization. The Fertile Crescent is that sickle-shaped area of land between the Tigris and Euphrates rivers. The waters of these rivers changed the Asian desert into rich land with abundant crops. Many people believe that this is the land where man first settled down to farming after ages as a wandering hunter and later as a herder. Some even believe that the fabulous Garden of Eden was located somewhere in the Fertile Crescent.

1. The Fertile Crescent is located in
- **A.** Africa.
- **B.** Europe.
- **C.** Asia.
- **D.** the west.

2. A crescent is
- **A.** shaped like a sickle.
- **B.** always fertile.
- **C.** round.
- **D.** deserted.

3. The land between the Tigris and Euphrates rivers
- **A.** has good soil and abundant water for irrigation.
- **B.** is populated by hunters.
- **C.** was extremely overpopulated.
- **D.** is shaped like a full moon.

ANSWERS
1. C is correct – 3rd sentence.
2. A – 2nd sentence.
3. A – 3rd sentence.

1.4 Implication Questions

Sometimes you will have to apply one of the ideas in a passage to another situation. Sometimes this type of question takes a broad generalization from the passage and asks you to apply it to a specific situation. Attempt the passage below.

> In December 1946, full-scale war broke out between French soldiers and Viet Minh forces. The people tended to support the Viet Minh. Communist countries aided the rebels, especially after 1949

communist regime came to power in China. The United States became involved in the struggle in 1950, when the United States declared support of Vietnamese independence, under Bao Dai.

Finally, in 1954, at the battle of Dien Bien Phu, the French suffered a shattering defeat and decided to withdraw. The 1954 Geneva Conference, which arranged for a cease-fire, provisionally divided Vietnam into northern and southern sectors at the 17th parallel. The unification of Vietnam was to be achieved by general elections to be held in July 1956 in both sectors under international supervision. In the north, the Democratic Republic of Vietnam was led by its president, Ho Chi Minh, and was dominated by the Communist party.

In the south, Ngo Dinh Diem took over the government when Bao Dai left the country in 1954. As the result of a referendum held in 1955, a republic was established in South Vietnam, with Diem as President.

1. A good title for this passage would be (main idea question)
- **A.** "The United States and Vietnam"
- **B.** "The Geneva Conference"
- **C.** "The Vietnamese Fight for Independence"
- **D.** "The Career of Bao Dai"

2. In the second paragraph the word "provisionally" means (implication question)
- **A.** temporarily.
- **B.** permanently.
- **C.** with a large, outfitted army.
- **D.** helplessly.

3. Bao Dai was in 1950 (implication question)
- **A.** a possible Vietnamese independence leader.
- **B.** the leader of the French.
- **C.** the brother of Dien Bien Phu.
- **D.** the President of South Vietnam.

4. The tone of this passage is (tone question)
- **A.** objective.
- **B.** partial to the French.
- **C.** partial to the North Vietnamese.
- **D.** cynical.

5. From the passage we might assume that in 1946 the Viet Minh were (implication question)
- **A.** South Vietnamese.
- **B.** Vietnamese rebels.
- **C.** North Vietnamese.
- **D.** French-supporting Vietnamese.

ANSWERS
1. C
2. A
3. D
4. A
5. B

1.5 Tone Questions

An author may express his feelings or attitudes toward a subject. This expression of emotion imparts a tone to the writing. To determine the tone of a passage, think of the emotions or attitudes that are expressed throughout the passage.

Below are some terms used to describe tone.

Term	**Meaning**
Admiring	respectful, approving
Belittling	making small, depreciating
Cynical	unbelieving, sneering
Denigrating	blackening, defamatory
Didactic	instructive, authoritarian
Ebullient	exuberant, praising
Lampooning	satirical, making fun of
Laudatory	praising
Mendacious	untruthful, lying
Objective	factual
Optimistic	hopeful
Praising	commending, laudatory
Reverential	exhalted, regarding as sacred
Ridiculing	deriding, mocking, scornful
Saddened	sorrowful, mournful
Sanguine	confident, hopeful
Sarcastic	bitter, ironic
Sardonic	mocking, bitter, cynical
Satiric	ridiculing, mocking
Tragic	sad

A tragic tone reflects misfortune and unfulfilled hopes. A satiric tone mocks and ridicules its subject. An author may use an ironic tone to develop a contrast between (1) what is said and what is meant, (2) what actually happens and what appears to be happening, or (3) what happens and what was expected to happen. These are just a few of the emotions or attitudes that influence the tone.

Attempt the questions below.

> A certain baseball team took the pennant for the first time in many years. Different people reacted differently.

1. "Wow! I can't believe it! This is the best thing that could have happened in this city!" The tone of this remark is
- **A.** serious.
- **B.** excited.
- **C.** sarcastic.
- **D.** amazed.

2. "Ah! This is like it was when I was a boy. It makes my chest swell with pride again and brings tears to my eyes."
The tone of this remark is
A. sentimental.
B. excited.
C. sarcastic.
D. amazed.

3. "The team's manager and coach have had a lot of influence throughout the season. They deserve a lot of credit for this victory."
The tone of this remark is
A. serious.
B. excited.
C. sarcastic.
D. amazed.

4. "What!? They won!? And they started off so poorly this season. I just can't believe it!"
The tone of this remark is
A. serious.
B. excited.
C. sarcastic.
D. amazed.

5. "It couldn't have been skill since they don't have that. It couldn't have been bribery, since they don't have any money. The other team must all have been sick. It's the only way they could have won."
The tone of this remark is
A. serious.
B. excited.
C. sarcastic.
D. amazed.

ANSWERS
1. B.
2. A.
3. A.
4. D.
5. C.

We sat around the fire in the old house. My brothers and I and our father hadn't all been together for a year. It was a cold November day. Only a year had passed. Mother's shawl still hung over the back of her rocker. It had hung there that night a year ago. It hung there quietly just as her memory hung in our minds. We tried to talk, but silence kept breaking in - the silence of the rocker that creaked no more. We four shared the silence of the rocker.

1. The tone of this passage is
A. humorous.
B. hopeless.
C. satiric.
D. sentimental.

ANSWER
1. D.

A student was arrested for auto theft. His friends reacted in various ways.

1. "John has been arrested? I'm afraid he is headed downhill. This is not the first time. Each time it gets worse. I'm worried about him."
The tone of this is
A. angry.
B. fearful.
C. sarcastic.
D. surprised.

2. "Go on, John! Soon you'll be able to steal a cookie without your mother knowing it."
The tone of this is
A. praising.
B. happy.
C. sentimental.
D. sarcastic.

3. "Damn that boy! Won't he ever straighten up."
The tone of this is
A. depressed.
B. angry.
C. sarcastic.
D. serious.

4. "He's never been arrested before. Maybe, God willing, this will teach him his lesson. I see a better day coming."
The tone of this is
A. hopeful.
B. hopeless.
C. sentimental.
D. saddened.

5. "I showed him just how to do it. He blew it! He could have gotten away with it if he'd just listened to me."
The tone of this is
A. disappointed.
B. hopeless.
C. depressed.
D. sarcastic.

ANSWERS
1. B.
2. D.
3. B.
4. A.
5. A.

Chapter 2 Test-taking Techniques

The Verbal Reasoning section of the MCAT not only tests your comprehension and reasoning abilities, it also tests how fast you can read. Most candidates will have little or no time to go back and check their answers; and many will not even be able to finish all the passages.

If your reading rate is less than 300 words a minute you may have difficulty completing the section. You can compute your reading rate by reading for a minute and counting the number of words read (approximate average line length x number of lines). If you are a slow reader you should try to improve your reading speed. There are various books and courses that teach how to read faster – try consulting a library.

Your task during the MCAT exam is to correctly answer the questions – not to understand perfectly the passages. The purpose of the techniques described below is to enable you to answer the questions with the minimum amount of time.

You may want to select one of these techniques or develop one of your own. You are encouraged to try different techniques under "test conditions" (i.e. 8 to 9 minutes per passage, including questions) to determine which technique you prefer, then you should practice using it.

Technique 1

Read the entire passage → answer the questions.

This requires the most ability to understand complex relationships and retain details while you are reading at a fast rate.

Technique 2

Read the first two paragraphs → read all the questions and answer those you can → read the remainder of the passage, answering the questions as you go along.

Technique 3

Read the first sentence of each paragraph → read the question stems → read the entire passage, answering the questions as you go along.

Technique 4

Read the question stems → read the entire passage, answering the questions as you go along.

Chapter 3
Warm-up Exercises

These short, relatively easy passages will help consolidate the principles and techniques explained in Chapter 1.

As the mid-century approached, the women of America were far from being acclimated to their assigned dependent role. In fact, leaders of the growing suffrage movement were seeking equality under the law. Incredible as it seems now, in early nineteenth-century America a wife, like a black slave, could not lawfully retain title to property after marriage. She could not vote, and she could legally be beaten by her master.

1. One of the goals of the suffrage movement was
- **A.** dependence on a master.
- **B.** equality with men.
- **C.** recognition of divorce.
- **D.** abolition of slavery.

2. Which sentence describes American women of the early 19th century?
- **A.** They were against marriage.
- **B.** They were satisfied with their role in society.
- **C.** They were victims of a male-dominated society.
- **D.** They had many slaves to do their work.

ANSWERS
1. B.
2. C.

No dwelling in all the world stirs the imagination like the tipi of the Plains Indian. It is without doubt one of the most picturesque of all shelters and one of the most practical movable dwellings ever invented. Comfortable, roomy, and well ventilated, it was ideal for the roving life these people led in following the buffalo herds up and down the country. It also proved to be just as ideal in a more permanent camp during the long winters on the prairies.

1. What is a tipi?
- **A.** a buffalo
- **B.** an Indian
- **C.** a prairie
- **D.** a residence

2. What kind of life did the Plains Indians lead?
- **A.** They wandered with the buffaloes.
- **B.** They led comfortable and ideal lives.
- **C.** They spent their lives in one place.
- **D.** They lived in large, airy caves.

ANSWERS
1. D
2. A

A dozen years ago, Thornton Wilder and I made the happy discovery that we were both invited to a White House dinner for the French Minister of Culture, Andre Malraux. We decided at once to go together. He was to pick up my wife and me at our hotel, and specified that I should have a double old-fashioned ready for him. Thornton did justice to the drink. He also delighted my wife. She was nervous about the dress she was wearing, and he told her it reminded him of the black swan of Tasmania and was so graceful that it danced almost by itself. He illustrated in long, slow undulations, his arms waving. My wife was ham all evening.

1. Who is the narrator of the passage?
- **A.** Andre Malraux
- **B.** Thornton Wilder
- **C.** The passage does not say
- **D.** Tasmania

2. What does 'happy" mean in the expression "happy discovery"?
- **A.** Fortunate
- **B.** Contented
- **C.** Optimistic
- **D.** Clever

3. What delighted the narrator's wife?
- **A.** The invitation to the White House
- **B.** Wilder's compliment
- **C.** A double old-fashioned
- **D.** Attending the dinner with Wilder

ANSWERS
1. C.
2. A.
3. B.

Nobody knows with certainty how big a proportion of the world's population is suffering from the basic problem of chronic undernourishment. But the commonly quoted United Nations estimate of 460 million sufferers is, if anything, on the low side. This represents 15 percent of the global population. Many more suffer from other deficiencies, making global totals even more difficult to calculate.

1. The paragraph indicates that
- **A.** malnutrition is the number one problem in modern society.
- **B.** relatively few people suffer from malnutrition.
- **C.** the United Nations is supplying food to those suffering from malnutrition.
- **D.** it is not easy to count the number of people in the world who are undernourished.

ANSWER
1. D.

Another way to fight insomnia is to exercise every day. Muscular relaxation is an important part of sleep. Daily exercise leaves your muscles pleasantly relaxed and ready for sleep.

1. What is insomnia?
- **A.** muscular relaxation
- **B.** inability to sleep
- **C.** exercise
- **D.** sleep

2. According to the passage, daily exercise
- **A.** helps a person fall asleep more readily.
- **B.** is harmful for the muscles.
- **C.** prepares a person for fighting.
- **D.** is unnecessary.

ANSWERS
1. B.
2. A.

The decade was erected upon the smoldering wreckage of the '60's. Now and then, someone's shovel blade would strike an unexploded bomb; mostly the air in the '70s was thick with a sense of aftermath, of public passions spent and consciences bewildered. The American gaze turned inward. It distracted itself with diversions trivial or squalid. The U.S. lost a President and a war, and not only endured those unique humiliations with grace, but showed enough resilience to bring a Roman-candle burst of spirit to its Bicentennial celebration.

1. What image is used to describe the '70s?
- **A.** A celebration
- **B.** A race
- **C.** A postwar period
- **D.** A long movie full of passion

2. What is the author's attitude regarding the events of the '70s
- **A.** He is pessimistic.
- **B.** He is bewildered.
- **C.** He is optimistic.
- **D.** He is afraid.

ANSWERS
1. C.
2. C.

One bright spot in the U.S. economy in 1979 was the surprising decline in gasoline use. Rising fuel costs are finally prodding Americans to cut back on consumption, and the need for this becomes more acute all the time.

1. How does the author view the decline in gas consumption?
- **A.** He is indifferent.
- **B.** He thinks it is a good sign.
- **C.** He doesn't see the need for it.
- **D.** He is unhappy about it.

2. Why are Americans using less gasoline?
- **A.** The economy is good.
- **B.** They don't need as much.
- **C.** They want to spend more time at home.
- **D.** Gasoline is becoming very expensive.

ANSWERS
1. B.
2. D.

During the early part of the colonial period, living conditions were hard, and people had little leisure time for reading or studying. Books imported from abroad were expensive and were bought mainly by ministers, lawyers, and wealthy merchants. The only books to be found in most homes were the Bible and an almanac, a book giving general information about such subjects as astronomy, the weather, and farming.

1. The early colonists did not do much reading because
- **A.** they didn't know how to read.
- **B.** the Bible told them that reading was sinful.
- **C.** they didn't have time.
- **D.** they weren't interested in reading.

2. Books were bought primarily by
- **A.** the nobility.
- **B.** professional and wealthy people.
- **C.** the lower class.
- **D.** sellers of almanacs.

ANSWERS
1. C.
2. B.

Never before in history have people been so aware of what is going on in the world. Television, newspapers, radio keep us continually informed and stimulate our interest. The sociologist's interest in the world around him is intense, for society is his field of study. As an analyst, he must be well acquainted with a broad range of happenings and must understand basic social processes. He wants to know what makes the -social world what it is, how it is organized, why it changes in the way that it does. Such knowledge is valuable not only for those who make great decisions, but also for you, since this is the world in which you live and make your way.

1. The passage chiefly concerns
- **A.** the work of a sociologist.
- **B.** the news media.
- **C.** modern society.
- **D.** decision-makers.

2. It can be inferred that a good sociologist must be
- **A.** persistent.
- **B.** sensitive.
- **C.** objective.
- **D.** curious.

3. According to the passage, modern society is more aware of world events than were previous societies because
- **A.** the news media keep us better informed.
- **B.** travel is easier and faster.
- **C.** there are more analysts.
- **D.** todays population is more sociable.

ANSWERS
1. A.
2. D.
3. A.

Whatever answer the future holds, this much I believe we must accept: There can be no putting the genie back into the bottle. To try to bury or to suppress new knowledge because we do not know how to prevent its use for destructive or evil purposes is a pathetically futile gesture. It is, indeed, a symbolic return to the methods of the Middle Ages. It seeks to deny the innermost urge of the mind of men —the desire for knowledge.

1. The author believes that
- **A.** new ideas should not be encouraged.
- **B.** we should return to the methods of the Middle Ages.
- **C.** new knowledge is always used for evil purposes.
- **D.** to suppress knowledge is a useless act.

2. What is the meaning of "no putting the genie back into the bottle"?
- **A.** Once new discoveries have been made, it is impossible to deny their existence and to control the consequences which might result from them.
- **B.** We cannot be sure that knowledge will be used for humanitarian purposes.
- **C.** The desire for knowledge was not strong during the Middle Ages.
- **D.** We cannot answer tomorrow's questions today.

3. According to the author, man's most basic desire is
- **A.** to know the future.
- **B.** to prevent destruction and evil.
- **C.** to become less ignorant.
- **D.** to avoid useless activity.

4. The passage was written
- **A.** to convince us that the Middle Ages contributed little to modern society.
- **B.** to inspire us to meet challenges wisely.
- **C.** to persuade us to mistrust new ideas.
- **D.** to show us what we can expect in the future.

ANSWERS
1. D.
2. A.
3. C.
4. B. This answer remains after eliminating the others.

It is important to distinguish among communication, language, and speech. These terms may, of course, be used synonymously, but strictly speaking, communication refers to the transmission or reception of a message, while language, which is usually used interchangeably with speech, is here taken to mean the speech of a population viewed as an objective entity, whether reduced to writing or in any other form.

1. According to the author, which word could be best used to replace "speech"?
- **A.** Communication
- **B.** Transmission
- **C.** Language
- **D.** Reception

2. The author understands "language" to mean
- **A.** the totality of the way a given people expresses itself.
- **B.** the giving or receiving of a message.
- **C.** the exchange of words between two people.
- **D.** the written works of a population.

ANSWERS
1. C.
2. A.

The long, momentous day of John Glenn began at 2:20 a.m. when he was awakened in his simple quarters at Cape Canaveral's hangars by the astronauts' physician, Dr. William K. Douglas. Glenn had slept a little over seven hours. He shaved, showered, and breakfasted. Outside, the moon was obscured by fleecy clouds; the weather, responsible for four of the nine previous postponements, looked rather ominous.

1. At approximately what time did Glenn go to sleep?
- **A.** 5 p.m.
- **B.** 7 p.m.
- **C.** 9 a.m.
- **D.** 7 a.m.

2. Which statement about the weather is true?
- **A.** It was perfect for the occasion.
- **B.** It was cloudy and rainy.
- **C.** It had caused delays in the past.
- **D.** The passage does not say.

3. Who is John Glenn?
- **A.** A doctor.
- **B.** A weatherman.
- **C.** A spaceman.
- **D.** A sailor.

ANSWERS
1. B.
2. C.
3. C.

Chapter 4
Verbal Reasoning Exercises

Passage 1

The ancestor of the modern horse lived just after the dinosaurs ruled the earth, and was not much bigger than a rabbit and lived in forests. Eohippus, or Dawn Horse, was the name given to this ancient horse because it lived at the beginning of the Age of the Mammals. Fossils of this primal horse have been found in England, Europe, and America.

The Dawn Horse had four toes on each front foot and three toes on each back foot. The modern horse has only one toe on its front and back legs and the hoof is actually the nail of that toe.

A number of different species of the Dawn Horse have been found. They vary in height from about ten to twenty inches at the shoulders. Scientists think they were shy. Many of them lived in the forests and used the trees and bushes for protection from their enemies.

Later, fossils found by scientists showed that the horse changed both in size and shape over time. By the end of the Dawn period, some species of horses had grown to be as large as a Great Dane dog. They looked very much like a tiny modern horse. While this species had toes, only the middle toe touched the ground. Its nail became the hoof for each foot.

Much later, the legs of the horse grew longer and the horse became bigger. Some species were as large as many of today's ponies. At this time, the horse lived on the open plains rather than in forests. With the development of one toe on each foot, it could outrun most of its enemies. These horses also traveled widely, crossing from Alaska to Siberia and spreading all over Asia and Europe. Fossils have been found from China to western Europe.

It took about fifty-five million years of changes for the modern horse to develop. The history of the horse shows how evolution helps an animal better adapt to its world. Without these natural changes, there would be no horses today as we know them.

1. What is this story about?
- **A.** Fossils of early horses.
- **B.** The evolution of the horse.
- **C.** Ancient horses.
- **D.** Different species of horses.

2. What does the word species mean in paragraph 4?
- **A.** A category of animals.
- **B.** Money.
- **C.** A mental image.
- **D.** A common name.

3. How were the horses at the end of the Dawn Period like modern horses?
- **A.** Both had only one toe that touched the ground.
- **B.** The horse was about the same size as today by the end of the Dawn Period.
- **C.** The legs and size of the horse were about the same.
- **D.** The body structure of both horses was the same.

4. Why is the ancestor of the horse named the Dawn Horse?
- **A.** Fossils have been found in England and Europe.
- **B.** It lived at the same time as the dinosaurs.
- **C.** It lived at the beginning of the Age of the Mammals.
- **D.** The Dawn Horse was born at the dawn of time.

5. Why were the ancestors of the horse able to live on the open plains?
- **A.** Their legs grew longer and allowed them to run faster.
- **B.** The horse became bigger and could run faster.
- **C.** The development of one toe allowed them to outrun their enemies.
- **D.** They traveled in groups and protected each other from their enemies.

Passage 2

It's a USA art form, but jazz has generally been given short shrift in our movies. And sure enough, in *Round Midnight*, it is a Frenchman, director/writer Bertrand Tavernier, who pays tender homage to the lives and music of some fictional '50s jazzmen.

Tavernier has made the film breathe with authenticity by hiring real musicians to play musicians. As Dale Turner, a declining, alcoholic jazz legend working in Paris in 1959, veteran tenor saxophonist Dexter Gordon is full of wit, dignity, poignancy, and style. With his great, expressive face, laconically delivering lines in a voice like rocks in a blender, Gordon is a revelation in his first film.

Francois Cluzet is also winning as a French artist who crouches in the rain outside Paris' recreated Blue Note club to hear his idol play; he later sacrifices money, tears, even his own bed for Turner, in the friendship that forms the basis of Round Midnight.

As fellow musicians, real-life jazzmen Herbie Hancock, Bobby Hutcherson and Wayne Shorter, among others, are also effective, and film maker Martin Scorsese has a cameo as Turner's vile USA manager. Alexandre Trauner's sets are uniformly outstanding.

Hancock also composed and arranged the music for *Round Midnight*, and it's here that the film succeeds like none before it. Nightclub performances were recorded live, providing superb sound quality and a chance to hear superb jazz musicians play without the charade of syncing.

Round Midnight isn't perfect. It's a bit long (130 minutes), and a bit short on plot. But Tavernier has made a film with heart and charm—and you don't have to be a jazz aficionado to dig it.

1. Which of the following best summarizes the review of *Round Midnight*?
- **A.** With authentic jazz players and good music, *Round Midnight is* a warm, enjoyable film.
- **B.** The superb jazz music in *Round Midnight* was composed and arranged by Herbie Hancock.
- **C.** Round Midnight is the story of jazz musicians who become good friends.
- **D.** Frenchman Bernard Tavernier has made a film about two jazz musicians in Paris.

2. According to the review, musician-actor Dexter Gordon is witty and dignified and has a voice that is
- **A.** smooth.
- **B.** soft.
- **C.** melodic.
- **D.** rough.

3. To which of the following types of audience would the author feel a viewer must belong in order to enjoy *Round Midnight*?
- **A.** authentic musicians
- **B.** French-speaking adults
- **C.** fans of fast-moving action films
- **D.** music lovers

Passage 3

The Karate Kid was one of 1984's smashes, grossing more than $100 million to date. That tale of the underdog overcoming tremendous odds was based on the relationship between the teenage Daniel (Ralph Macchio) and his personal martial arts mentor Mr. Miyagi (Noriyuki "Pat" Morita). With enough action to satisfy the popcorn gobblers, it was a complete summer movie.

Part II was born with an obvious predicament for director John Avildsen: how to reestablish yet broaden Macchio's and Morita's story without rehashing the original. It was a losing battle. In this sequel, Morita humbles his nemesis from the original movie (Martin Kove), and six months later Macchio announces that his mother is moving and his girlfriend has left him. So when Morita receives a letter telling of his father's illness, he heads for his native Okinawa, with Macchio in tow. They find that all is not as Morita left it 45 years before. For starters, his village is now part of a U.S. air base. Morita also has trouble with the local landlord (veteran character actor Danny Kamekona). Long ago, the landlord lost his honor when Morita stole his wife to be (Nobu McCarthy). "In Okinawa, honor has no time limit," says Morita, explaining why his former friend still holds the grudge and intends to fight him to the death over it. Despite the inevitable confrontations— one of them matches Macchio against Kamekona's nephew (Yuji Okumoto)—the fighting is again not at the film's heart. Honor, custom, and tradition are its focus, and the decidedly slow pace and beautiful village scenes, shot in Hawaii, lend some integrity to the plot. Morita also returns to his first love (McCarthy), while Macchio finds a new one (Tamlyn Tomita). Morita brings the same charm to the role that won him an Oscar nomination, and Macchio and the rest of the cast are workmanlike. But the film is ultimately too predictable, even somewhat tiresome, and *Karate Kid Part II* goes down kicking.

1. How is *Karate Kid Part II* different from *Part I* ?
- **A.** The two main actors are not the same in *Part II*.
- **B.** Fighting is at the heart of the film in *Part II*..
- **C.** One of the characters has a new love interest in *Part II*.
- **D.** It cost much more money to make *Part II*..

2. In the movie, why does the character played by Morita return to Okinawa?
- **A.** A family member is ill.
- **B.** His mother is moving.
- **C.** He is afraid the U.S. air base has changed his old home.
- **D.** He wants to help Macchio forget his problems.

3. Which of the following movie themes does *Karate Kid Part II* have as one of its main themes?
- **A.** Ambition
- **B.** Love and romance
- **C.** Vengeance
- **D.** Honor

4. According to the author, which of the following problems is likely to occur with most movie sequels?
- **A.** Getting the same actors to play their original roles
- **B.** Overcoming audience prejudice against sequels
- **C.** Including enough action in the sequel
- **D.** Reestablishing the original story without repeating it

Passage 4

A good layer of healthy topsoil is essential to productive agriculture. Yet the erosion of topsoil is one of our most serious problems, and a problem that is getting worse, not better.

Wind and water have always carried topsoil into the world's rivers and oceans. But human use of the land seems to have considerably speeded up the process. One geologist estimates that topsoil erosion-has nearly tripled since the introduction of human agriculture and grazing.

And the problem is the same in both industrial and underdeveloped nations. In the Third World, where populations are high and land scarce, farmers use steeply sloping land, which is easily eroded by water. Or they move into semi-arid regions where the plowed earth is vulnerable to erosion by wind. Even in the western provinces, many farmers have stopped the ecologically sound practice of long-term crop rotation in favor of summer fallowing, which leaves the land exposed.

Erosion has, basically, two effects on farmers' ability to grow food. When topsoil is lost or damaged, productivity decreases. Productivity may be increased by the use of fertilizer or through irrigation, but this is expensive. So farmers who lose topsoil will experience either lower crop yields or higher costs.

1. Topsoil erosion by wind and water has been speeded up by
- **A.** fertilizers and irrigation.
- **B.** excessive crop rotation.
- **C.** industrialization in the Third World.
- **D.** human agriculture and grazing.

2. In an area where winds blow away topsoil, a farmer might conserve that soil by
- A. planting new crops.
- B. planting trees.
- C. using fertilizer.
- D. summer fallowing.

3. What is the most likely effect topsoil loss would have on food prices?
- **A.** Prices will go up because less food can be grown.
- **B.** Prices will come down because more food can be grown.
- **C.** Prices will stay the same because production can be maintained by the use of fertilizer and irrigation.
- **D.** Retail prices will increase, but wholesale prices will not.

4. Which of the following is not supported in the article?
- **A.** Farmers who lose topsoil will experience lower crop yields or higher costs.
- **B.** Hydroponics is an alternative to conventional farming.
- **C.** In the Third World farmers use steeply sloping land, which is easily eroded by water.
- **D.** When topsoil is lost or damaged, production decreases.

5. Based on the information in the article, which of the following would be the most practical, long-term way to help Third World farmers?
- **A.** Train farmers to do industrial and technological jobs.
- **B.** Invest in fertilizer and irrigation to increase production.
- **C.** Teach them soil conservation methods, such as terracing and crop rotation.
- **D.** Make available low-interest loans so farmers can buy more land.

Passage 5

Most North Americans know better but they smoke, drink, shun seat belts, and don't use smoke detectors, a government survey indicates. The study, developed by the government's National Center for Health Statistics in consultation with other agencies, concluded that most North Americans know a lot about how to keep their health but many of them break the rules. Among the specific findings:

80 percent understand that smoking, high cholesterol, high blood pressure and diets high in animal fat will increase chances of heart disease, the leading cause of death in North America.

About one-third of the adults responding to the survey said they smoke.

8 percent were heavy drinkers, 21 percent moderate drinkers and 24 percent lighter drinkers. Twelve percent said they had driven while intoxicated at least once in the past year.

Less than one-half of the adult population exercise on a regular basis and only one quarter have done so for five or more years.

40 percent said their homes did not have a working smoke detector.

Only one-third of adults wore seat belts most of the time; another third never used seat belts.

1. According to the article, how many people in the study did not know what factors contribute to heart disease?
- **A.** 20 percent
- **B.** 80 percent
- **C.** 40 percent
- **D.** about one-third

2. A committee formed to improve North Americans' health would probably conclude from the information in the article that North Americans do not need
- **A.** a national seat belt law.
- **B.** tougher drunk driving laws.
- **C.** higher taxes on tobacco products.
- **D.** more education about how to stay healthy.

3. Which of the following is supported by data in the article?
- **A.** People who don't smoke or drink will live longer.
- **B.** One-third of all North Americans think that seat belts are too uncomfortable.
- **C.** Most North Americans do not have working smoke detectors in their homes.
- **D.** Slightly more than 50 percent of those in the study said that they drink.

4. The article suggests that North Americans break the rules of good health
- **A.** for economic reasons
- **B.** for unknown reasons
- **C.** because they don't understand the rules
- **D.** because they enjoy taking risks

Passage 6

Television is at its best when it is capturing the best things in American life. We tend to take television so much for granted that we seldom realize its power. That came home to me one day when I was on my way to address the National Association of Broadcasters in Washington, D.C. My train stopped in Baltimore and I was looking at all those red brick houses, each one abutting the next, with everything spick-and-span. Then I noticed that every one of those houses had an antenna on top, reaching up and symbolically saying, "Come into my house." When I got down to Washington, I told the convention broadcasters about this forest of antennas in Baltimore, and said, "You people right here today have got more influence in determining the future of the U.S. than anybody, because you are constantly pouring culture and ideas and images down all those antennas and into the minds of American youth."

As we proceed into the future, I think the medium's usefulness will be greatly entranced if broadcasters become more knowledgeable about the people they serve. Television must become humanized; it must speak to all our needs, not just our entertainment needs.

1. As used in the passage, what does the phrase "came home to me" mean?
- **A.** appeared on a local television station
- **B.** was given to me
- **C.** was realized by me
- **D.** returned to my house

2. On TV, the author would probably welcome an increase of
- **A.** cartoon shows.
- **B.** situation comedies.
- **C.** documentaries.
- **D.** westerns.

3. According to the passage, what influence do broadcasters have on the future of the United States?
- **A.** They try to show what the future should be like.
- **B.** They determine our entertainment needs.
- **C.** They reach homes all over the nation.
- **D.** They provide young people with ideas and images.

4. Why did the author compare the TV antennas he saw from the train to a forest?
- **A.** Both antennas and trees are useful to people.
- **B.** Both antennas and trees attract lightning.
- **C.** The antennas were surrounded by trees.
- **D.** There were so many antennas, and they rose up like trees in a forest.

5. Which of the following is a fact stated in the passage?
- **A.** Every one of the houses that the author saw in Baltimore had a TV antenna.
- **B.** Television is at its best when it shows the best of American life.
- **C.** Television must become humanized.
- **D.** Broadcasters should learn more about the people they serve.

6. This passage was most likely taken from
- **A.** an autobiography.
- **B.** an article for the general public.
- **C.** a novel.
- **D.** a textbook on TV communications.

Passage 7

The Cuban missile crisis began October 22, 1962, following intelligence reports that the U.S.S.R. had missiles in Cuba capable of hitting U.S. and Canadian targets. U.S. President Kennedy decided to surround Cuba with a naval blockade to halt approaching Soviet ships. Kennedy believed the ships were carrying the

means to complete the missile base. The U.S. President requested that Canada move its troops to an alert status. Canada quietly did so, but formal authorization was delayed while the Canadian Cabinet debated the situation. The entire world waited and watched as Soviet ships steamed toward Cuba, and as a huge American invasion force gathered in Florida. Then, to the great relief of everyone involved, the Soviet ships turned around. The crisis finally ended when the Soviets agreed to dismantle the missiles already in place in Cuba. In return the United States agreed not to invade the island.

1. Why was the Cuban missile crisis particularly upsetting to the United States?
- **A.** Americans were opposed to stationing troops in Florida.
- **B.** Hostile weapons were positioned close to U.S. borders.
- **C.** Soviet missiles in Cuba caused the Cold War (an intense rivalry between nations such as the U.S. and the U.S.S.R.).
- **D.** Cuban planes were flying over Florida.

2. In deciding to turn his ships around, Soviet Premier Krushchev must have believed that
- **A.** There was too great a risk of all-out war between the United States and the U.S.S.R.
- **B.** The United States would not invade Cuba.
- **C.** Canada would fight on the side of the U.S.S.R.
- **D.** The United States would not attack Soviet ships and risk war.

3. Why do you think the Canadian Cabinet was hesitant about responding to Kennedy's request?
- **A.** Canada agreed with the position of the U.S.S.R.
- **B.** Members of the Canadian Cabinet wanted to preserve the independence of Canadian foreign policy.
- **C.** The missiles in Cuba would not hit Canada in any case.
- **D.** The Canadian Cabinet was informed about the blockade only hours prior to it going into effect.

Passage 8

Modern English is full of bad habits which spread by imitation and which can be avoided if one is willing to take the necessary trouble. Language becomes ugly and inaccurate because our thoughts are foolish, but the slovenliness of our language makes it easier for us to have foolish thoughts, and so on indefinitely. Below are various means by which the work of good prose construction is habitually dodged.

Dying metaphors are used because they save people the trouble of inventing phrases for themselves. However, they have lost all evocative power. Examples are "toe the line" and "ride roughshod over." Many of these are used without knowledge of their meaning, and incompatible metaphors are frequently mixed. Some metaphors have been twisted out of their original meaning without those who use them even being aware of the fact.

Verbal false limbs save the trouble of picking out appropriate verbs and nouns. Characteristic phrases are "render inoperative" and "militate against." In addition, noun constructions are used instead of gerunds (e.g. "by examination of" instead of "by examining").

Pretentious diction is used to dress up a simple statement and give an air of scientific impartiality to biased judgements. Foreign words and expressions such as "mutatis mutandis," "status quo," and "weltanschauung" are used to give an air of culture and elegance. There is no real need for any of the hundreds of foreign phrases now current in the English language. The result, in general, is an increase in slovenliness and vagueness.

Meaningless words abound. The word "Fascism" has now no meaning except in so far as it signifies "something not desirable." The words "democracy," "freedom," and "justice" have each of them several different meanings which cannot be reconciled with one another. In the case of a word like "democracy," not only is there no agreed definition, but the attempt to make one is resisted from all sides. It is almost universally felt that when we call a country democratic we are praising it. Consequently the defenders of every kind of regime claim that it is a democracy, and fear that they might have to stop using that word if it were tied down to any one meaning. Words of this kind are often used in a consciously dishonest way. The person who uses them has his own private definition, but allows his hearer to think he means something quite different.

In our time, political speech and writing are largely the defense of the indefensible. Political language consists largely of euphemism, question-begging, and sheer cloudy vagueness. Defenceless villages are bombarded from the air: this is called pacification. Millions of peasants are sent trudging along the roads with no more than they can carry: this is called transfer of population or rectification of frontiers. People are imprisoned for years without trial: this is called elimination of unreliable elements. Such phraseology is needed if one wants to name things without calling up mental pictures of them.

Political language is designed to make lies sound truthful and murder respectable, and to give an appearance of solidity to pure wind. One cannot change this all in a

moment, but one can at least change one's own habits. If one gets rid of these habits one can think more clearly, and to think clearly is a necessary first step toward political regeneration.

1. A suitable title for this passage might be
- **A.** "The English Language and Politics."
- **B.** "The Evolution of the English Language."
- **C.** "Political Degeneration."
- **D.** "Foolish Thoughts."

2. The author's tone is
- **A.** ebullient.
- **B.** mournful.
- **C.** persuasive.
- **D.** mendacious.

3. According to the author,
- I. careless thinking can be caused by the inaccurate use of language.
- II. inaccurate use of language can be caused by careless thinking.
- III. the educational system is partly to blame for the degradation of the English language.

The correct choices are
- **A.** I is correct
- **B.** II is correct
- **C.** I and II are correct
- **D.** I, II, and III are correct

4. If language were used clearly, honestly, and accurately,
- **A.** politicians would find it more difficult to deceive.
- **B.** there would be world peace.
- **C.** dying metaphors would be saved.
- **D.** we would not have to think as much.

Passage 9

At the outbreak of World War II, thousands of Japanese Canadians resided in Vancouver and Victoria and along the Pacific coast. After Japan bombed Pearl Harbor in 1941, the government regarded Japanese Canadians as a threat to Canada's security. Under authority of the War Measures Act, more than 20,000 Japanese Canadians were removed to hastily built camps in the British Columbia interior. The government then sold the farms, homes, businesses, and personal property of the Japanese internees.

Although the loyalty of most was soon established, they were not allowed to return to their homes. Instead they were given the choice between deportation to Japan or being moved east to other parts of Canada. Many chose the latter option and moved to the Prairie provinces, Ontario, and Quebec. The government's attempt to deport 10,000 people was frustrated by massive public support of the Japanese Canadians.

The controversy over the legality and justice of the internment of the Japanese Canadians continues today. The RCMP argued that the Japanese Canadians had never posed a threat to security. Later, the government claimed it removed Japanese Canadians to protect them from mobs in British Columbia, despite the fact that only 150 letters and anti-Japanese resolutions were received. Many Canadians feel that Japanese Canadians are owed some type of apology or retribution.

1. During World War II, many Japanese Canadians were interned because they were
- **A.** seen as a threat to Canada's security.
- **B.** needed as farm laborers.
- **C.** causing financial ruin on the Pacific Coast.
- **D.** collaborating with the enemy.

2. Which of the following was not a result of the relocation?
- **A.** Many Japanese Canadians suffered financial ruin.
- **B.** Some were moved to the interior of British Columbia.
- **C.** Some moved to Ontario.
- **D.** Most were quickly returned to their homes on the Pacific coast.

3. Which of the following is opinion not fact?
- **A.** At the outbreak of World War II, thousands of Japanese Canadians resided in Vancouver and Victoria and along the Pacific Coast.
- **B.** The government used the War Measures Act to move all Japanese Canadians to the interior of British Columbia.
- **C.** Japanese Canadians are owed some type of apology or retribution.
- **D.** The government sold the farms, homes, businesses, and other property of the Japanese Canadians.

4. Some Canadians believe the treatment of Japanese Canadians during World War II was unjustified. With which of the following statements would those Canadians most likely agree?
- **A.** The civil liberties of Canadian citizens might be suspended during wartime emergencies.
- **B.** Since the Japanese Canadians never posed a threat to Canada's security, their civil liberties should not have been suspended.
- **C.** Japanese Canadians should have been deported.
- **D.** There is no situation in which the War Measures Act should be enacted.

Passage 10

Autograph seekers besiege him (Charles Wysocki) and students flood him with mail. As fast as his acrylic originals leave his studio in the San Bernardino mountains (about once every six weeks), they're sold to collectors for as much as $30,000 a piece. An American Celebration: The Art of Charles Wysocki sold out within three months of publication, and Wysocki's annual Americana *Calendar*. . . and posters are best-sellers as well. All this activity has added up to $7.25 million in sales since 1979.

Wysocki's only beef is never having had his work reviewed by art critics, a complaint that makes William Wilson of the Los Angeles Times testy. Says Wilson: "If they're inside the art system, they don't get ignored." That verdict doesn't keep other painters from following in Wysocki's brush strokes. "There are probably a half dozen artists all trying to do what Chuck does," says Dave Usher, who publishes Wysocki's work. "But none can touch him."

Wysocki began painting his rural scenes 22 years ago, after discovering the San Fernando countryside and the pristine timelessness of New England. His work evokes not only the stylized sentimentality of Norman Rockwell but also the simplicity of Grandma Moses, and yet manages to defy categorizing. "I'm too citified to be folk and too trained to be primitive," says Wysocki. The results are paeans to the past: colloquial scenes of neat clapboard houses and industrious apple-checked families working and frolicking under wind-stiff star spangled banners. Into these scenes Wysocki inserts familiar details—window boxes, doorsteps and lanterns, a cat on a sill, a vase on a table, tiny children's drawings in the panes of a schoolhouse window....

He prefers to think that his work is a vision of America as he'd like it to be. "In my paintings you don't see empty bottles or rags lying on the road," he says. "I don't think nostalgia has to be grubby. Maybe secretly I'm an environmentalist and would like to clean up America."

Born and reared in a working-class neighborhood of Detroit, Wysocki remembers that "walking down the street on holidays was like walking through a tunnel of red, white, and blue. As I started painting, these memories came through the brush and into the painting. That's one of the reasons I feel very patriotic. It's a reversion to my youth."

1. What does the author mean by stating, "The results are paeans to the past"?
- **A.** Wysocki's popularity is largely among older people.
- **B.** Wysocki's style has been copied from past artists.
- **C.** Wysocki's artwork praises the life of long ago.
- **D.** Wysocki developed his personal style long ago.

2. How would Wysocki describe his paintings?
- **A.** highly realistic
- **B.** plain and without detail
- **C.** a personal dream
- **D.** very similar to Norman Rockwell's paintings

3. What does William Wilson suggest about Wysocki?
- **A.** Wysocki is so good that others try to imitate him.
- **B.** Wysocki is very temperamental.
- **C.** Art critics give Wysocki's paintings good reviews.
- **D.** Wysocki is not really a part of the art system.

4. Which of the following would you think Wysocki painted?
- **A.** Summer in San Diego
- **B.** Independence Day: Enterprising Immigrants
- **C.** Bunker Hill: Soldiers in Battle
- **D.** City Factories

5. Which of the following devices used by the author is least helpful to the reader in visualizing Wysocki's paintings?
- **A.** having Wysocki describe his work
- **B.** describing Wysocki's popularity
- **C.** comparing Wysocki to Norman Rockwell
- **D.** describing Wysocki's painting of a schoolhouse

6. What kind of mood does Wysocki create for the viewer?
- **A.** sentimental
- **B.** industrious
- **C.** sad
- **D.** humorous

Passage 11

In the second half of each year, many powerful storms are born in the tropical Atlantic and Caribbean seas. Of these, only about a half a dozen generate the strong, circling winds of 75 miles per hour or more that give them hurricane status, and several usually make their way to the coast. There they cause millions of dollars of damage, and bring death to large numbers of people.

The great storms that hit the coast start as innocent circling disturbances hundreds - even thousands - of miles out to sea. As they travel aimlessly over water warmed by the summer sun, they are carried westward by the trade

winds. When conditions are just right, warm, moist air flows in at the bottom of such a disturbance, moves upward through it and comes out at the top. In the process, the moisture in this warm air produces rain, and with it the heat that is converted to energy in the form of strong winds. As the heat increases, the young hurricane begins to swirl in a counter-clockwise motion.

The average life of a hurricane is only about nine days, but it contains almost more power than we can imagine. The energy in the heat released by a hurricane's rainfall in a single day would satisfy the entire electrical needs of the United States for more than six months. Water, not wind, is the main source of death and destruction in a hurricane. A typical hurricane brings 6- to 12-inch downpours resulting in sudden floods. Worst of all is the powerful movement of the sea—the mountains of water moving toward the low-pressure hurricane center. The water level rises as much as 15 feet above normal as it moves toward shore.

1. When is an ordinary tropical storm called a hurricane?
- **A.** when it begins in the Atlantic and Caribbean seas
- **B.** when it hits the coastline
- **C.** when it is more than 75 miles wide
- **D.** when its winds reach 75 miles per hour

2. What is the worst thing about hurricanes?
- **A.** the destructive effects of water
- **B.** the heat they release
- **C.** that they last about nine days on the average
- **D.** their strong winds

3. The counter-clockwise swirling of the hurricane is brought about by
- **A.** the low-pressure area in the center of the storm.
- **B.** the force of waves of water.
- **C.** the trade winds.
- **D.** the increasing heat.

4. Apparently the word *downpour* means
- **A.** heavy rainfall.
- **B.** dangerous waves.
- **C.** the progress of water to the hurricane center.
- **D.** the energy produced by the hurricane.

Passage 12

The great advance in rocket theory 40 years ago showed that liquid-fuel rockets were far superior in every respect to the skyrocket with its weak solid fuel, the only kind of rocket then known. However, during the last decade, large solid-fuel rockets with solid fuels about as powerful as liquid fuels have made their appearance, and it is a favorite layman's question to inquire which one is "better." The question is meaningless; one might as well ask whether a gasoline or a diesel engine is "better." It all depends on the purpose. A liquid-fuel rocket is complicated, but has the advantage that it can be controlled beautifully. The burning of the rocket engine can be stopped completely; it can be re-ignited when desired. In addition, the thrust can be made to vary by adjusting the speed of the fuel pumps. A solid fuel rocket, on the other hand, is rather simple in construction, though hard to build when a really large size is desired. But once you have a solid-fuel rocket, it is ready for action at very short notice. A liquid-fuel rocket has to be fueled first and cannot be held in readiness for very long after it has been fueled. However, once a solid-fuel rocket has been ignited, it will keep burning. It cannot be stopped and re-ignited whenever desired (it could conceivably be stopped and re-ignited after a pre-calculated time of burning has elapsed) and its thrust cannot be varied. Because a solid-fuel rocket can be kept ready for a long time, most military missiles employ solid fuels, but manned space flight needs the fine adjustments that can only be provided by liquid fuels. It may be added that a liquid-fuel rocket is an expensive device; a large solid-fuel rocket is, by comparison, cheap. But the solid fuel, pound per pound, costs about 10 times as much as the liquid fuel. So you have, on the one hand, an expensive rocket with a cheap fuel and on the other hand a comparatively cheap rocket with an expensive fuel.

1. The author feels that a comparison of liquid- and solid-fuel rockets shows that
- **A.** neither type is very economical.
- **B.** the liquid-fuel rocket is best.
- **C.** each type has certain advantages.
- **D.** the solid-fuel rocket is best.

2. The most important consideration for manned space flight is that the rocket be
- **A.** inexpensive to construct.
- **B.** capable of lifting heavy spacecraft into orbit.
- **C.** easily controlled.
- **D.** inexpensive to operate.

3. Solid-fuel rockets are expensive to operate because of their
- **A.** size.
- **B.** fuel.
- **C.** burning time.
- **D.** complicated engines.

4. Which of the following statements is not characteristic of liquid-fuel rockets?
- **A.** The fuel is cheap.
- **B.** They can be stopped and re-ignited.
- **C.** They are cheap to build.
- **D.** They must be used soon after fueling.

Passage 13

The cicada exemplifies an insect species which uses a combinatorial communication system. In their life cycle, communication is very important, for only through the exchange of sounds do cicadas know where to meet and when to mate. Three different calls are employed for this purpose. Because of their limited sound producing mechanisms, cicadas can make only ticks and buzzes. The only way they can distinguish between congregation and courtship calls is by varying the rate with which they make ticks and buzzes. The congregation call consists of 12 to 40 ticks, delivered rapidly, followed by a two-second buzz. It is given by males but attracts cicadas of both sexes. Once they are all together, the males use courtship calls. The preliminary call, a prolonged, slow ticking, is given when the male notices a female near him. The advanced call, a prolonged series of short buzzes at the same slow rate, is given when a female is almost within grasp. The preliminary call almost invariably occurs before the advanced call, although the latter is given without the preliminary call occurring first if a female is suddenly discovered very near by. During typical courtship, though, the two calls together result in ticking followed by a buzzing—the same pattern which comprises the congregation call but delivered at a slower rate. In this way, cicadas show efficient use of their minimal sound producing ability, organizing two sounds delivered at a high rate as one call and the same sounds delivered at a slow rate as two more calls.

1. The cicada congregation call
- **A.** attracts only males.
- **B.** is given by both sexes.
- **C.** is given only by males.
- **D.** attracts only females.

2. During typical courtship, when a male first notices a female near him, he gives
- **A.** the two courtship calls together.
- **B.** a series of slow ticks.
- **C.** 12 to 40 rapid ticks.
- **D.** a two-second buzz.

3. How does the congregation call differ from the two courtship calls together?
- **A.** It is delivered at a slower rate.
- **B.** It is delivered at a faster rate.
- **C.** The ticks precede the buzzes.
- **D.** The buzzes precede the ticks.

4. According to this passage, why is communication so important for cicadas?
- **A.** It helps them defend themselves against other insect species.
- **B.** It warns them of approaching danger.
- **C.** It separates the males from the females.
- **D.** It is necessary for the continuation of the species.

Passage 14

Robert Spring, a 19th century forger, was so good at his profession that he was able to make his living for 15 years by selling false signatures of famous Americans. Spring was born in England in 1813 and arrived in Philadelphia in 1858 to open a bookstore. At first he prospered by selling his small but genuine collection of early U.S. autographs. Discovering his ability at copying handwriting, he began imitating signatures of George Washington and Ben Franklin and writing them on the title pages of old books. To lessen the chance of detection, he sent his forgeries to England and Canada for sale and circulation. Forgers have a hard time selling their products. A forger can't approach a respectable buyer but must deal with people who don't have much knowledge in the field. Forgers have many ways to make their work look real. For example, they buy old books to use the aged paper of the title page, and they can treat paper and ink with chemicals.

In Spring's time, right after the Civil War, Britain was still fond of the Southern states, so Spring invented a respectable maiden lady known as Miss Fanny Jackson, the only daughter of General "Stonewall" Jackson. For several years Miss Fanny's financial problems forced her to sell a great number of letters and manuscripts belonging to her famous father. Spring had to work very hard to satisfy the demand. All this activity did not prevent Spring from dying in poverty, leaving sharp-eyed experts the difficult task of separating his forgeries from the originals.

1. Why did Spring sell his false autographs in England and Canada?
- **A.** There was a greater demand there than in America.
- **B.** There was less chance of being detected there.
- **C.** Britain was Spring's birthplace.
- **D.** The prices were higher in England and Canada.

2. After the Civil War, there was a great demand in Britain for
- **A.** Southern money.
- **B.** signatures of George Washington and Ben Franklin.
- **C.** Southern manuscripts and letters.
- **D.** Civil War battle plans.

3. Robert Spring spent 15 years
- **A.** running a bookstore in Philadelphia.
- **B.** as a forger.
- **C.** corresponding with Miss Fanny Jackson.
- **D.** as a respectable dealer.

4. According to the passage, forgeries are usually sold to
- **A.** sharp-eyed experts.
- **B.** persons who aren't experts.
- **C.** book dealers.
- **D.** owners of old books.

5. Who was Miss Fanny Jackson?
- **A.** the only daughter of General "Stonewall" Jackson
- **B.** a little-known girl who sold her father's papers to Robert Spring
- **C.** Robert Spring's daughter
- **D.** an imaginary person created by Spring

Passage 15

In science the meaning of the word "explain" suffers with civilization's every step in search of reality. Science cannot really explain electricity, magnetism, and gravitation; their effects can be measured and predicted, but of their nature no more is known to the modern scientist than to Thales who first speculated on the electrification of amber. Most contemporary physicists reject the notion that man can ever discover what these mysterious forces "really" are. "Electricity," Bertrand Russell says, "is not a thing, like St. Paul's Cathedral; it is a way in which things behave. When we have told how things behave when they are electrified, and under what circumstances they are electrified, we have told all there is to tell." Until recently scientists would have disapproved of such an idea. Aristotle, for example, whose natural science dominated Western thought for two thousand years, believed that man could arrive at an understanding of reality by reasoning from self-evident principles. He felt, for example, that it is a self-evident principle that everything in the universe has its proper place, hence one can deduce that objects fall to the ground because that's where they belong, and smoke goes up because that's where it belongs. The goal of Aristotelian science was to explain why things happen. Modern science was born when Galileo began trying to explain how things happen and thus originated the method of controlled experiment which now forms the basis of scientific investigation.

1. The aim of controlled scientific experiments is
- **A.** to explain why things happen.
- **B.** to explain how things happen.
- **C.** to describe self-evident principles.
- **D.** to support Aristotelian science.

2. What principles most influenced scientific thought for two thousand years?
- **A.** the speculations of Thales
- **B.** the forces of electricity, magnetism, and gravity
- **C.** Aristotle's natural science
- **D.** Galileo's discoveries

3. Bertrand Russell's notion about electricity is
- **A.** disapproved of by most modern scientists.
- **B.** in agreement with Aristotle's theory of self-evident principles.
- **C.** in agreement with scientific investigation directed toward "how" things happen.
- **D.** in agreement with scientific investigation directed toward "why" things happen.

4. The passage says that until recently scientists disagreed with the idea
- **A.** that there are mysterious forces in the universe.
- **B.** that man cannot discover what forces "really" are.
- **C.** that there are self-evident principles.
- **D.** that we can discover why things behave as they do.

Passage 16

Dice, the plural of die, are small cubes used in games. They are usually made of ivory, bone, wood, bakelite, or similar materials. The six sides are numbered by dots from 1 to 6, so placed that the sum of the dots on a side and the opposite side equals 7.

A simple form of play with dice is for each player to throw, or shoot, for the highest sum. However, the most popular dice game in the United States is called craps. It is played with 2 dice and the underlying principle of the game is the fact that the most probable throw is a 7. On the first throw, if a player shoots a 7 or 11 (called a natural), he wins and begins again, but if he shoots 2, 3, or 12 (called craps) on the first throw, he loses. If on the first throw he shoots 4, 5, 6, 8, 9, or 10, that number becomes his point. He continues to throw until he shoots that number again (makes his point), in which case he wins and begins again. However, if he shoots a 7 before he makes his point, he loses and relinquishes the dice to the next player. Usually all others in the game bet against the thrower, and in gambling halls bets are made against the house.

1. In craps, a throw of 11
- **A.** always wins.
- **B.** sometimes loses.
- **C.** sometimes wins.
- **D.** becomes the point.

2. If one side of a die has three dots on it, the opposite side has
- **A.** 6.
- **B.** 4.
- **C.** 3.
- **D.** 7.

3. To shoot the dice means to
- **A.** throw them.
- **B.** lose.
- **C.** make a natural.
- **D.** make one's point.

4. In a game of craps, if a player throws a 5 and then a 3, he
- **A.** wins.
- **B.** loses.
- **C.** shoots again.
- **D.** makes his point.

5. In a game of craps, if a player throws a 6, 3, 4, 4, 6, 11, in that order, he has
- **A.** won twice.
- **B.** made his point twice.
- **C.** made two naturals.
- **D.** shot craps.

6. In a game of craps, if the player throws a 12 on his first throw
- **A.** he has the highest sum, so he wins.
- **B.** that number is his point.
- **C.** he has shot craps.
- **D.** he has made a natural.

7. What number is most probable on a throw of the dice?
- **A.** 7 and 11 have equal probabilities
- **B.** 7
- **C.** 11
- **D.** craps

Passage 17

Between 1347 and 1351, one-third of the European population died. The cause of death of all these people was the Bubonic Plague, better known as 'the Black Death.' Those few who survived developed an immunity to the disease.

An attack of the plague usually began suddenly with chills. This was followed by fever, and then headache and body pain. At the same time, the lymph glands would swell and people developed open sores. During the epidemic in Europe, spots of blood appeared under the skin from broken blood vessels. These spots turned black and led to the nickname Black Death.

The Bubonic Plague was brought to Europe by people returning from the wars fought to free the Holy Lands. These wars were called the Crusades. It struck at a time when the population in Europe was exploding and the amount of farmland was not sufficient to grow enough food. Farmland became overworked and crop yields dropped. Many people died of starvation during these times.

By 1350, the plague had spread all through Europe and one in three people were dead. Whole families and villages were wiped out. People infected with the disease often died in a matter of hours or days. Shops and factories closed. Nothing was more dreaded than the cry, "The Black Death is here."

The bacteria of the disease lived in fleas that lived and fed on rats. Since rats and fleas were everywhere in Europe at this time, people accepted them as commonly as we accept flies today. No one thought to control the rats to stop the Black Death.

The only group to escape the plague were the kings and nobility. Each time the plague was near, the kings moved to another town. Sometimes, these moves were made only hours before the plague struck the town.

Many changes were caused by the disease. The problems of overpopulation and not enough food were solved. Since so many people died, there was enough food for those who were left. The plague also helped improve wages. With less people to do the work, those still alive were paid higher wages.

Today, Bubonic Plague is still found in the world. However, sulfur drugs, along with improved health standards, limit the number of people infected.

1. What does the word exploding in paragraph 3 mean?
- **A.** blowing up
- **B.** growing rapidly
- **C.** dying
- **D.** using dynamite

2. Why did the phrase "the Black Death is here" cause fear?
- **A.** Many people were afraid to leave their homes and the Black Death would force them to leave.
- **B.** The Black Death would cause about half the people to die in a village or town.
- **C.** The coming of the Black Death would mean more rats and fleas.
- **D.** People were afraid of catching the Black Death, for which there was no known cure.

3. The problem of overpopulation was solved by the Black Death due to
- **A.** people leaving the villages and towns when the Black Death arrived.
- **B.** people being able to have children after they caught the Black Death.
- **C.** the Black Death killing over one-third of the people living in Europe.
- **D.** the Black Death improving both the food supply and wages.

4. Why was the Bubonic Plague called the Black Death?
- **A.** It killed many people.
- **B.** People only died at night.
- **C.** The Bubonic Plague caused a very slow, painful death.
- **D.** People with the plague had black spots all over their bodies.

5. Who or what brought the Bubonic Plague to Europe?
- **A.** people returning from the Crusades
- **B.** rats eating the garbage
- **C.** fleas living on the rats
- **D.** bacteria living in the fleas

6. What symptom happens second when a person catches the Bubonic Plague?
- **A.** chills over the body
- **B.** headache
- **C.** fever
- **D.** swelling

7. What is the central purpose of this passage?
- **A.** to show how the Bubonic Plague came to Europe
- **B.** to show how the Bubonic Plague began
- **C.** to show the causes of the Bubonic Plague
- **D.** to show the effect of the Bubonic Plague on Europe

8. Why would controlling rats stop the spread of the Black Death?
- **A.** Rats carried the fleas that spread the disease.
- **B.** Fleas live and feed on garbage.
- **C.** Rats caused the Black Death.
- **D.** Controlling rats would involve cleaning up the garbage.

Passage 18

The next time Halley's Comet will be seen in the United States will be in the year 2062. Because it passes within sight of the earth only about once every 76 years, most people see it only once in their lives.

The comet that bears Edmund Halley's name was first noticed by him in 1682, the year he was married. At that time, it lit up the night sky for weeks and caused many people to wonder if the world would end. People were afraid it would hit the earth and kill many people. However, Halley knew people had nothing to fear. In fact, using his friend Newton's new theories on gravity, he predicted this comet would return about the year 1758. Halley died in 1742 and never lived to see if his comet would return as he predicted. But it did return on Christmas night in 1758 and was again seen by minions of people. Since Halley had predicted the return of the comet, people began calling it Halley's Comet. Throughout early history, Halley's Comet had been called "The Flaming Sword" because of its shape and the legends that surrounded its sightings. Every appearance of the comet had supposedly caused war, famine, disease, and/or death of important people. To many people, Halley's Comet was an evil star, the bearer of bad tidings. One of the first recorded sightings was in 451 B.C. when Attila the Hun won a great victory over a country. Another was at the time of the war between Rome and Pompeii in 48 B.C. In fact, some Roman historians blamed the war on the comet. In 66 A.D., the comet appeared again, when the city of Jerusalem fell to the Romans. For the next 1000 years, war, disease, unusually cold winters, and famine continued to occur around the time the comet appeared. Only since the 1800's have people begun to realize that Halley's Comet is not evil. Halley's Comet is not the only comet in the sky. There are thousands of comets in our solar system. However, none has generated the tales of evil deeds or received publicity like Halley's Comet.

Today, we watch Halley's Comet through telescopes for scientific information. By examining the head of the comet and the particles in its tail, scientists think they can learn about how our universe was formed.

1. This passage is about
- **A.** the legends of Halley's Comet.
- **B.** how Halley's comet was predicted.
- **C.** the naming of Halley's Comet.
- **D.** the history and legends of Halley's Comet.

2. Which statement best describes the type of man Halley was?
- **A.** He was a gifted genius who developed many new ideas.
- **B.** He was a man who predicted the coming of a comet that bears his name.
- **C.** He was a friend and confidant of Newton.
- **D.** He was a famous scientist in his day who was not sure he was correct in his predictions.

3. How were Newton and Halley alike?
- **A.** Newton developed the theory of gravity while Halley identified the comet.
- **B.** Newton and Halley were scientists.
- **C.** Both men watched the comet that bears Halley's name in 1682.
- **D.** Both men were friends and studied together.

4. The phrase "the bearer of bad tidings" means
- **A.** a person who brings bad news.
- **B.** something that causes the tides to rise.
- **C.** something that causes problems to occur.
- **D.** a person who makes everything fine.

5. Which of the following statements is not a fact?
- **A.** The comet caused war, famine, and disease.
- **B.** The comet comes every 76 years.
- **C.** The comet appeared when Attila the Hun won a big victory.
- **D.** Some Roman historians blamed one war between Rome and Pompeii on the comet.

6. Halley was able to predict the coming of the comet because he
- **A.** knew it would return 76 years after he was married.
- **B.** guessed the time based on historical records.
- **C.** counted the number of years it had been to earth before.
- **D.** applied Newton's theory of gravity to the comet's path.

7. Halley's comet is important to the scientific community because
- **A.** when it appears, major problems usually occur somewhere in the world.
- **B.** scientists think they can learn about the formation of our universe by studying the comet.
- **C.** Halley's Comet is the only comet that comes near the earth.
- **D.** people have begun to realize that Halley's Comet is not an evil star.

8. One of the first recorded sightings of Halley's comet was
- **A.** in 451 B.C. when Attila won a great victory.
- **B.** in 48 B.C. when Rome was at war with Pompeii.
- **C.** in the year Halley was married.
- **D.** when Jerusalem fell to the Romans in 66 A.D.

9. Halley's name was given to the comet because
- **A.** it appeared in the year he was married.
- **B.** Halley first noticed the comet in 1682.
- **C.** Halley predicted the coming of the comet in 1758.
- **D.** Halley told people not to be afraid of the comet.

Passage 19

People turn to history to learn about the past. However, many events that have great effects upon people are seldom found in history books. These events are natural disasters. They receive coverage in newspapers, on radio, and on TV, but they are not usually recorded in textbooks. Tornadoes, hurricanes, earthquakes, and volcanic eruptions cause some of the greatest problems to people, yet they are usually remembered many years later by only a small number of people. The Chicago fire of 1871 and the San Francisco earthquake and fire of 1906 are possible exceptions. They do receive mention in some texts. However, one wonders if the eruption of Mt. St. Helens, the recent numerous California earthquakes, or Hurricane Andrew in 1992 will ever receive similar attention.

The devastation caused in a matter of hours by Hurricane Andrew makes it the most costly natural disaster in United States history. With winds that reached 164 miles per hour, the storm left whole towns in ruin. Andrew's effects were most evident in a 20-35 mile wide area south of Miami, Florida. However, it also swept across the Gulf of Mexico and continued its destruction in the low-lying lands of Louisiana. Around Miami, not only were homes and businesses damaged and destroyed, but water, sewage, and electricity were affected. Without air conditioning and refrigeration, food spoiled and living conditions became very difficult. Food, water, medicine, and gasoline were desperately needed, but the roads were closed because of the debris from the storm.

In Louisiana, the damage was somewhat lessened when the path of the storm veered away from the city of New Orleans. Nevertheless, the state was hit hard by the winds and rains of Andrew. Farmers were especially affected. Their sugar cane fields were badly damaged by the hurricane. This was an especially devastating blow for them because they had had several years of poor production. They were afraid that they might lose their farms.

Will this particular catastrophe be recorded in future history books? Probably not. It will probably fade from the memory of those who only read about the damage caused by the storm. But, it will remain a lasting memory for those who lived through this costly natural disaster. They will remember both the power of nature and the response of people to their plight.

1. What is the central idea of this passage?
- **A.** that natural disasters can cause a large amount of damage.
- **B.** that history books do not always record every natural disaster.
- **C.** that history books include the most important disasters.
- **D.** that natural disasters are important events in the lives of all people.

2. According to the passage, why would the Chicago Fire of 1871 and the San Francisco earthquake and fire of 1906 be included in some history texts while other, more recent, natural disasters are not?
- **A.** The two events brought major changes to these two important cities.
- **B.** There are more natural disasters today and we can't learn about all of them.

C. Students don't need to know about natural disasters as much now as they once did.
D. Writers don't want to write about disasters in today's textbooks.

3. Months after Andrew, why was the Miami area still feeling the effects of the hurricane?
A. The winds were still blowing very hard.
B. The waters were still flooding some of the low-lying areas.
C. The people were still talking about the storm.
D. People were still repairing damage to homes and businesses.

4. What would be the first thing people would do after the storm?
A. rebuild their homes
B. clear the roads of debris
C. go to the stores for food
D. turn on the electricity

5. What was a major concern of the Louisiana farmers?
A. They lost their electricity.
B. They had no food.
C. Their sugar cane fields were destroyed.
D. They could lose their farms.

Passage 20

Certain diseases have indirect methods of transmission, frequently living in alternate hosts. Malaria, a disease that has almost disappeared from the United States but is still among the most common plagues of the tropics, passes from person to person via an insect vector, the Anopheles mosquito.

The malarial parasite has a complex life history. It enters the bloodstream of a human through the bite of a mosquito and travels to the liver. Here it multiplies. The offspring move back into the bloodstream where they enter red blood cells and continue to multiply, destroying red cells as they do so. The parasite usually multiplies by simply dividing, but from time to time special forms are produced that can be "male" and "female." If the normal forms are picked up by a mosquito while it is sucking blood, they die in the mosquito's stomach. If the male and female forms are picked up, a male parasite may form a flagellated structure that unites with a female parasite, producing a single new individual. This new form then squeezes through the stomach wall of the mosquito and starts to divide, eventually forming hundreds of individuals within the insect. These individuals eventually migrate through the mosquito's body to the salivary glands, where they remain until the mosquito next takes a blood meal.

When a mosquito "bites," it probes through the skin until it locates a blood vessel or, by breaking several vessels, forms a small pool of blood. Blood, of course, clots, and thus might plug up the mosquito's mouth parts. But this usually does not happen. The mosquito injects some saliva into the blood, and in most species this saliva contains a substance that prevents clotting. If the mosquito has malarial parasites in its salivary glands, these are injected along with the saliva, and the parasite finds a new human host.

1. Malaria is transmitted from one person to another by
A. an insect.
B. eating infected food.
C. coughing and sneezing.
D. All of the above.

2. A man is bitten by an Anopheles mosquito that, on the previous day, bit another man who was suffering from malaria. The chances of the man bitten last becoming infected with malaria are
A. good.
B. uncertain.
C. poor.
D. absolutely certain.

3. When a mosquito bites, it injects saliva into its victim. This is of advantage to the mosquito because it
A. poisons the victim.
B. transmits malaria.
C. prevents the victim's blood from clotting in the mosquito's mouth parts.
D. causes the bite to itch.

4. If mosquitoes worried about malaria, they would call a person a
A. vector.
B. parasite.
C. plasmodium.
D. All of the above.

5. Suppose that a certain tropical country has a large proportion of its population ill with malaria. Suppose, also, that these people can use only one at a time the following ways of combating the disease. Their first choice should be to
A. give everyone medicine that will cure malaria.
B. get rid of mosquitoes.
C. build hospitals.
D. give injections only to people ill with malaria.

Passage 21

Nitrogen is the most abundant element in the atmosphere, making up 78 percent of the volume of dry air. Combined with other elements, nitrogen occurs in a great number of compounds, both inorganic and organic. The chief inorganic compound is the salt, sodium nitrate. Nitrogen is the most important element in proteins, and proteins are the basic constituents of protoplasm. Hence, nitrogen is as vital to life as oxygen is.

A complex relationship exists between plants and animals and nitrogen. This relationship is known as the nitrogen cycle. Briefly, the cycle operates in the following manner. Certain bacteria, known as nitrogen-fixing bacteria, take gaseous nitrogen directly from the atmosphere and convert the nitrogen into part of their own protoplasm. Colonies of these bacteria live on the roots of certain plants called legumes. Examples of legumes are alfalfa, soy beans, and clover. Legumes, in their growth, make use of some of the nitrogen-containing substances in the protoplasm of the bacteria on their roots. These substances are used in the formation of plant proteins.

Plants die and are decomposed by certain kinds of bacteria and molds, and the former plant proteins become nitrogen-containing compounds in the soil. These compounds, mostly nitrates, can be used by any plants to build proteins.

Herbivorous animals eat plants and some of the plants' proteins (with their nitrogen) become animal protein. The animals excrete nitrogen-containing compounds in their waste matter which eventually becomes part of the soil. Animals die and decomposers (certain bacteria and fungi) break down animal proteins, making them part of the soil along with decomposed plant proteins. In this manner, animal protein becomes a source of nitrogen for plants.

Some of the nitrates in the soil are acted upon directly by so-called denitrifying bacteria, which change the nitrates to nitrous oxide, which escapes into the atmosphere where it eventually splits into nitrogen and oxygen. Thus, gaseous nitrogen is returned to the atmosphere, and the nitrogen cycle is complete.

A relatively small amount of nitrogen in the air is converted by lightning into oxides of nitrogen. These combine with water vapor, forming dilute nitric acid, which is carried by rain into the soil. Here nitrates are formed and are used by plants.

1. Before the twentieth century, farmers would plant a field with food crops for one or two years, then, in a third year, plant the field with clover or alfalfa and plough this crop into the soil. They did this in order to
- **A.** increase the amount of nitrogen in the soil.
- **B.** give the soil a rest from bearing food crops.
- **C.** have the denitrifying bacteria put nitrogen into the soil.
- **D.** None of the above.

2. If nitrogen-fixing bacteria suddenly were to disappear from earth, the nitrogen cycle could continue because of the action of
- **A.** plants.
- **B.** lightning.
- **C.** legumes.
- **D.** denitrifying bacteria.

3. From the nitrogen cycle, it is possible to make a good guess that the first living things on land were
- **A.** animals.
- **B.** plants.
- **C.** amphibians.
- **D.** crawling fish.

4. Since there were no legumes before the first plants lived on land (plants lived in the seas and other bodies of water before invading the land), the nitrogen compounds needed by land plants probably were put into the earth's early soil by
- **A.** lightning.
- **B.** sunlight.
- **C.** water plants.
- **D.** Both A and B.

Passage 22

Among the most puzzling microbes are the flagellates, which move about by making use of one or more long, whip-like extensions of the body called flagella (singular, "flagellum"). Flagella are somewhat like cilia: both are flexible, movable, hair-like projections from the surface of the organism. When few in number and long in proportion to the size of the organism, these structures are called flagella: when numerous and short, they are called cilia. As a rule, the movements of flagella are independent of each other, whereas the movements of cilia are coordinated. Recent electron-microscope studies have revealed that flagella and cilia are remarkably similar in internal structure, no matter where they occur in the protist, plant, or animal kingdoms.

Some flagellates contain chlorophyll, synthesizing their own food when light is present. When light is not present, they may digest food particles in the surrounding water and absorb the products. Other species lack chlorophyll

but capture smaller microorganisms, such as bacteria, and digest them internally. Such a mixture of "plant" and "animal" characteristics has made the classification of flagellates extremely difficult - especially when only two kingdoms are recognized.

Flagellates are abundant in soil, in fresh water, and in the ocean. Among the most common are the species of the genus Euglena, great numbers of which often tint a pond bright green in late summer. All species of Euglena have a flexible outer covering and spirally arranged contractile fibers that permit a shortening or lengthening of the body. In moving from place to place, a Euglena extends its whip-like flagellum into the surrounding water; then, by quickly curling the whip, the organism draws itself in that direction, contracting and elongating its body and revolving on its long axis.

Many flagellates live in very close community relationship with other organisms - symbiosis. These relationships may be parasitic or mutualistic. For example, some live in the intestines of certain cockroaches and termites. There they digest cellulose, a substance abundant in the wood eaten by the insects. Without the flagellates, the termite or roach would starve to death, just as we would on a cellulose diet; for neither we, nor the insects, can digest this material. Thus the insects obtain food from the digestive activity of the flagellates, and the flagellates, in turn, get a moist place to live and a convenient supply of food - the wood chewed up by the insects.

In fresh water and in the ocean, there are flagellates that have cellulose built into their own bodies. The cellulose is in walls of sculptured plates that are fitted together like armor. These are the dinoflagellates. Most dinoflagellates swim in the upper levels of the ocean, where they can carry on photosynthesis. But many obtain food from decaying matter, and still others capture and digest bacteria. One of these more animal-like dinoflagellates is the permanently naked Noctiluca, which emits a flash of light when stimulated. Often, at night, so many Noctiluca are agitated by the swirling of a human swimmer or the wake of a boat that the water becomes filled with their little sparkling points of light.

1. The author indicates that flagellates
- I. are somewhat like cilia
- II. exist primarily in soil
- III. use chlorophyll almost to the exclusion of all else

The correct combination is:
- **A.** I only
- **B.** I and III
- **C.** I and II
- **D.** None of the above

2. According to the passage, the digestion of cellulose
- **A.** cannot be achieved by microbes, humans, or insects.
- **B.** by termites allows the flagellates to provide food.
- **C.** is a good example of symbiosis.
- **D.** by certain microbes is essential to the life processes of certain insects.

3. The most common of the flagellates are characterized by their
- **A.** inhabiting upper levels of oceans.
- **B.** ability to digest cellulose.
- **C.** spirally arranged contractile fibers.
- **D.** ability to emit light.

4. In order to synthesize their own food, flagellates
- **A.** need only exist in an environment where light is present.
- **B.** must be able to digest food particles when light is not present.
- **C.** depend almost entirely on ecology.
- **D.** must contain chlorophyll.

5. The classification of flagellates as either plants or animals is difficult because
- **A.** many flagellates live in close community relationship with other organisms.
- **B.** their hair-like projections are similar to other organisms.
- **C.** some flagellates contain chlorophyll while others do not.
- **D.** they are puzzling.

6. According to the passage, the Noctiluca
- **A.** exist by swimming in the upper levels of the ocean so as to be able to carry on photosynthesis.
- **B.** exist by obtaining food from decayed matter.
- **C.** emit a flash of light at periodic intervals.
- **D.** are really not in the flagellate category.

7. The whip-like extensions of the body of flagellates
- **A.** are called cilia when few in number and short in projection to the size of the organism.
- **B.** are called flagella when the cilia is dissipated.
- **C.** would probably be flagella if their movements were independent of each other.
- **D.** are capable of regrowth if severed.

8. The flagellates containing their own natural supply of cellulose
- **A.** are known as dinoflagellates.
- **B.** are the night-swimming Noctiluca.
- **C.** are sometimes called Euglena.
- **D.** do not, as a rule, require photosynthesis to exist.

9. It can be inferred that some dinoflagellates
- **A.** inhabit lower levels of the ocean.
- **B.** do not require cellulose wall plates for survival.
- **C.** depend on insects which eat wood for survival.
- **D.** are more adaptable to soil than others.

10. With which of the following would the author probably agree?

I. Little is known about flagellates by scientists.

II. Flagellates can exist almost anywhere on our planet.

III. Because flagellates have characteristics found in both the plant and animal kingdoms, they can only be described with great difficulty.

The correct combination is:
- **A.** II only
- **B.** I only
- **C.** II and III
- **D.** I and II

Passage 23

Perhaps the most important carryover of Roman law into our law is the statutory insistence, both then and now, that the adopted child be completely assimilated into the family of the adopter. The adoptee lost what was his originally by birth and passed completely out of his natural family.

On the death of the Roman empire began the slumber of adoption by judicial process, a characteristic of adoption in Western culture. During the feudal period, no unwanted children existed as such. The feudal lord had responsibility for all of the persons in his charge. Thus, the children may have been ill-treated or neglected, but they were never outcasts.

Adoption, as we know it, reappeared in Europe under the Code Napoleon of the early nineteenth century. Napoleon's Civil Code of 1804, which was based on Roman law, recognized adoption, but only persons over twenty-one could be adopted and only those over fifty could adopt. The Code Napoleon and the adoption laws of all European countries, which are based thereon, in whole or in part, were primarily concerned, not with the interests of the adoptee, but with inheritance rights. Indeed, it was not until 1925 that the Code Napoleon was changed to allow minors to be adopted. The great number of orphans and illegitimate children resulting from World War I caused this change.

Adoption first entered the United States through those states which based their laws upon the European civil codes. Based upon Napoleon's Civil Code, the Louisiana Civil Code of 1808, Article 35, allowed adoption by any person forty years or older, and required the adoptive child to be at least fifteen years younger than the adopting parents. Later, adoption was abolished by the Louisiana Civil Code of 1825, Article 214. As French law influenced Louisiana statutes, so too did Spanish law influence early Texas legislation. In 1832, while subject to Mexican rule, Texas was under Spanish law, and emphasis on the adoptee as heir was carried over. However, Spanish law differed from other European civil law in that a person having living legitimate children could not adopt a stranger to be a coheir with his natural children. To circumvent this prohibition, the adoptive parent had to make an inter-vivos gift.

In Texas, the person adopted succeeded as heir to the adopter, but the adoption did not make the adoptee a member of the adoptive family as such. The adoptee neither received the full benefits nor was obligated with the duties which usually flow from adoption. The entire adoption was purely a technical matter. The adoption law required that the adoption be formalized by the joint appearance of the natural father and the adoptive father before a judge and by the execution at that time of an instrument ("deed") which testified to the act. This instrument was then recorded in much the same way that a deed is recorded today. Adoption by deed also occurred in other states, such as Iowa and Pennsylvania, but the statutes which permitted this have been repealed over the years. Now every state mandates that an adoption be formalized by a judicial procedure.

1. Adoption by deed can now occur in
- **A.** Iowa and Pennsylvania.
- **B.** Texas and Louisiana.
- **C.** Louisiana and Pennsylvania.
- **D.** None of the above.

2. There was no adoption in the feudal period because
- **A.** there were no unwanted children.
- **B.** all orphans were considered as property of the state.
- **C.** the feudal lord was responsible for everyone in his domain.
- **D.** children were left to fend for themselves because of the "lex romanicae."

3. The most important facet of Roman adoption law that has been carried into our law is that
- **A.** only persons over twenty-one could be adopted.
- **B.** the adopted person was completely assimilated into his new family.
- **C.** adoption could be by deed.
- **D.** adoption could be formalized by a joint appearance by the natural and adoptive father before a judge.

4. An inter-vivos gift is
- **A.** leaving property in one's will.
- **B.** a gift made by a living donor.
- **C.** a gift to one's illegitimate children.
- **D.** a gift by deed.

5. The adoption laws of European countries were changed after World War I due to the
- **A.** great number of orphans and illegitimate children.
- **B.** disillusionment with the Napoleonic code.
- **C.** desire to change the structure of inheritance laws.
- **D.** influence of new leadership.

6. Under Napoleon's Civil Code of 1804, the following was true: Only persons
- **A.** under 15 could be adopted.
- **B.** over 15 [ear than 21 could be adopted.
- **C.** over 21 could be adopted.
- **D.** over 21 could adopt.

7. Adoption first entered the United States through states
- **A.** which based their adoption laws on Roman law.
- **B.** which based their adoption laws on feudal practice.
- **C.** which based their adoption laws on European laws.
- **D.** which based their adoption laws on natural law.

8. The author approves of which of the following?
- **A.** Adoption by deed
- **B.** Feudal adoption practices
- **C.** Texas and Louisiana adoption law
- **D.** The concept that the person adopted be fully assimilated into the family

9. It is implied in the passage that the adoption procedure in Texas was primarily to
- **A.** provide a home for orphans.
- **B.** legalize illegitimate children.
- **C.** provide work for lawyers and judges.
- **D.** enable a person to make another his heir by adopting him.

10. According to the passage, Spanish adoption law differed from other European civil law in that
- **A.** adoption could be performed by deed.
- **B.** only persons over fifty could adopt.
- **C.** adoption was not possible under Spanish adoption law.
- **D.** a person having living legitimate children could not adopt a stranger.

Passage 24

The rise of the executive branch to pre-eminence and the blurring of the traditional division of functions are not due solely to the increase of governmental activities. Besides the organization of the career civil service, a second great innovation of the nineteenth century was the new kind of party system with its mass following. Political parties had no place in the calculations of those who espoused the doctrine of the separation of powers, an omission which, though regrettable, is not altogether surprising for a period when parties were despised as factions. But their impact on the separation of powers was bound to be felt after the extension of the franchise had encouraged the electorate to mobilize under the banner of parties and thus compete for control of the state.

Thus it was that in mid-nineteenth century America the parties made their onslaught upon the institutions of government. They regarded jobs in public offices as the spoils of political warfare, to be looted after an electoral victory. The patronage thus obtained was used to grease the party machine. But simultaneously it filled the civil service with partisan employees of uncertain tenure and dubious qualifications. Almost the same treatment was accorded to the judiciary. Control of the courts was necessary to the party because of the key role they played in law enforcement plus their power of judicial review. Where judges were elected to the bench, as in many state and local governments, the parties determined the selection of candidates and ensured the support of the voters. Otherwise, if judicial office were filled by appointment, the party could influence the chief executive who made the nomination and the senate that confirmed. The capture of the legislature, and of elective posts in the executive branch, was achieved through the electoral system, where the parties maintained a firm grip on nominating procedures and methods of balloting. Often without holding any public office himself, a boss was able by his unchallenged mastery of the party machine to achieve a concentration of power that violated the fundamental concepts of American democracy.

The popular reaction, however, to the scandals, which in this instance, as always, accompanied excessive power, ushered in a trend of reforms, designed to purify the processes of government and restore to the people their birthright of political authority. Slowly, but surely and inexorably, the evil of bossism, entrenched in so many sectors of American public life, has been attacked and, if not completely eradicated, at least reduced to smaller and safer proportions. Administrators and judges must be kept independent of party pressure in one case through security of tenure and appointment by merit, and in the other by nonpartisan election or selection.

While dikes and dams were thus erected to hold back the floodwaters of party power, alternative channels had to be provided in which the new pressures could usefully and legitimately flow. Since parties inevitably brought politics in their train, any place in the governmental system that fitted one was appropriate for the other. Plainly then, the correct fields for parties to penetrate and occupy were the legislature and the elective offices of the executive branch. These areas were rightfully theirs. Nobody would want to see the parties ejected from the institutions that represent and translate the preferences of the voting public on broad issues of economic and social policy. But that being so, if it were permissible for the parties to capture the presidency and governorships and to organize majority and minority caucuses in Congress and the state legislatures, the structural separation of the executive and legislative branches was certain to be modified by the party tie. Though discipline within the party may not always be strong, though there may be opposition to the leadership of the chief executive, nevertheless a common interest of a sort - even if it is no more than the desire to keep their side in power - unites all those who bear the same label.

1. Among the contributing factors in the blurring of distinctions between the three branches of the American government, is
- **A.** the impact of the reform of party control of the judiciary.
- **B.** the influence of parties on patronage.
- **C.** political bosses who held no office of their own.
- **D.** the increase of governmental activities.

2. It can be inferred that the writers of the Constitution
- **A.** were in favor of a party system.
- **B.** were unalterably opposed to the two-party system.
- **C.** gave little or no thought to a party system at all.
- **D.** envisioned a two-party system but were unsure of its ramifications.

3. The author implies that the main uniting intra-party force is
- **A.** the electorate.
- **B.** a common desire for power.
- **C.** the leaders of the party.
- **D.** the need for unanimity.

4. According to the passage, the main danger of party politics is the
- **A.** influence the party may have on presidential decision.
- **B.** likelihood of graft.
- **C.** chance that a dictator may usurp power in the United States.
- **D.** influence the party may have on courts and the civil service.

5. In the nineteenth century, parties regarded political positions as
- **A.** the rewards of the political arena to be looted after election.
- **B.** places to put unwanted party workers.
- **C.** steps to higher office.
- **D.** an excellent means of ensuring continued loyalty from members.

Passage 25

Strontium-90, like other radioactive isotopes of elements, has probably always existed in the biosphere in small amounts. But recent activities of man, particularly the testing of atomic weapons, have increased the quantity of strontium-90. Chemically, strontium is very much like calcium and is used by organisms in a similar way. But if calcium in an animal is replaced by strontium-90, the strontium-90 releases radiation that harms or kills living tissues. Strontium, like calcium, can be passed from green plants to cows, and from cows' milk to man. But not all the strontium-90 that might be in a cow's food goes into her milk; much of it stays in her own skeleton or passes out as wastes. In fact, the metabolism of a cow discriminates against strontium in synthesizing muscle and milk. The contaminated plants a cow eats contain twice as much strontium as the cow's muscles and seven times as much as her milk. If strontium-90 pollutes the atmosphere, it is obviously safer to drink milk than to eat green vegetables.

Perhaps more dangerous at present than radioactive substances are pesticides. Because of the basic similarity in metabolism of all living things, it is difficult to find a substance that is poisonous to one organism and not to another, particularly another closely related one. For example, a substance poisonous to wasps (which might be considered pests) is very likely to be poisonous also to honeybees (which seldom are considered pests).

In the struggle to produce enough food for the growing human population, poisons against many kinds of fungi, nematodes, mites, insects, and other organisms are necessary. But the ever-increasing use of these poisons endangers the biosphere. Some (DDT, for example) are very resistant to chemical change. Therefore, even small amounts of DDT, when used repeatedly, build up to large amounts in soil and water. Further, some poisons are concentrated in the bodies of organisms; DDT accumulates especially in fats. In Clear Lake, California, DDT was applied at the rate of 14, 20, and 20 parts per billion of lake water in 1949, 1954, and 1957,

respectively. In 1957, all lake organisms that were tested contained DDT. Fatty tissues of the aquatic birds called grebes that had died from poisoning were found to contain concentrations of DDT 80,000 times greater than that in the lake water. Fat in some fishes showed a concentration of DDT 140,000 times greater than that in the lake water.

1. Although strontium-90 and calcium are chemically similar, the difference that makes strontium-90 a poison is that strontium-90
- **A.** replaces calcium in the tissues of living organisms.
- **B.** is a pesticide.
- **C.** collects in the fatty tissues of organisms.
- **D.** is radioactive, releasing radiation that harms or kills living tissues.

2. The first stage in the process by which strontium-90 gets into milk is that
- **A.** a cow synthesizes strontium-90 in her muscles.
- **B.** a green plant synthesizes strontium-90 in its tissues.
- **C.** a green plant takes up strontium-90 from its environment.
- **D.** Both A and B.

3. Animals can habitually eat green plants or drink water containing DDT without suffering immediate harm and yet eventually die from DDT poisoning because
- **A.** DDT becomes fatal only at certain times of the year.
- **B.** DDT collects in the animals' fatty tissues.
- **C.** it takes time for a lethal dose of DDT to collect in the fatty tissues.
- **D.** Both B and C are correct.

4. When a cow eats plants contaminated by strontium-90, her metabolism
- **A.** passes one-seventh of the strontium-90 into her milk.
- **B.** holds back all the strontium-90 from her milk.
- **C.** prevents six-sevenths of the strontium-90 from going into her milk.
- **D.** Both A and C are correct.

5. A beekeeper who had an orchard that was invaded by a swarm of wasps would have to be careful in choosing a pesticide for use against the wasps because
- **A.** the pesticide would probably hurt the apple trees.
- **B.** a pesticide would accumulate in the fatty tissuesof the bees.
- **C.** a pesticide that killed wasps would probably also kill bees.
- **D.** None of the above.

Passage 26

A rabbit and a raspberry bush: One is an animal; the other, a plant. One moves around; the other is rooted in a particular place. All of us can tell an animal from a plant, a rabbit from a raspberry bush!

This looks clear enough. But if we try to work out clear and inclusive definitions, we get into trouble. Everyone who has looked into the matter agrees that corals and sponges are animals. Yet they are as fixed in position as any plant. Then there are things called slime molds, which are sometimes classed as plants but do a great deal of creeping about. And in the microscopic world there are many creatures that move about actively, as most animals do, but use the energy of sunlight for building up foods, as do most plants. Presently we find ourselves in a state where we no longer know the difference between all plants and all animals.

Let us try another way of looking at the matter. The rabbit is hiding under the raspberry bush. This is important, for most animals must have some place to hide, some kind of shelter. Even more important, the rabbit must have food. Rabbits usually do not eat raspberry bushes, though they would not scorn the young shoots in time of need. But rabbits and raspberry bushes do not live alone. Around the raspberry patch are many other kinds of green plants that rabbits like.

We can call such green plants the producers of the living world, since they build up foods by using the energy of sunlight, and the rest of the living world depends on this production. Rabbits, which cannot make food in this way, are consumers—that is, "eaters." Because they feed directly on the green plants, they are called first-order consumers. Foxes, cats, wolves, and hawks eat rabbits. Besides these larger animals, there are fleas in a rabbit's fur, worms in its intestine, and mosquitoes seeking out its pink ears. These are second-order consumers. But wolves may also have fleas, which are then third-order consumers. Even higher-order consumers may be found, each order a step farther from the food producers. Thus, the producers are the basis of a complicated network of consumers.

1. All carnivores habitually are meat-eating animals; therefore, they are
- **A.** first-order consumers.
- **B.** second-order consumers.
- **C.** third-order consumers.
- **D.** not all classifiable in a single consumer order.

2. Many bacteria are producers. Single-celled animals, such as amoebas, eat these bacteria. Therefore, amoebas are
- **A.** producers.
- **B.** first-order consumers.
- **C.** second-order consumers.
- **D.** None of the above.

3. All plants can be distinguished from all animals because
- **A.** all plants have green leaves.
- **B.** plants are fixed in one location.
- **C.** plants alone use the energy of sunlight to make foods.
- **D.** None of the above.

4. Human beings are
- **A.** producers.
- **B.** higher-order consumers.
- **C.** first-order consumers.
- **D.** Either B or C.

5. When a human being eats caviar (fish eggs), he is a
- **A.** third-order consumer.
- **B.** second-order consumer.
- **C.** first-order consumer.
- **D.** Impossible to tell.

Passage 27

We could spend a lifetime observing in a helter-skelter manner without learning very much about our world. But mere observation is not science. The observations of the scientist are usually guided by the statement of a problem. Of course, we seldom become aware of problems unless we have observed at least a little. So the relation between problem and observation is something like the relation between the chicken and the egg: which comes first?

One of the most frequent results of observation is to raise specific questions in the mind of the scientist. We do not know how this occurs, nor do we know why certain questions stir the curiosity of some persons and not others. But with curiosity aroused, the scientist applies his imagination to the task of designing a specific statement that can be tested. Such a statement is a hypothesis. It is the starting point for an experiment. An experiment attempts to determine the truth or falsity of a hypothesis. Again the scientist needs imagination to dream up an experiment that fits the problem. In more formal language, a scientist needs imagination to design an experiment that will produce data from which a decision concerning the hypothesis can be made. Even in an experiment, observation remains a basic activity of the scientist, because these data (those obtained from the experiment) are observations.

Often observations must be made indirectly by means of instruments. Some of the instruments used by scientists are quite simple and have been used for a long time. Others are quite complex and have been developed only recently. In biological science, one of the most frequently used aids is the microscope. Even beginning students in biology must learn to use the microscope effectively.

Finally, the modern scientist needs to state his observations in numerical form. To do this, he must measure. Only thus are exact descriptions and meaningful comparisons possible. Indeed, modern science is often dated from the time of Galileo, who first realized the importance of measurement and the mathematical handling of numerical data for clear understanding of our world and universe.

1. The ancient Greeks developed ideas in art, philosophy, mathematics, and politics that still have an important influence, but the Greeks made only a very modest contribution to science. One reason for this was that
- **A.** the Greeks were democratic.
- **B.** the Greeks had to fight many battles.
- **C.** the Greeks had many gods.
- **D.** the Greeks did not generate and test hypotheses.

2. Robinson Crusoe kept an accurate record of the weather on his island. This record
- **A.** was really a simple scientific experiment.
- **B.** was not a scientific experiment because it was not guided by any hypothesis.
- **C.** was the rudiments of modern meteorology.
- **D.** Both B and C.

3. Once a scientist has designed an experiment, he
- **A.** stops observing and concentrates on performing the experiment.
- **B.** may forget about his hypothesis.
- **C.** must continue to observe during every step of the experiment.
- **D.** needs to design instruments to carry out the experiment.

4. At the end of the seventeenth century, chemistry was much more advanced than biology. One reason for this difference was that
- **A.** biology is harder than chemistry.
- **B.** it is easy to make observations in chemistry.
- **C.** the microscope was not invented until the 1670's.
- **D.** chemistry was more popular than biology.

5. A knowledge of mathematics is necessary to a scientist because it
- **A.** disciplines the scientific mind.
- **B.** enables the scientist to keep his records in order.
- **C.** enables the scientist to put his data and conclusions in numerical form.
- **D.** enables the scientist to make meaningful, quantifiable conclusions.

Passage 28

The ancient Greeks advanced several theories about the nature of light. One of them is of particular interest. According to the theory, light is something that streams out of the eyes much like water out of a hose, the idea being that we see a thing by directing this stream of light to hit it. Thereby we learn what it looks like, much as we learn what a thing feels like by feeling it with our hands. A blind man's eyes emit no light; for this reason he cannot see. Until the intellectual awakening in Europe known as the Renaissance, this theory was never seriously challenged. Sir Isaac Newton (1642-1727) was one of the first to advance a consistent theory of light based upon observation and experiment.

In formulating a theory of light, Newton considered two hypotheses: one, that light is matter; the other, that it is wave energy. Knowing the ability of sound and water waves to bend around a corner, which light seemingly does not do because we cannot see around a corner, Newton rejected the theory of waves in favor of the theory of matter. According to Newton, light consists of small particles (corpuscles) of matter emitted in all directions in straight lines, or rays, by a luminous body such as the sun, a burning candle, or a red-hot coal. If these rays consisting of corpuscles strike our eyes, we see the source of them.

About the same time that Newton proposed the corpuscular theory, Christian Huygens (1629-1695), a Dutch astronomer and physicist, advanced the wave theory of light. The farther a wave front is from the source, the more nearly a

short section of it approaches a straight line, and the more nearly two wave fronts become parallel. Such waves are known as parallel waves.

Light waves coming directly from a source, or from a body which reflects them, cause the sensation of sight, just as Newton claimed for the corpuscles.

Let us suppose that Newton and Huygens had met for the purpose of each scientist arguing for his theory. Newton would not accept the wave theory. He argued that "Sound, which is a wave motion, will travel through a crooked hollow pipe, bend around a hill or other obstruction and be heard. If light is a wave, it too should do the same, but experiment proves that it doesn't."

In reply, Huygens said, "That is not a convincing argument. Take short water waves on a river striking the side of a ship; the waves originating on one side will not be seen on the other. However, if the waves are large and the obstacle is small, the waves will bend around the obstacle and be seen on the other side." Huygens even went so far with this line of reasoning as to predict that a very small obstruction would cast no shadow in light. Modern science accepts the theories of both Newton and Huygens, since light acts in some situations as if it were made up of corpuscles called photons and in other situations as if it were made up of waves.

1. According to the ancient Greeks' theory of light,
- **A.** no seeing person should ever be in the dark.
- **B.** no seeing person would ever need a torch or a lamp.
- **C.** light is much like water.
- **D.** All of the above.

2. The theories of light of both Newton and Huygens
- **A.** had in common the belief in light as being composed of corpuscles.
- **B.** were based on the fact that light bends around corners.
- **C.** postulated that light travels from the source to the eye.
- **D.** were much like the ancient Greeks' theories of light.

3. Huygens believed that a very small obstruction would cast no shadow because
- **A.** it would be too small to be seen.
- **B.** light rays would bend around the obstruction.
- **C.** it would absorb light rays.
- **D.** None of the above.

4. According to the Greeks' theory of light cited above, an opaque object between a viewer and a fire
- **A.** should not appear as a dark shape against the fire.
- **B.** could not be seen.
- **C.** would appear in its normal color.
- **D.** Both A and C.

5. The theories of the ancient Greeks, Newton, and Huygens had in common that they
- **A.** have all been proved false.
- **B.** all explained light correctly.
- **C.** considered light to be a kind of motion.
- **D.** None of the above.

Passage 29

Most earthquakes are the result of movement along an existing fracture in the deep rock beds. The walls of a fault are usually very closely pressed together. Rock beds that are under stress undergo many years of slowly increasing pressures before they move along a fracture. Finally the stress exceeds the strength of the rock. Then a sudden movement occurs along the fault, causing the earthquake vibrations. According to the elastic rebound theory of earthquakes, pressure is exerted on two adjacent rock areas from opposite directions for long periods of time. The pressure may be upward, downward, or sideways. As it increases, the rocks bend slowly. Eventually the strain becomes so great that the rocks split apart, either vertically or horizontally, along the fault line.

The San Andreas fault, along which the California earthquake occurred in 1906, can be traced over a distance of 270 miles. The chief movement along the fault was horizontal. The southwest side shifted toward the north in relation to the opposite side. In some places the horizontal displacement was 21 feet.

There are thousands of known faults all over the earth. Few of them, however, seem to be the sources of earthquakes. Most earthquakes, therefore, must probably have their source in faults below the earth's surface. The trembling of the solid rock immediately after faulting sets up the earthquake shocks. These may be strong enough to affect an entire continent or may be so slight that sensitive instruments are needed to record their presence.

Earthquakes that are the result of crustal movements, such as faulting, are classed as tectonic earthquakes. These larger quakes usually originate in the outer 20 to 100 miles of the lithosphere. Earthquakes are also often associated with volcanic activity. Volcanic earthquakes are due either to explosive volcanic activity or to the flow of magma below the crust. Sometimes tectonic earthquakes may trigger volcanic eruption. Earthquakes caused by volcanic activity are always relatively feeble compared with the more violent, tectonic. They may, however, be the cause of greater local damage.

Landslides occurring over a wide area may result in earthquakes of lesser intensity than those associated with faulting or volcanism. Landslips, as such landslides are called, usually occur in regions of rugged relief. They sometimes also take place on the sea floor near the margins of the submerged continental shelves.

Earthquakes of tectonic, volcanic, or landslip origin may also occur under the ocean. Their most noticeable effect is the production of seismic sea waves, or tsunamis.

1. The most violent earthquakes are caused by
- **A.** movements along faults.
- **B.** landslips.
- **C.** volcanoes.
- **D.** All of the above.

2. In tough rock, as compared to brittle rock, the time between earthquakes will probably be
- **A.** shorter.
- **B.** longer.
- **C.** about the same.
- **D.** None of the above.

3. One force that builds mountains is the folding of the earth's crust. Earthquakes are most likely to be found in
- **A.** newly formed mountains..
- **B.** old, worn-down mountains.
- **C.** middle-aged mountains
- **D.** plains.

4. The earth's crust is between 7 and 20 miles thick. The largest earthquakes take place
- **A.** only in the crust.
- **B.** only below the crust.
- **C.** both in the crust and below it.
- **D.** above the crust.

5. A tectonic earthquake may be the cause of a
- **A.** volcanic earthquake.
- **B.** landslip earthquake.
- **C.** tsunami.
- **D.** All of the above

Passage 30

Sir George Darwin, son of the great naturalist, Charles Darwin, formulated a theory to explain the fact that our moon always turns the same side to the earth, so that we can see only one half of our satellite's surface. Darwin wondered whether the fact that the moon's period of rotation equals the time of its revolution around the earth is due to chance or the working of natural law.

Darwin answered the question with the following argument. The gravitational pull of the moon causes tides on earth. Since most of the earth's surface is covered by water, tidal crests can form on two opposite points of the earth. A line connecting the crests is directed toward the moon. The earth's rotation beneath the tidal crests causes two great waves to travel around the earth. These waves cause the earth's high tides. The tidal waves are fed continually by water from areas of low tide. This causes a current to run contrary to the line of the earth's rotation, thereby creating appreciable friction because water naturally resists any displacement of its particles. This tidal friction acts as a brake on the earth's rotation,

gradually slowing it down. This continual, nearly imperceptible braking process will last until the tidal waves cease their movement and the tides and their resultant friction come to an end. This will happen when the earth's rotation has become so slow that one earth day equals the moon's period of revolution around the earth—in other words, when the earth keeps the same side turned to the moon so that the moon no longer revolves around the earth.

The fact that we always see the same side of the moon probably originated in the foregoing process. In the very distant past, Darwin surmised, the moon's surface was covered by molten lava. At that time, the moon's rotation was probably much faster than it is now. It gradually slowed down as the earth's gravitational attraction caused ever-increasing tidal movement and consequent friction in the molten lava. This braking effect has long ceased, but the braking effect of the moon on the earth (through the earth's tides) will not cease for many millions of years. Darwin gave three reasons for this series of events. First, because the moon is much smaller than the earth, the resistance of the moon's inertia to the braking influence of the earth was weak. Second, the earth exerted a much greater tidal influence on the moon than the moon on the earth. Third, the moon's tidal movement took place in lava, matter which was viscous rather than completely liquid, as the earth's waters are, and whose inner friction was greater than the earth's freely moving oceans.

1. The braking effect exerted by the moon on the earth
- **A.** still causes molten tides on the moon.
- **B.** works through the effect of the ocean tides which the moon causes.
- **C.** will continue for millions of years.
- **D.** Both A and C.

2. If the earth had no oceans it would
- **A.** be spinning faster.
- **B.** be spinning slower.
- **C.** exert a greater braking effect on the moon.
- **D.** be stationary.

3. If the moon were to speed up the time of rotation on its axis and still keep one side always facing the earth, the time necessary for the moon to revolve around the earth would be
- **A.** longer.
- **B.** shorter.
- **C.** unchanged.
- **D.** irregular.

4. At one time in its history, the earth was molten. At that time, the earth's rate of rotation was slowed by the moon's gravitational influence
- **A.** which caused lava tides and their consequent friction.
- **B.** on both lava tides and on the earth's oceans.
- **C.** only on the earth's oceans.
- **D.** Both A and B.

5. Gases are fluid. From this we conclude that the earth's atmosphere, which is a mixture of gases,
- **A.** moves around the earth in tides due to the moon's gravitational influence.
- **B.** provides a braking force on the earth's rotation.
- **C.** is too shallow, in comparison with the earth's waters, to provide a braking force on the earth's rotation.
- **D.** Both A and B.

Passage 31

At the end of World War II, Japan was economically prostrate. Factories were blackened shells, foreign trade was cut off, and millions of men were jobless. With large-scale aid from the United States, the nation began to recover. During the Korean War, military contracts helped Japanese industries to grow.

By the mid-1950's, factories were springing up all over the land. Once economic recovery had received the initial momentum, the furious pace did not slacken. The great textile industry rapidly revived. Coal, iron, and steel output zoomed to new peaks. Machine tools, locomotives, and automobiles streamed off brand-new assembly lines.

The Japanese also created the second largest electronics industry on the globe. Today, they are leading manufacturers of radios, transistors, television sets, and computers, as well as optical goods. But the delicate Japanese economy can easily be upset. A major war or a world depression could create a grave crisis. If such disasters can be avoided, the hard-working Japanese may hope for greater prosperity.

Japan's forward strides in agriculture have been almost equally unbelievable. In the past, year after year, the Japanese lacked food. They had to import millions of tons of rice and other foodstuffs annually. But Japanese farmers have made amazing progress since 1958. Using better seeds, more fertilizers, and new machinery, they have broken all records for food production. Japan's need to import rice has now almost disappeared.

Today, Japan ranks among the four greatest economic powers of the world. Foreign commerce, essential to Japanese survival, flourishes. Japan trades with almost

every country. Its most important customer and source of raw materials is the United States, which buys over one fourth of its total exports. Japan is also the largest purchaser of United States raw cotton, wheat, and soybeans.

Many Japanese businessmen have looked toward China, hoping to regain their rich prewar markets there. But the conflicting political systems of the two nations work against large-scale Sino-Japanese trade.

1. Japan's economic progress since World War II
- **A.** has been very slow but steady.
- **B.** is based on agricultural developments.
- **C.** is due entirely to United States' aid.
- **D.** has been rapid and broad.

2. The United States is Japan's
- **A.** only customer.
- **B.** only source of raw materials.
- **C.** most important customer.
- **D.** major source for rice.

3. Japan benefited economically from
- **A.** World War II.
- **B.** the Korean War.
- **C.** the Communist take-over of China.
- **D.** the independence of Indonesia.

4. The word "Sino-Japanese" means
- **A.** New-Japanese.
- **B.** Chinese-Japanese.
- **C.** Jewish-Japanese.
- **D.** Old-Japanese.

5. The Japanese textile industry
- **A.** was well developed before World War II.
- **B.** got its start in the Korean War.
- **C.** was launched by United States aid after World War II.
- **D.** is not an important part of the Japanese economy.

6. Japan's agricultural progress
- **A.** is well behind its industrial progress.
- **B.** has eliminated the need to import food.
- **C.** is due to large exports of wheat and soybeans.
- **D.** has greatly reduced Japan's need to import food.

7. The passage states that "the delicate Japanese economy can easily be upset." This is because
- **A.** China refuses to trade with Japan.
- **B.** so much of the economy is based on United States aid.
- **C.** foreign trade is the key to the economy.
- **D.** electronics is Japan's most important industry.

Passage 32

Anyone who is in possession of a small telescope can take the opportunity to observe the greatest wonder of the solar system—Saturn's rings. In the equatorial plane of the planet, a system of perfectly circular rings stretches out from 9,000 to 47,000 miles from the surface of Saturn, whose diameter is 75,000 miles, or almost ten times that of the earth. There are three principle rings; the outer two brilliantly shining in reflected sunlight and separated by a narrow space, and the third, an inner "gray" ring conspicuous only where it passes over the sunlit disk of Saturn as a dark band.

The satellites of the planets may have been formed from nebulous or dust rings attached to each planet. All but one of the original rings of the solar system have disappeared; only Saturn's rings remain as living testimony of the old days of creation.

What prevented the rings of Saturn from condensing into one or several satellites, to join the known ten satellites of the planet? The answer is Saturn itself, by virtue of tidal force. The tidal force is like that exercised by the moon on the earth, and, reciprocally, by the earth on the moon. Saturn is 95 times heavier than the earth, or 7,600 times more massive than the moon, and the rings are much nearer to Saturn's surface than the moon is to the earth. A satellite placed at the distance of its rings from Saturn would be subject to enormous tidal force, sufficient to tear it to pieces even were it made of solid rock. The rings are too close to Saturn for the formation of a satellite.

From the high reflecting power of the bright rings, similar to that of snow, and from certain spectroscopic evidence, it appears probable that the rings consist of ice crystals or snowflakes into which a water vapor envelope condensed at a time when the solar system came into being. Each of these snowflakes revolves around Saturn in its own orbit, like a tiny satellite. They are tightly packed, one beside another, occasionally "elbowing" one another, thus producing friction. This friction has caused the rings to become regular circular disks of an extremely small thickness; the average diameter is equal to the average diameter of one particle only, perhaps a few inches, or even less. In any case, although the actual thickness of the rings is unknown, it cannot be more than about 1,000 feet; otherwise the rings would have influenced, by their gravitation, the motion of Saturn's satellites. No such influence has been observed.

1. The earth's natural satellite, the moon, was able to form from a ring of matter that once surrounded the earth because the
- **A.** moon is farther from the earth than Saturn's rings are from that planet.
- **B.** earth weighs less than Saturn.
- **C.** tidal force of the earth on its ring was less than Saturn's tidal force on its rings.
- **D.** All of the above.

2. Saturn's inner ring can be seen even with a small telescope
- **A.** when Saturn is viewed from any position.
- **B.** only when Saturn is viewed so that the inner ring passes over Saturn's sunlit disk.
- **C.** only when Saturn's rings are seen edge-on.
- **D.** None of the above.

3. Saturn has no satellites that are as close to its surface as Saturn's rings because
- **A.** a satellite would collide with the rings and break up.
- **B.** no sooner did a satellite form than it fell to the planet's surface.
- **C.** it once had nearby satellites but they were moving so fast that they pulled away from the planet.
- **D.** Saturn's tidal force would break up a satellite as close to the planet's surface as the rings are.

4. Astronomers believe Saturn's rings to be
- **A.** a recent development in the solar system.
- **B.** dust rings formed from matter thrown off by volcanoes that once were active on the planet.
- **C.** a model of one stage in the development of the solar system.
- **D.** Both A and B.

5. In addition to Saturn's rings, that planet has
- **A.** no other satellites.
- **B.** one moon 7,600 times as massive as the earth's moon.
- **C.** ten known satellites.
- **D.** one satellite 95 times as heavy as earth.

6. Saturn's rings are
- **A.** like the rings of its nearby neighbors, the planets Jupiter and Uranus.
- **B.** probably composed of small pieces of rock.
- **C.** as thick as half of Saturn's diameter.
- **D.** None of the above.

Passage 33

Not everyone thinks that the growing field of genetic testing and screening is beneficial. The potential problems raised both by those who favor testing and screening and those who oppose it are similar, but one faction thinks that regulatory or legislative solutions to the problems can be found while concerned opponents find the knowledge itself less valuable and the problems unsolvable. Opponents of widespread genetic testing and screening regard the acceptance of eugenic theories and scientists' inability to control outcomes of their genetic research as dangerous. They foresee a need to outlaw technologies that threaten privacy or civil rights and a need to protect against genetic discrimination.

Another possible negative effect is the pressure that might be placed on individuals, as a result of cost-benefit analysis, to test or to be tested. Individuals might thereby be forced to know their genetic predispositions, to tell others, or to act to save society long-term costs resulting in a "new eugenics" based, not on undesirable characteristics, but rather on cost-saving.

Wertz and Fletcher, who have surveyed geneticists throughout the world, say that "the dangers of isolation, loss of insurance, and educational and job opportunities for persons diagnosed with incurable and costly disorders known from early childhood are real to many who are concerned about potential clinical uses and abuses of the 'new genetics.'"

In any genetic screening, guidelines should be established governing its aim, limitations, scope, and ethical aspects, as well as the storage and registration of data or material, the need for follow up, and the risk of side effects. Screening should always be voluntary, not mandatory, according to 99 percent of those surveyed by the Office of Technology Assessment with reference to cystic fibrosis screening.

Issues of confidentiality loom large in discussions of genetic testing and screening. According to the Privacy Commission of Canada, genetic privacy has two dimensions: protection from the intrusions of others and protection from one's own secrets. Consequently, employers should be prohibited from collecting genetic information, services and benefits should not be denied on the basis of genetic testing, and information should be used only to inform a person's own decisions.

The President's Commission, in a 1983 study, concluded that genetic information "should not be given to unrelated third parties, such as insurers or employers, without the explicit and informed consent of the person screened or a surrogate for that person."

The literature on genetic discrimination suggests several areas of sensitivity: (1) the workplace, where employers may choose to test job applicants, or those already employed, for susceptibility to toxic substances or for genetic variations that could lead to future disabilities, thereby raising health or workmen's compensation costs; (2) the insurers (either life or health insurance companies) who might use genetic tests as criteria for denying coverage; and (3) law enforcement officials, who may test and/or use information without informed consent.

1. A group not mentioned in the passage is
- **A.** Office of Technology Assessment.
- **B.** Privacy Commission of Canada.
- **C.** U.S. Public Health Service.
- **D.** President's Commission.

2. Which one of the following statements is not supported by the passage?
- **A.** The proponents and opponents of genetic testing and screening disagree on the disadvantages of it.
- **B.** The opponents of genetic testing and screening feel that legislation is required to prevent abuses of it.
- **C.** The opponents of genetic testing and screening believe that a person has the right to be ignorant of his genetic make up.
- **D.** Genetic testing and screening has advantages and drawbacks.

3. The tone of the passage is
- **A.** sarcastic.
- **B.** objective.
- **C.** jubilant.
- **D.** cynical.

4. The opponents of genetic testing and screening feel that
- I. the use of genetic testing and screening can be adequately controlled with legislation.
- II. the only way to prevent abuses of certain genetic tests is to prohibit their use.
- III. in spite of its drawbacks, genetic testing and screening always provides useful information.

- **A.** Only I is correct
- **B.** Only II is correct
- **C.** II and III are correct
- **D.** I and II are correct

5. If a person were found to have a genetic predisposition to a disease, the following may result.
- I. He may lose his job.
- II. He may be unable to obtain home insurance.
- III. He may be suspected for certain crimes.

- **A.** I
- **B.** III
- **C.** I and III
- **D.** I and II

6. A suitable title for the passage would be
- **A.** Methods of Genetic Testing and Screening
- **B.** The Economics of Eugenics
- **C.** Patient Confidentiality
- **D.** The Disadvantages of Genetic Testing and Screening and their Possible Solutions

7. Which one of the following statements is supported by the passage?
- I. genetic testing and screening may be used to cut costs.
- II. genetic testing and screening has no side-effects.
- III. genetic testing and screening should never be compulsory.

- **A.** I
- **B.** II
- **C.** I and II
- **D.** I and III

Passage 34

The ways in which organized society has dealt with criminal offenders constitutes a long and painful chapter in the history of man. Reference to that history need only be made in sufficient detail to demonstrate that as unenlightened as our present penal system is today, it represents a giant step forward from earlier societies.

In primitive societies, each individual dealt with wrongs done him or his family in his own way. The victim was motivated chiefly by ideas of revenge, retaliation, or compensation for loss of property. Since in those early societies there were no well-established rules, the strong predator very often went unpunished, and the strong victim sometimes overreacted, resulting in a compounding of the damage.

As the primitive societies developed, the government, represented by the chief or the king, gradually began taking over the protection of persons and property and the punishment of offenders in the name of public peace and order. The basic concept behind the intervention of government, however, continued to be that of retribution - a balancing of the scales of justice.

The scales tended to be balanced on the side of the superior power of the state. The death penalty was the most common response to common crime. It is recorded that in London, in January 1801, a seventeen-year-old boy was hanged for stealing a silver spoon. During the sixteenth and seventeenth centuries in Europe, some thirty types of death penalties were in use, ranging from drawing and quartering to burning at the stake and breaking on the wheel. Physical torture of all forms was common, including mutilation, such as cutting out the tongue and burning out the eyes. Public flogging and other forms of public degradation were commonly in use for relatively minor offenses. Imprisonment was not looked upon as a means of punishment, but was used rather for the purpose of guaranteeing the presence of the offender at his trial and ultimate punishment.

With a relatively small population, there were eight hundred executions in a year in England alone toward the end of the sixteenth century. Then, even more than now, the recipients of these harsh punishments were mainly the poor and the underprivileged.

Massachusetts Bay Colony was founded by the Pilgrims in 1620, not merely out of a desire to worship as they chose, but also because of the social, economic, and legal injustices then so commonplace in England. However, strange as it may seem, the American colonists, knowing no better way, brought with them criminal codes almost as severe as those they had left behind.

The exception to the harsh colonial laws was the "Great Law" of William Penn, embodying the comparatively humane Quaker criminal code. This continued in force in Pennsylvania until the death of William Penn, when, in 1718, it was repealed, and Pennsylvania, along with the other colonies, continued under the harsh laws of the American colonies until the late eighteenth century and the beginning of the new Union.

The Quakers provided the keystone around which modern penal reform developed in America, and was accompanied by parallel developments in England and on the Continent. Although the harsh methods of Europe are no longer used, current penologists are beginning to feel dissatisfaction with the dichotomy between what our prisons are supposed to be - institutions of rehabilitation, and what they all too often are - institutions of punishment and demoralization. Many feel that the movement away from torture and capital punishment to containment is but the first step in effective penology.

1. The author implies that capital punishment in sixteenth century England was
- **A.** less prevalent than at present.
- **B.** more prevalent than at present.
- **C.** did not exist.
- **D.** was meted out for very minor offenses.

2. In primitive societies, crimes were
- **A.** punished on a victim to criminal basis if at all.
- **B.** dealt with by the chief of the clan or the King.
- **C.** ignored as no well developed sense of normality existed at the time.
- **D.** invariably punished by execution.

3. The author feels that the
- **A.** primitive response to crime was brutality, while present society's is enlightened rehabilitation.
- **B.** primitive response to crime was humane and just.
- **C.** present day response to crime is a much more effective deterrent than primitive response.
- **D.** present day response to crime is not adequate in terms of rehabilitation.

4. In the sixteenth and seventeenth centuries, imprisonment was considered
- **A.** barbaric and inhumane.
- **B.** too good for most criminals.
- **C.** a very "light" sentence.
- **D.** merely the best means of ensuring the presence of an offender for trial and punishment.

5. The criminal codes of the Pilgrims were
- **A.** less harsh than those in England.
- **B.** more severe than those in England.
- **C.** directed towards economic crimes.
- **D.** identical to those in England.

Passage 35

When a massive charged particle passes through an electrically non-conducting solid, it produces a narrow trail of radiation-damaged material called the track. In the case of a heavy positive ion - a nucleus stripped of many or all of its orbiting electrons - passing through a crystalline solid, the damage is caused by an "ion explosion." The positively charged particle knocks electrons out of atoms in the crystal lattice, leaving a wake of positive ions. These ions thereupon repel one another violently, disturbing the regular lattice. Virtually all insulating solids register the tracks of heavily damaging particles and under normal conditions retain them indefinitely. On the other hand, intensive search has so far not revealed any metals or good semiconductors that record such continuous tracks. The reason is that electrons move so fast in conductors that they neutralize the atoms of an incipient track before it can form.

Tracks in solids were first described in 1959 by two members of the atomic energy research establishment at Harwell in England. They irradiated thin sheets of mica

with fission fragments and observed the tracks with the electron microscope. In the mica they were using the tracks faded, however. Moreover, electron microscopy is a powerful tool for studying structural detail on a near atomic scale, but not for finding out about rare events on a grand scale. The work of these two scientists was thereafter continued by scientists who attempted to stabilize the tracks and then to make them more readily visible so as to possibly better understand the particle and the age of the solid.

They first found that the damage trails in mica could in effect be "developed" and fixed by immersing the crystal in hydrofluoric acid. The reason is that the damage trails are highly reactive regions. Any trail that intersects the surface is rapidly dissolved by the acid, leaving a hollow, cylindrical tube some 50 angstroms in diameter. (One angstrom is one ten-millionth of a millimeter.) If the exposure to the acid is prolonged, we then discovered, the etching continues at a slower rate. The undamaged wall of the tube is attacked and the diameter of the tube increases into the micron (thousandth of a millimeter) range. This is comparable to the wavelength of visible light, so that the enlarged tubes scatter transmitted light and show up clearly as dark lines when the sample is viewed with an ordinary light microscope (or as bright lines in a dark-field microscope).

The tracks take various forms, depending primarily on the solid, how it is etched and the nature of the particle. Choosing the best etching reagent has been largely a matter of trial and error, although a few guidelines have been developed. Some easily attacked minerals, such as mica and apatite, can be etched with common acids at room temperature; more resistant minerals such as the feldspars require strong bases and high temperatures, and zircon responds to phosphoric acid heated to more than 900 degrees Fahrenheit. Many plastics, on the other hand, can be etched with such oxidizers as household bleach.

The density of the ionization damage caused by any moving particle is directly proportional to the square of the electric charge of the particle, which varies with its atomic number. It is also approximately inversely proportional to the square of the particle's velocity. These relations can be expressed by a family of curves for a number of different nuclei ranging from hydrogen (whose ion, the proton, has one unit of electric charge) up to the transuranium element curium (which has 96 units of charge when all its electrons have been removed). A particle does the least damage when it is traveling with nearly the speed of light; as its velocity decreases, its damage density increases. The reason is that the particle is more effective the more time it spends in the vicinity of each atom it encounters - until it is going so slowly that it again accumulates the electrons it had lost and thus becomes less heavily ionized.

Different solids have different sensitivities to nuclear particles. The most sensitive are the organic polymers, or plastics, some of which undergo detectable chemical changes when they are irradiated by slow protons and alpha particles (helium ions). Some minerals, in contrast, are so insensitive that they only record the passage of nuclei as heavily damaging as low-energy iron ions. In experiments with heavy ions from particle accelerators and with cosmic rays, we have found that each insulating solid has a well-defined threshold damage density below which no tracks are produced. This threshold characteristic contributes significantly to the value of such solids as track detectors.

1. In order for an ion explosion to produce a track,
- **A.** any charged particle must knock electrons from their atoms.
- **B.** a charged particle must be conducted through a solid.
- **C.** positive ions must repel electrons.
- **D.** a positive particle must be utilized.

2. Damage trails in mica
- **A.** can be seen by use of an ordinary light microscope when a cylindrical tube approximately 50 angstroms in diameter is created.
- **B.** were first developed by the two British atomic scientists.
- **C.** were comparable to the wavelength of visible light.
- **D.** were seen with an ordinary microscope only after a cylindrical tube approximately one micron in diameter was created.

3. The ionization damage caused by a massive charged particle
- **A.** increases as the size of the electric chargeof the particle does.
- **B.** will increase with the square of the atomic number.
- **C.** will be greater when organic polymers are used.
- **D.** does not affect insulating solids.

4. A heavy positive ion passing through an insulated solid at extremely slow speed
- I. will accumulate some of its lost electrons and cause less damage than at a faster speed
- II. will become less ionized and cause a bigger "ion explosion" than it would at higher speeds
- III. is one case where the density of ionization damage is not inversely proportional to the square of the particle's velocity

The correct combination is:

A. III only
B. I only
C. I and II
D. II only

5. In the first experiments with tracks in solids
A. conductors were used where electrons moved too fast to produce tracks.
B. the particles used were ineffective because they were on a near atomic scale.
C. thin sheets of mica were irradiated with fission fragments.
D. the tracks faded because the electron microscope was used.

Passage 36

As complex as works of art typically are, there are really only three general categories of statements one can make about them. A statement addresses form, content, or context (or their various interrelations). However, within each of these categories is a variety of subcategories, giving visual culture its variety and complexity.

Form means the constituent elements of a work of art independent of their meaning (e.g. the color, composition, medium, or size of a flag, rather than its emotional or national significance). Formal elements include primary features which are not a matter of semantic significance (i.e. which do not carry meaning the way a word does): these include color, dimensions, line, mass, medium, scale, shape, space, texture, value, and their corollaries. The secondary features are the relations of the primary features with one another: these include balance, composition, contrast, dominance, harmony, movement, proportion, proximity, rhythm, similarity, unity, and variety. A third or tertiary level concerns the way form interacts with content and/or context.

There is less consensus concerning content. Some distinguish "subject matter" from "content" - i.e. denotations vs. connotations, more or less - while others prefer terms like "meaning" vs. "significance." Semiotics and post-structuralism go even farther, well beyond what can be introduced here. To simplify matters, content means "message," however that message may be organized. A traditional way of organizing content was simply to place it in basic categories of iconography (signs, symbols, conventions, etc.) called genres.

Context means the varied circumstances in which a work of art is (or was) produced and/or interpreted. Primary context is that which pertains to the artist: attitudes, beliefs, interests, and values; education and training; and biography (including psychology). Secondary context is that which addresses the milieu in which the work was produced: the apparent function of the work at hand; religious and philosophical convictions; sociopolitical and economic structures; and even climate and geography, where relevant. The tertiary context is the field of the work's reception and interpretation: the tradition(s) it is intended to serve; the mind-set it adheres to (ritualistic [conceptual, stylized, hieratic, primitive], perceptual [naturalistic], rational [classical, idealizing, and/or scientific]; and emotive [affective or expressive]); and, perhaps most importantly, the color of the lenses through which the work is being scrutinized - i.e. the interpretive mode (artistic biography; psychological approaches [including psychoanalysis, Jungian archetypal theory, ethology and Gestalt]; political criticism [including Marxism and general correlational social histories]; feminism; cultural history and Geistesgeschichte; formalism [including connoisseurship and raw scientific studies]; structuralism; semiotics [including iconography, iconology, and typological studies; hermeneutics; post-structuralism and deconstruction]; reception theory [including contemporary judgements, later judgements, and revisionist approaches]; concepts of periodicity [stylistic pendulum swinging]; and other chronological and contextual considerations. It should be clear, then, that context is more than the matter of the artist's circumstances alone.

1. According to the passage, works of art are various and complex because
A. of the availability of so many different materials to work with.
B. there are so many subcategories of context, form, and content.
C. people have such a variety of tastes.
D. of the long history of art.

2. A suitable title for this passage would be
A. "Basic Art Appreciation"
B. "The Art of Art"
C. "Modern Art"
D. "Introduction to Painting"

3. The tone of the passage is
A. sad.
B. angry.
C. didactic
D. denigrating.

4. The fact that a work of art is made of clay refers to its
A. secondary context.
B. content.
C. tertiary context.
D. form.

5. More simply put,
- I. content is "what" the work is about
- II. form is "how" the work is
- III. context is "in what circumstances" the work is (and was)

A. I is true
B. I and II are true
C. I, II, and II are true
D. II and III are true

6. When art is categorized by signs, symbols, conventions, and so forth, the categories are referred to as
A. genres.
B. groups.
C. classes.
D. pallets.

7. "Dominance" is an example of
A. primary context.
B. a secondary level of form.
C. content.
D. a hierarchical design element.

Passage 37

Comet Kohoutek, like other comets, is a celestial fountain spouting from a large dirty snowball floating through space. The fountain is activated and illuminated by the sun. It is greatly enhanced because it is spouting in a vacuum and essentially in the absence of gravity. We see the fountain as the comet's head and tail. The tail can extend for tens of millions of miles, but we never see the snowball, whose diameter is only a few miles.

The word "comet" comes from the Greek *aster kometes*, meaning long-haired star. The tail of the comet is of course the hair; the head, or coma, of the comet could be considered the star. Within the coma is the snowball: an icy nucleus that moves in a huge orbit under the gravitational control of the sun. The nucleus spends almost all its lifetime at great distances from the sun, hibernating in the deep freeze of space. When its orbit swings it in toward the sun, its surface begins to sublime, or evaporate, and the sublimated gas flows into space. Pushing against the weak gravity of the relatively small nucleus, the outflowing molecules and atoms carry with them solid particles. Thus does the nucleus give rise to the gaseous and dusty cloud of the coma.

The sun floodlights the dust and gas of the coma, making the comet visible. Some comets are very dusty. Most of their observed light is simply sunlight scattered by the dust and is slightly reddish. Other comets contain little dust. Since molecules and atoms in a gas scatter light feebly, such gaseous comets become bright only through a double process. First the ultraviolet radiation from the sun tears the molecules apart; water, for example, is dissociated into hydrogen (H) and the hydroxyl radical (OH). Then the atom or the broken molecule can fluoresce, that is, absorb solar light at one wavelength and radiate it at the same wavelength or (more usually) at a series of longer wavelengths.

Almost all the light from gaseous comets comes from such bands of wavelengths, which are mostly emitted by broken molecules of carbon, nitrogen, oxygen, and hydrogen such as CH, NH, NH_2, CN, and OH, and also C_2 and C_3. What are the parent molecules that split up to produce these unstable radicals? Ammonia (NH_3) and methane (CH_4) are prime suspects, but the suspicion has not yet been confirmed. There is much doubt about the parent molecule for CN. Could it be cyanogen gas (C_2N_2)? Or hydrogen cyanide (HCN)? Or possibly some even more exotic molecule?

Regardless of the answers to such questions, it is now understood that the coma of a comet shines with sunlight scattered by dust or with sunlight re-radiated by fluorescent gas, usually with both. The tail of a comet is created by another action of the sun. Comet tails, like comet heads, have a gaseous component and a dusty one. For dust tails, the action of the sun is uncomplicated: the radiation pressure of sunlight pushes the dust particles out of the coma. Following the laws of motion for orbiting bodies, the dust particles lag behind the coma as they stream away from it; therefore, they form a curved tail that can be rich in detail.

Most comets, particularly the brightest, display a huge tail that is only slightly curved. Like the gas in the coma, these tails shine by fluorescence. The molecules responsible for the radiation, however, are ionized, that is, electrons have been removed to leave molecules with a positive electric charge. In such ion tails we find ionized carbon monoxide (CO^+), carbon dioxide (CO_2^+), nitrogen (N_2^+) and the radicals OH^+ and CH^+, but no un-ionized molecules or radicals. Sunlight can ionize some of the molecules, but what pressure can be responsible for pushing them back into space with forces sometimes greater than 1,000 times the gravity of the sun?

The question of how the ion tails are made was long a mystery and has been solved only in the era of space exploration. Space probes have sent back data showing that the sun continuously ejects a million tons of gas per second moving at a radial speed of 250 miles per second. This solar wind, which has a temperature of a million degrees, drags with it chaotic magnetic fields. The fields are carried by currents of electrons in the gas, which is almost completely ionized. Nearly a decade before the first space probe, Ludwig F. Biermann of the Max Planck Institute for Physics in Gottingen demonstrated that something like the solar wind was needed to account for

the ion tails of comets. Although the solar-wind theory of ion tails is not yet very precise, it indicates that two processes couple the solar wind to the cometary gas.

First, the high-energy electrons in the solar wind ionize the molecules in the coma (along with the solar radiation). Second, the solar wind gives rise to a bow wave around the coma. The chaotic magnetic fields now act as a magnetic rake that selectively carries the ions away from the coma, leaving the un-ionized molecules and atoms unaffected. The force of the solar wind on the ions can accelerate them to velocities of several tens of miles per second, so that changes in an ion tail can be seen at distances of many millions of miles on a time scale as short as half an hour.

John C. Brandt of the Goddard Space Flight Center of the National Aeronautics and Space Administration has explained the beautiful curvature of these great tails. It results from the transverse motion of the comet at some tens of miles per second across the movement of the solar wind blowing radially from the sun. The ion tails interact with the high-velocity solar wind in the same way that the smoke rising from a smokestack interacts with moving air to produce a graceful billowy arch on the earth.

1. The best title for this passage would be
- **A.** "Kohoutek- Celestial Snowball."
- **B.** "The Nature of Comets."
- **C.** "Comet Tails-A Mixture of Gas and Dust."
- **D.** "Cometary Debris."

2. Which of the following statements is false?
- **A.** A comet has a very small nucleus.
- **B.** The coma shines with sunlight re-radiated with fluorescent gas.
- **C.** As they near the sun, comets become self-illuminating.
- **D.** The coma is a cloud of dust and gas.

3. Which of the following is most important in order for a gaseous comet to become bright?
- **A.** Water
- **B.** The hydroxyl radical
- **C.** Ultraviolet light
- **D.** Infrared light

4. The solar-wind theory
- **A.** is not supported by enough evidence to gain general acceptance.
- **B.** has been perfected only in the era of space exploration.
- **C.** explains how the comet glows.
- **D.** explains the magnetic pull on ionized molecules in the tail.

5. Which of the following statements is true?
- **A.** Comets sometimes have gravity 1,000 times that of the sun.
- **B.** The high-energy electrons in the solar wind are entirely responsible for ionizing the molecules in the coma.
- **C.** The solar wind causes the ionized molecules to move.
- **D.** The solar wind is extremely hot.

6. The ionic tail of a comet might contain
- I. CH
- II. NH
- III. OH^-
- IV. CO^+
- V. C_2
- VI. NH_3

The correct choices are:
- **A.** I, II, and V
- **B.** III and IV
- **C.** All of the above
- **D.** IV only

Passage 38

An essential requirement for any kind of nuclear fission technology, explosive or otherwise, is the provision of enriched uranium fuel. Uranium comes in two isotopes, the common non-fissioning uranium 238 and the fissioning uranium 235. For reactor purposes a fuel must be provided that has at least three percent U-235 rather than the 0.7 percent found in a sample of natural uranium.

To make the enrichment requires separating the two isotopes. Chemical means do not generally work in such cases since different isotopes of the same element react the same way chemically. Physical means have to be used. The present technology, gaseous diffusion, in which hot gas diffuses up and down a stack so that the upper layers become richer in the lighter U-235, is cumbersome, expensive, and slow. Therefore there is great interest in experiments that attempt to use laser light as a means of separating the uranium isotopes.

At the 8th International Quantum Electronics Conference in San Francisco last week Benjamin R. Snavely of the Lawrence Livermore Laboratory gave for the first time some technical details of an experiment that has succeeded in separating "microscopic" quantities of the uranium isotope. In those microscopic amounts the proportion of U-235 went higher than 60 percent.

The basic method of laser separation is in fact applicable to many elements besides uranium, but the heavy interest is on uranium because the demand for it runs into tons a year and is rising, whereas the demand for other isotopes for medical or chemical purposes may be measured in grams or even fractions of a gram. Snavely estimates that successful commercial applications of laser separation of uranium could save upwards of $100 billion in capital investment.

Ironically, information is given more freely about experiments involving other elements than uranium because uranium is caught up in national defense, and information gets classified. In addition to Livermore, uranium work is known to be going on by a collaboration of Exxon and the Avco Corp., in Israel and in West Germany. What may be going on in the Soviet Union is not public knowledge, but Soviet scientists have worked on laser separation of other elements and published 30 accounts of their experiments.

Laser separation of isotopes depends basically on the way in which atoms and molecules absorb energy from incident light. Each species absorbs a particular pattern of specific resonant wavelengths that correspond to the different ways in which it can become energetically excited. It happens that because of the difference in atomic weight between two isotopes of the same element, the resonance pattern for one isotope will be shifted slightly from that of the other. If the shift is large enough it may be possible to tune a laser so that one isotope of the given element will absorb the light and become excited while the other is not affected.

In the uranium case, a stream of uranium vapor at 2,500 degrees K is irradiated by light of 5,900 angstroms wavelength. This excites one of the isotopes. Then a second beam of light (3,000 angstroms from a mercury-arc source) is passed through the vapor stream. This second light beam ionizes the already excited isotope but does not affect the other. The vapor stream now contains one isotope that is electrically neutral and one that is charged (ionized). The charged can be separated from the uncharged by a combination of electric and magnetic fields. Severe difficulties must be overcome before the method becomes commercial, if indeed it ever does. Nevertheless, success in the basic method is an important and essential first step.

Other experiments on other isotopes tend to use photochemistry rather than photoionization in making the separation. In these cases use is made of the fact that energetically excited atoms or molecules are chemically more reactive than unexcited ones and thus a chemical reaction can be used to separate the excited species. Work being done at the University of California at Berkeley and described by Stephen R. Leone preferentially excites bromine molecules containing bromine-81, then induces them to react with hydrogen iodide. This produces hydrogen bromide containing bromine-81. The hydrogen bromide can then be precipitated out by passing the gas over chilled baffles. Another photochemical method uses natural formaldehyde that is a mixture of the hydrogenated variety (H_2CO) and the deuterated variety (D_2CO). Laser light selectively excites the deuterated variety, and the molecule is then induced to break up into D_2 and CO, thus accomplishing the separation of deuterium from hydrogen. A photochemical method for recovering uranium isotopes might seem attractive from a raw materials point of view since one could start with the common substance uranium hexafluoride rather than having to refine out pure uranium first, but Snavely is very pessimistic about such a development because of difficulties with uranium chemistry and because the absorption frequencies of uranium hexafluoride overlap so much that laser tuning seems impossible.

1. Enriched uranium fuel must contain at least
- **A.** 0.7% U-235.
- **B.** 7% U-238.
- **C.** 3% U-235.
- **D.** 0.7% U-238.

2. Which of the following statements is false?
- **A.** U-235 is lighter than U-238.
- **B.** Laser separation works for elements other than uranium.
- **C.** Russian scientists have worked on laser separation.
- **D.** None of the above.

3. Chemical means of separation
- **A.** work, but are too slow and expensive to be practical.
- **B.** work well, but laser separation works better.
- **C.** work but yield too low a percentage of the desired isotope.
- **D.** do not work.

4. Laser separation works because
- **A.** the two isotopes are actually the same element.
- **B.** the difference in atomic weight causes a difference in resonance pattern.
- **C.** the difference in weight allows a filtration process to take place.
- **D.** uranium is radioactive.

5. The laser is used on uranium vapor at a temperature of
- **A.** 2,500 K.
- **B.** 5,900 K.
- **C.** 3,000 K.
- **D.** 3,000 angstroms.

6. Which of the following statements is correct?
- **A.** The first beam ionizes the isotope and the second excites it.
- **B.** The first beam vaporizes the isotope and the second ionizes it.
- **C.** The first beam excites the isotope and the second vaporizes it.
- **D.** The first beam excites the isotope and the second ionizes it.

7. The method of separating the uranium using two successive laser beams could be best characterized as
- **A.** photoelectricity.
- **B.** photovaporization
- **C.** photochemistry.
- **D.** photoionization.

8. The photochemical method for enriching uranium is
- **A.** inferior from a raw materials point of view.
- **B.** useful only with pure uranium.
- **C.** not regarded optimistically by Snavely.
- **D.** favored by the author.

9. A charged isotope is said to be
- **A.** ionized.
- **B.** deuterated.
- **C.** negative.
- **D.** hydrogenated.

10. Enriched uranium is necessary for
- **A.** separation of bromine-81.
- **B.** nuclear fission.
- **C.** separation of D_2CO.
- **D.** production of uranium hexafiuoride.

Passage 39

For the Jie and Turkana, marriage is not just a single legal act of making a girl the wife of a man, but it is a long ceremonial process which begins with the preparations for the wedding and whose explicit object is the ritual, spiritual, and social creation and establishment of the marital union, and to ensure the fertility of the woman and the welfare of her children. In Turkanaland the process is completed between two and three years after the actual wedding (i.e. the formal acceptance of bridewealth) when the first child of the union has been reared to the walking stage. In Jieland the process is completed not less than five years after the wedding, for at least two children have to be similarly reared. In both societies the total process culminates in the ritual incorporation of the woman into her husband's house, family and clan, at which time she finally abandons her natal affiliations.

The marriage process consists of a number and variety of events which take place in a strict order such that the completion of one allows preparations to go forward for the next. Each event is consciously related to a further stage in the process. Some of them are of vital ritual significance, some are of importance in establishing and cementing affinal relationships, and some appear almost trivial, scarcely to be raised to the level of a stage of this process. An example of the latter is the naming of the first child and the ceremonial provision of the baby-carrying sling of sheepskin - a common enough event in primitive societies. But even such an event is performed with due ceremony at the relevant time and by conventionally determined people from either side of the union. It is regarded as a new stage in the development, that is, the birth of the child is a further step in the woman becoming a "full-wife" and in uniting her with her husband and his house. It also marks a further step in the linking together of the new affines.

In fact, there are two interwoven processes; one is the development from unmarried girl, to bride, to "bride-wife" (nateran), to mother, to "full-wife" (aberu); the other is the gradual binding together of the husband with his wife's father and full-brothers, and to a lesser degree the houses and even the families of each. By the time the process is completed, the marriage union and the surrounding affinal bonds have been firmly established, emotional adjustments settled, and the woman has an assured status and role in her new house and family. Only when the wife and her children are incorporated into the man's group is marriage completed, then, the natives say "Adowun akotan daang" (the whole marriage is finished).

Among the Jie there are some 15 successive stages, beginning with the formal request of the girl in marriage and ending with her ritual incorporation. Most stages require the slaughter of animals for ceremonial feasts, and many of them necessitate the cooperation of clan elders on both sides. As usual, Turkana ritual is neither so rich in detail nor so frequent in occurrence, but the basic pattern is the same. In both societies, the exact pattern of the process is defined by clan membership. In general the process is essentially similar, in each tribe, for all clans; but many clans differ in the actual details of ritual prescription, and a few clans call for one or two extra stages. Some of the stages are determined by the man's clan and some by the bride's father's clan.

Strictly legally, it is the transfer of bridewealth (literally, "stock of marriage") in the name of the groom to the relatives of the bride which causes a girl to become a wife, although not, as we have seen, a full-wife. As one Jie put it, "You know a woman is married if stock have been given. How do you know a wife if there are no cattle? Other men go away when they know about the

stock." Occasionally when recording genealogies I have been unsure whether some woman is married or not, and invariably my query was answered in the form: "Stock have been given. She is a wife."

The prime, extrinsic features of legal marriage are the man's sexual monopoly over his wife and authority over her children. On the reverse side, the wife gains the opportunity to bear legitimate children and the rights of support and protection from her husband, and she and her children obtain rights in his herds. The norm of domestic union is of course provided within the framework of marriage, which is conceived of as establishing such cooperation. Nevertheless, it must be emphasized that the transfer of bridewealth and its formal, public acceptance is but one stage of the total marriage process, though a critical stage in the eyes of all people. The marriage can only be completely established by the due performance of the ritual and ceremonial acts already mentioned.

1. Which of the following statements is (are) true?
- I. A Jie woman must rear one child before she is considered married.
- II. A Turkana woman must rear one child before she is considered married.
- III. A Jie woman must rear two children before she is considered married.
- IV. A Turkana woman must rear two children before she is considered married.
- V. Both Jie and Turkana women must rear two children before they are considered married.

The correct choices are
A. V only
B. II and III
C. None of the above
D. I and IV

2. Which of the following sequences is correct?
A. Unmarried girl, bride, bride-wife, mother, full-wife.
B. Unmarried girl, bride, bride-wife, full-wife, mother.
C. Unmarried girl, bride-wife, bride, mother, full-wife.
D. Unmarried girl, bride, full-wife, bride-wife, mother.

3. A beru is a(n)
A. unmarried girl.
B. mother.
C. bride.
D. full-wife.

4. The first step in the Jie marriage ritual is
A. ritual incorporation.
B. agreement between the groom and the bride's father.
C. formal request.
D. transfer of the bridewealth.

5. Adowupi akotan daang means
A. Stock has been given. She is a wife.
B. The whole marriage is finished.
C. You know a woman is married if stock has been given.
D. The whole marriage is terminated.

6. The main difference between Jie and Turkana marriage ceremonies is that
A. The Jie ritual is more simple.
B. The Turkana ritual varies more with individual clans.
C. The Jie ritual has only five stages.
D. The Jie ritual is more complicated.

7. You can infer that the author is a(an)
A. Jie.
B. Turkana.
C. historian.
D. anthropologist.

8. One can infer that the author
A. thinks that the Jie ritual is superior.
B. thinks that the Turkana ritual is superior.
C. disapproves of both rituals.
D. None of the above

9. The stages of the ritual are determined by
- I. the bride's father's clan.
- II. the groom.
- III. the groom's father's clan.
- IV. the chief of the tribe.
- V. the grooms' mother's clan.

The correct choices are
A. IV only
B. I., III, and IV
C. I, IV, and V
D. I and III

10. Authority over the children is held by
A. the mother.
B. the father.
C. the bride's father.
D. The chief.

Passage 40

Early man, as long as he merely hunted, fished, and wandered from one place to another, was satisfied to find shelter under protruding rocks or at the tops of large

trees. The lucky ones found natural caves. It was only in the Neolithic period (New Stone Age, which began perhaps in 8000 B.C.) that man actually began building. The glaciers had receded; tools in stone and bone implements had already developed to a certain perfection; agriculture and breeding of cattle began to develop; pottery was formed and at times decorated with primitive designs.

Now man first began to dig deep holes - so-called round-pit dwellings - into the soil and to cover them with twigs, weeds and probably skins of animals. Next, man started to construct real huts over a scaffold of lumber and to fill in the walls with clay or interwoven twigs and weeds. When possible, these huts were erected at the banks of lakes, anchored on poles in the shallow water for protection against enemies. Later on, man began to use stones, which he put together and covered with earth - thus constructing an artificial cave.

This kind of building cannot be called architecture. Only when men tried to bring a certain order into their structures and consciously began to give them a distinct shape can we speak of architecture. This started - perhaps around 4000 B.C. - with the first great historic civilizations: the Egyptian, the Mesopotamian, the Cretan, and those of the Far East. The most striking thing about Egyptian architecture is that it was shaped in geometrical forms, as regular as possible. The pyramids are a good example. The hard stone with which everything in the Nile Valley was built increased still more the massive severity of these angular structures.

We are compelled to admire the skill of those ancient Egyptians who erected the huge pyramids and the enormous temples with their heroic columns for the builders had none of the technical aids that we consider necessary. They had only brain and brawn. The work of machines was substituted for by tens of thousands of people working millions of hours. It took generally a lifetime to complete one of the large pyramids in which the kings from the Third to the Fifth Dynasties (2900-2500 B.C.) were buried. Later, the kings were buried in tombs hewn into the rocks that confined the Nile Valley. Gigantic statues of gods, superhuman in scale, were sculptured to guard the entrances as custodians. Large temples were constructed in connection with these rock tombs. From about 1800 B.C. on we encounter temples, or rather groups of temples, that were sometimes erected in connection with the palace of a king. These temples consisted of large halls with statues of gods in the interior, courtyards, alleys of sphinxes and storerooms. The largest among them were built at Karnak and Luxor (1400?-1180 B.C.) and at Thebes, once the capital of Egypt. It is astonishing that the Egyptians who developed such a monumental type of strict and strong architecture in their temples and tombs had relatively little interest in what we would call today "housing." The majority of houses were exceedingly primitive, put together from clay, reeds and sun-dried bricks, even in the larger cities.

In Mesopotamia, the fertile area between the rivers Euphrates and Tigris, one empire followed the other from 4000 to 600 B.C. The empire of the ancient Sumerians gave way to that of the Babylonians; then followed the Assyrians, the second Babylonian Empire, and finally the Persians. The capitals - Ur, Babylon, Kish, Assur, Nineveh, Persepolis -changed with the reigns of these successive empires. The types of buildings, however, changed very little. Stone and wood were equally rare in these regions, so that bricks, sun-baked and oven-baked, became the building materials. One sort of building became a type. It was called "ziggurat." This was a rather large fortified terrace on which a tremendous tower arose in receding steps, crowned by a structure similar to a modern penthouse. This tower contained the palace of the ruler, the quarters of the highest officers and officials; and on the top was the temple. From excavations we are able to judge that these towers were very high. The whole area was about the size of a small town. The description of the Tower of Babel in the Old Testament refers to such a ziggurat.

The Babylonians and Assyrians first made use of the arch. Neither the Egyptians nor the Cretans and Greeks who came later employed it. The decoration of the Mesopotamian buildings consisted first of glazed bricks. Later, when stone came into use, reliefs were carved on stone.

1. The first architecture took place
- **A.** during the Neolithic era.
- **B.** around 4000 B.C.
- **C.** around 8000 B.C.
- **D.** during the New Stone Age.

2. Which of the following is not listed in the passage as one of the first great historic civilizations?
- **A.** Egyptian
- **B.** Mesopotamian
- **C.** Far Eastern
- **D.** Babylonian

3. Which of the following statements is not true of Egyptian architecture?
- **A.** Simple machines were used.
- **B.** It took a lifetime to build one structure.
- **C.** It was geometrically regular.
- **D.** It was angular.

4. The Third Dynasty took place around
- **A.** 1180 B.C.
- **B.** 2500 B.C.
- **C.** 2900 B.C.
- **D.** 1400 B.C.

5. Which of the following was a capital of Egypt?
- **A.** Karnack
- **B.** Luxor
- **C.** Thebes
- **D.** Nile

6. Which of the following was not a Mesopotamian capital?
- **A.** Tigris
- **B.** Ur
- **C.** Kish
- **D.** Babylon

7. The arch was used by:
- I. Babylonians.
- II. Egyptians.
- III. Cretans.
- IV. Greeks.
- V. Assyrians.

The correct choices are
- **A.** I only
- **B.** I and V
- **C.** I and III
- **D.** I, III, and V

8. The ziggurat was characteristic of the architecture of
- **A.** Egypt.
- **B.** Babel.
- **C.** the Old Testament.
- **D.** Mesopotamia.

9. The best title for this passage would be
- **A.** "Ancient Egyptian Architecture."
- **B.** "Stone Age Architecture."
- **C.** "Neolithic Architecture."
- **D.** "Early Architecture."

10. Which of the following are Mesopotamian rivers?
- I. Nile
- II. Tigris
- III. Euphrates
- IV. Ur
- V. Assur

The correct choices are
- **A.** II and III
- **B.** I, II, and III
- **C.** I, IV, and V
- **D.** II,III, IV, and V

Passage 41

One likes to think that one's attitudes, beliefs, and related behavior form a consistent pattern. Incongruity that is detected results in a sense of imbalance or dissonance, which the person then seeks to correct. The motivating effects of the need to correct incongruity, imbalance, or dissonance has been the occasion for several theories. We may select for consideration the theory proposed by Festinger which treats cognitive dissonance and its reduction. The kind of disagreement or disharmony with which Festinger has been chiefly concerned is that which occurs after a decision has been made, after one is committed to a course of action; under such circumstances there is often some lack of harmony between what one does and what one believes, and there is pressure to change either one's behavior or one's beliefs. For example, if a regular smoker reads about the relationship between smoking and lung cancer, the habitual action and the new information are dissonant. If the decision is made to continue smoking, the dissonance will be reduced by disbelieving the information about the relationship between smoking and lung cancer; if the decision is made to give up smoking, the information on the linkage between smoking and lung cancer will be accepted. The fact that this information also affected the decision is not important here. As Festinger and others have shown, the weighing of alternatives is more realistic prior to the decision; after the decision the pressure is great to bring belief and action into balance.

The theory goes on to make some non-obvious predictions: for example, in some cases failure of expectations instead of destroying belief may strengthen it. This was illustrated by the study of a group of people who expected to be saved from a prophesied disastrous flood by the intervention of a heavenly being. The theory predicted that when the long-awaited day arrived and the prophecy failed (no flood), those who had the social support of the other believers would indeed proselyte for their beliefs with new enthusiasm; while those who had to face the crisis alone would have their faith weakened. These predicted results did indeed occur, the rationalization for the group of disappointed believers who faced failure together being that God had postponed his vengeance because of their faith.

The tendency to be consistent is but one aspect of how self-perception influences motivation. Earlier illustrations of human motivation might also be reinterpreted in these terms. For example, the success motivation and the avoidance of failure are also concerned with how a person sees himself. R. W. White, for example, reinterprets many motives concerned with curiosity, and desire for knowledge and for achievement as though they are all concerned with one's sense of competence as a person who is effective in relation to the environment. In another

sense, the person likes to develop his potentials to the full, to be as complete a person as he can. For such a pervasive type of motive, the expression self-actualization was coined, originally by Carl Jung, one of Freud's followers who later developed a system of his own. By self-actualization he meant the development of full individuality, with all parts somehow in harmony. The term and closely related ones (productive orientation, creative becoming, etc.), have been used by many psychologists who criticize contemporary motivational theory as being too narrow, concerned with short episodes of choice and behavior rather than with the more profound and pervasive aspects of individual hopes and aspirations.

1. Which of the following situations is most likely to give rise to cognitive dissonance?
- **A.** Baseball fans watching their team lose.
- **B.** An antique collector being told by an expert that the vase he has just paid $75 for is worth only $25.
- **C.** Student failing an exam.
- **D.** Man cutting himself shaving.

2. In the case that one's expectations fail, belief
- **A.** will be destroyed.
- **B.** will be shaken, but not destroyed.
- **C.** will be strengthened.
- **D.** may be destroyed or strengthened.

3. With which of the following statements would Jung be most likely to agree?
- **A.** Parents should not allow their children to smoke.
- **B.** Parents should force their children to study piano.
- **C.** Parents should give their children complete freedom.
- **D.** Parents should encourage their children to pursue any interests they might have.

4. Consistency is most important in the theories of
- **A.** Festinger.
- **B.** White.
- **C.** Jung.
- **D.** Freud.

5. This passage probably comes from:
- **A.** the introduction to a book.
- **B.** the first chapter of a book.
- **C.** the middle of a textbook.
- **D.** an article in a news weekly.

6. The best title for this passage would be
- **A.** "Self-actualization."
- **B.** "Self-reference in Human Motivation."
- **C.** "The Reduction of Cognitive Dissonance."
- **D.** "Cognitive Dissonance and the Self."

Passage 42

Although the generals and admirals have increasingly become involved in political and economic decisions, they have not shed the effects of the military training which has moulded their characters and outlook. Yet on the higher levels of their new careers, the terms of their success have changed. Examining them closely today, one comes to see that some are not so different from corporation executives as one had first supposed, and that others seem more like politicians of a curious sort than like traditional images of the military.

It has been said that a military man, acting as Secretary of Defense for example, might be more civilian in effect than a civilian who, knowing little of military affairs and personnel, is easily hoodwinked by the generals and admirals who surround him. It might also be felt that the military man in politics does not have a strong-willed, new, and decisive line of policy, and even that, in a civilian political world, the general becomes aimless and, in his lack of know-how and purpose, even weak.

On the other hand, we must not forget the self-confidence that is instilled by the military training and career: those who are successful in military careers very often gain thereby a confidence which they readily carry over into economic and political realms. Like other people, they are of course open to the advice and moral support of old friends who, in the historical isolation of the military career, are predominantly military. Whatever the case may be with individuals, as a coherent group, the military is probably the most competent now concerned with national policy; no other group has had the training in coordinated economic, political, and military affairs; no other group has had the continuous experience in the making of decisions; no other group so readily "internalizes" the skills of other groups nor so readily engages their skills on its own behalf; no other group has such steady access to world-wide information. Moreover, the military definitions of political and economic reality that now generally prevail among the most civilian of politicians cannot be said to weaken the confidence of the warlords, their will to make policy, or their capacity to do so within the higher circles.

The "politicalization" of the high military that has been going on over the last fifteen years is a rather intricate process: As members of a professional officer corps, some military persons develop a vested interest—personal, institutional, ideological—in the enlargement of all things military. As bureaucrats, some are zealous to enlarge their own particular domains. As powerful individuals, some develop quite arrogant, and others quite shrewd, drives to influence, enjoying as a high value the exercise of power.

1. The most likely title for this passage would be
- **A.** "The New Bureaucrats"
- **B.** "Politics in the Military"
- **C.** "The Military Ascendancy"
- **D.** "The Power Elite"

2. The author's view of the military establishment seems to be
- **A.** enthusiastic approval of its climb to power.
- **B.** overall approval of military persons in government.
- **C.** a scathing, damning indictment of our political process.
- **D.** a careful, wary look at the entry of the military into political power.

3. The author views the ability of military persons in political and economic circles as
- **A.** most competent and capable.
- **B.** weak and dangerously inept.
- **C.** bordering on treason.
- **D.** incompetent and open to corruption.

4. The intrusion of persons with military training into political life
- **A.** will result in an eventual military dictatorship.
- **B.** is a rather simple process.
- **C.** is a complicated process with varying results.
- **D.** involves the collusion of "bureaucrats."

5. In American history, the military establishment has traditionally
- **A.** exercised independent power in pursuit of national goals.
- **B.** followed the dictates of the Republican party.
- **C.** forbidden any retired member to enter civilian government.
- **D.** been under the control of the civilian authority.

Passage 43

In any country, the wages commanded by laborers who have comparable skills but who work in various industries are determined by the productivity of the least productive unit of labor, i.e. that unit of labor which works in the industry which has the greatest economic disadvantage. We will represent the various opportunities of employment in a country like the United States by symbols: A, standing for a group of industries in which we have exceptional economic advantages over foreign countries; B, for a group in which our advantages are less; C, one in which they are still less; D, the group of industries in which they are least of all.

When our population is so small that all our labor can be engaged in the group represented by A, productivity of labor (and therefore wages) will be at their maximum. When our population increases so that some of the labor will have to be set to work in group B. the wages of all labor must decline to the level of the productivity in that group. But no employer, without government aid, will yet be able to afford to hire labor to exploit the opportunities represented by C and D, unless there is a further increase in population.

But suppose that the political party in power holds the belief that we should produce everything that we consume, that the opportunities represented by C and D should be exploited. The commodities that the industries composing C and D will produce have been hitherto obtained from abroad in exchange for commodities produced by A and B. The government now renders this difficult by placing high duties upon the former class of commodities. This means that workers in A and B must pay higher prices for what they buy, but do not receive higher prices for what they sell.

After the duty has gone into effect and the prices of commodities that can be produced by C and D have risen sufficiently, enterprisers will be able to hire labor at the wages prevailing in A and B and establish industries in C and D. So far as the remaining laborers in A and B buy the products of C and D, the difference between the price which they pay for those products and the price that they would pay if they were permitted to import those products duty-free is a tax paid not to the government, but to the producers in C and D, to enable the latter to remain in business. It is an uncompensated deduction from the natural earnings of the laborers in A and B. Nor are the workers in C and D paid as much, estimated in purchasing power, as they would have received if they had been allowed to remain in A and B under the earlier conditions.

1. When C and D are established, workers in these industries
- **A.** receive higher wages than do the workers in A and B.
- **B.** receive lower wages than do the workers in A and B.
- **C.** receive wages equal to those workers in A and B.
- **D.** are not affected so adversely by the levying of duties as are workers in A and B.

2. We cannot exploit C and D unless
- **A.** the productivity of labor in all industries is increased.
- **B.** the prices of commodities produced by A and B are raised.
- **C.** we export large quantities of commodities produced by A and B.
- **D.** the producers in C and D are compensated for the disadvantages under which they operate.

3. "No employer, without government aid, will … be able to afford to hire labor to exploit the opportunities represented by C and D" because
- **A.** productivity of labor is not at the maximum.
- **B.** we cannot produce everything we consume.
- **C.** the population has increased.
- **D.** enterprisers would have to pay wages equivalent to those obtained by workers in A and B while producing under greater economic disadvantages.

4. The government, when it places high duties on imported commodities of classes C and D,
- **A.** raises the price of commodities produced by A and B.
- **B.** is, in effect, taxing the workers in A and B.
- **C.** raises the wages of workers in C and D at the expense of the workers in A and B.
- **D.** does not affect the productivity of the workers in A and B. although the wages of these workers are reduced.

5. The author's main point is that
- **A.** it is impossible to attain national self-sufficiency.
- **B.** the varying productivity of the various industries leads to the inequalities in wages of workers in these industries.
- **C.** a policy that draws labor from the fields of greater natural productiveness to fields of lower natural productiveness tends to reduce purchasing power.
- **D.** wages ought to be independent of international trade.

6. The author's arguments in this passage could best be used to
- **A.** refute the belief that it is theoretically possible for us to produce everything that we consume.
- **B.** disprove the theory that national self-sufficiency can be obtained by means of protective tariffs.
- **C.** advocate the levying of duties on imported goods.
- **D.** advocate free trade.

7. When could C and D, as here defined, be exploited without the assistance of an artificially boosted price and without resultant lowering of wage levels?
- **A.** When a duty is placed on competing products from other countries.
- **B.** When the products of C and D are exchanged in trade for other commodities.
- **C.** When the country becomes economically self-sufficient.
- **D.** At no time.

8. In the last sentence in the selection, the statement is made: "Nor are the workers in C and D paid as much, estimated in purchasing power, as they would have received if they had been allowed to remain in A and B under the earlier conditions." This is because
- **A.** wages in all groups have declined.
- **B.** C and D cannot pay so high wages as can A and B.
- **C.** products of C and D do not command sufficiently high prices.
- **D.** there has not been an increase in population.

Passage 44

However important we may regard school life to be, there is no gainsaying the fact that children spend more time at home than in the classroom. Therefore, the great influence of parents cannot be ignored or discounted by the teacher. They can become strong allies of the school personnel or they can consciously or unconsciously hinder and thwart curricular objectives.

Administrators have been aware of the need to keep parents apprised of the newer methods used in schools. Many principals have conducted workshops explaining such matters as the reading readiness program, manuscript writing, and developmental mathematics. Moreover, the classroom teacher, with the permission of the supervisors, can also play an important role in enlightening parents. The many interviews carried on during the year, as well as new ways of reporting pupils' progress, can significantly aid in achieving a harmonious interplay between school and home.

To illustrate, suppose that a father has been drilling Junior in arithmetic processes night after night. In a friendly interview, the teacher can help the parent sublimate his natural paternal interest into productive channels. He might be persuaded to let Junior participate in discussing the family budget, buying the food, using a yardstick or measuring cup at home, setting the clock, calculating mileage on a trip, and engaging in scores of other activities that have a mathematical basis. If the father follows the advice, it is reasonable to assume that he will soon realize his son is making satisfactory progress in mathematics, and at the same time, enjoying the work.

Too often, however, teachers' conferences with parents are devoted to petty accounts of children's misdemeanors, complaints about laziness and poor work habits, and suggestions for penalties and rewards at home. What is needed is a more creative approach in which the teacher, as a professional adviser, plants ideas in parents' minds for the best utilization of the many hours that the child spends out of the classroom. In this way, the school and the home join forces in fostering the fullest development of youngsters' capacities.

1. The central idea conveyed in the above passage is
   - **A.** home training is more important than school training because a child spends so many hours with his parents.
   - **B.** teachers can and should help parents to understand and further the objectives of the school.
   - **C.** parents unwittingly have hindered and thwarted curricular objectives.
   - **D.** there are many ways in which the mathematics program can be implemented at home.

2. The author directly discusses the fact that
   - **A.** parents drill their children too much in arithmetic.
   - **B.** principals have explained the new art programs to parents.
   - **C.** a father can have his son help him construct articles at home.
   - **D.** a parent's misguided efforts can be redirected to proper channels.

3. It can reasonably be inferred that the author
   - **A.** is satisfied with present relationships between home and school.
   - **B.** feels that the traditional program in mathematics is slightly superior to the developmental program.
   - **C.** believes that schools are lacking in guidance personnel.
   - **D.** feels that parent-teacher interviews can be made much more constructive than they are at present.

4. A method of parent-teacher communication not mentioned or referred to by the author is
   - **A.** classes for parents.
   - **B.** new progress report forms.
   - **C.** parent-teacher interviews.
   - **D.** demonstration lessons.

5. The author implies that
   - **A.** participation in interesting activities relating to a subject improves one's achievement in that area.
   - **B.** too many children are lazy and have poor work habits.
   - **C.** school principals do more than their share in interpreting the curriculum to the parents.
   - **D.** only a small part of the school day should be set apart for drilling in arithmetic.

6. The author's purpose in writing this passage is to
   - **A.** tell parents to pay more attention to the guidance of teachers in the matter of educational activities in the home.
   - **B.** help ensure that every child's capacities are actually fully developed when he leaves school.
   - **C.** urge teachers and school administrators to make use of a much underused resource - the parent.
   - **D.** improve the teaching of mathematics.

7. It is most reasonable to infer that the author is a(n)
   - **A.** elementary school teacher.
   - **B.** parent.
   - **C.** student.
   - **D.** professor of education.

Passage 45

In the Federal Convention of 1787, the members were fairly well agreed as to the desirability of some check on state laws; but there was sharp difference of opinion whether this check should be political in character as in the form of a congressional veto, or whether the principle of judicial review should be adopted.

Madison was one of the most persistent advocates of the congressional veto and in his discussion of the subject he referred several times to the former imperial prerogative of disallowing provincial statutes. In March, 1787, he wrote to Jefferson, urging the necessity of a federal negative upon state laws. He referred to previous colonial experience in the suggestion that there should be "some emanation" of the federal prerogative "within the several states, so far as to enable them to give a temporary sanction to laws of immediate necessity." This had been provided for in the imperial system through the action of the royal governor in giving immediate effect to statutes, which nevertheless remained subject to royal disallowance. In a letter to Randolph a few weeks later, Madison referred more explicitly to the British practice, urging that the national government be given "a negative, in all cases whatsoever, on the Legislative acts of the States, as the King of Great Britain heretofore had." Jefferson did not agree with Madison; on practical grounds rather than as a matter of principle, he expressed his preference for some form of judicial control.

On July 17, Madison came forward with a speech in support of the congressional veto, again supporting his contention by reference to the royal disallowance of colonial laws: "Its utility is sufficiently displayed in the British System. Nothing could maintain the harmony and subordination of the various parts of the empire, but the prerogative by which the Crown stifles in the birth every Act of every part tending to discord or encroachment. It is true the prerogative is sometimes misapplied through ignorance or a partiality to one particular part of the

empire: but we have not the same reason to fear such misapplications in our System." This is almost precisely Jefferson's theory of the legitimate function of an imperial veto.

This whole issue shows that the leaders who wrestled with confederation problems during and after the war understood, in some measure at least, the attitude of British administrators when confronted with the stubborn localism of a provincial assembly.

1. Madison was advocating
- **A.** royal disallowance of state legislation
- **B.** a political check on state laws
- **C.** the supremacy of the states over the federal government
- **D.** the maintenance of a royal governor to give immediate effect to statutes

2. From this passage there is no indication
- **A.** of what judicial review would entail.
- **B.** of Jefferson's stand on the question of a check on state laws.
- **C.** that the royal negative had been misapplied in the past.
- **D.** that Jefferson understood the attitude of British administrators.

3. According to this passage, Madison believed that the federal government
- **A.** ought to legislate for the states.
- **B.** should recognize the sovereignty of the several states.
- **C.** ought to exercise judicial control over state legislation.
- **D.** should assume the king's veto power.

4. Madison's conception of a congressional veto
- **A.** was opposed to Jefferson's conception of a congressional veto.
- **B.** developed from fear that the imperial negative might be misused.
- **C.** was that the federal prerogative should be exercised in disallowing state laws.
- **D.** was that its primary function was to give temporary sanction to laws of immediate necessity.

5. Madison believed that
- **A.** the congressional veto would not be abused.
- **B.** the royal prerogative ought to have some form of check to correct misapplications.
- **C.** the review of state legislation by the federal government ought to remain subject to a higher veto.
- **D.** the imperial veto had not been misused.

6. Jefferson believed that
- **A.** the congressional veto would interfere with states' rights.
- **B.** Madison's proposal smacked of imperialism.
- **C.** the veto of state legislation was outside the limits of the federal prerogative.
- **D.** the British System would be harmful if applied in the United States.

7. Madison's main principle was that
- **A.** the national interest is more important than the interests of any one state.
- **B.** the national government should have compulsive power over the states.
- **C.** the king can do no wrong.
- **D.** the United States should follow the English pattern of government.

8. Madison thought of the states as
- **A.** emanations of the federal government.
- **B.** comparable to provinces of a colonial empire.
- **C.** incapable of creating sound legislation.
- **D.** having no rights specifically delegated to them.

9. Which of the following is the best argument which could be made against Madison's proposition?
- **A.** The United States has no king.
- **B.** The federal government is an entity outside the jurisdiction of the states.
- **C.** Each state has local problems concerning which representatives from other states are not equipped to pass judgement.
- **D.** The federal prerogative had been misused in the past.

Passage 46

Hong Kong's size and association with Britain, and its position in relation to its neighbors in the Pacific, particularly China, determine the course of conduct it has to pursue. Hong Kong is no more than a molecule in the great substance of China. Its area is a mere 398 square miles. Fortunately, however, we cannot dispose of Hong Kong as simply as this. There are components in its complex and unique existence which affect its character and, out of all physical proportion, increase its significance. Among these, the most potent are its people, their impressive achievements in partnership with British administration and enterprise, and the rule of law which protects personal freedom in the British tradition.

What is Hong Kong, and what is it trying to do? In 1841 Britain acquired outright, by treaty, the Island of Hong Kong, to use as a base for trade with China, and in 1860, the Kowloon Peninsula, to complete the perimeter of the superb harbor, which has determined Hong Kong's

history and character. Hong Kong prospered as a center of trade with China, expanding steadily until it fell to the Japanese in 1941. Although the rigors of a severe occupation set everything back, the Liberation in 1945 was the herald of an immediate and spectacular recovery in trade. People poured into the Colony, and this flow became a flood during 1949-50, when the Chinese National Government was defeated by the Communists. Three-quarters of a million people entered the Colony at that stage. Very soon two things affected commercial expansion. First, the Chinese government restricted Hong Kong's exports to China, because it feared unsettled internal conditions, mounting inflation, and a weakness in its exchange position.

Secondly, during the Korean War, the United Nations imposed an embargo on imports into China, the main source of Hong Kong's livelihood. This was a crisis for Hong Kong; its China trade went overnight, and by this time it had over one million refugees on its hands. But something dramatic happened. Simply stated, it was this: Hong Kong switched from trading to manufacturing. It did it so so quickly that few people, even in Hong Kong, were aware at the time of exactly what was happening, and the rest of the world was not quickly convinced of Hong Kong's transformation into a center of manufacturers. Its limited industry began to expand rapidly and, although more slowly, to diversify, and it owed much to the immigrants from Shanghai, who brought their capital, experience, and expertise with them.

Today Hong Kong must be unique among so-called developing countries in the dependence of its economy on industrialization. No less than 40 percent of the labor force is engaged in the manufacturing industries; and of the products from these, Hong Kong exports 90 percent, and it does this despite the fact that its industry is exposed to the full competition of the industrially mature nations. The variety of its goods now ranges widely from the products of shipbuilding, through textiles and plastics, to air-conditioners, transistor radios, and cameras. More than 70 percent of its exports are either wholly or partly manufactured in Hong Kong. In recent years these domestic exports have been increasing at about 15 percent a year. America is the largest market, taking 25 percent of the value of Hong Kong's exports; then follow the United Kingdom, Malaysia, West Germany, Japan, Canada, and Australia; but all countries come within the scope of its marketing.

1. The article gives the impression that
- **A.** English rule constituted an important factor in Hong Kong's economic development.
- **B.** refugees from China were a liability to the financial status of Hong Kong.
- **C.** Hong Kong has taken a developmental course comparable to that of the new African nations.
- **D.** British forces used their military might imperialistically to acquire Hong Kong.

2. The economic stability of Hong Kong since World War II is primarily attributable to
- **A.** its shipbuilding activity.
- **B.** businessmen and workers from Shanghai who settled in Hong Kong.
- **C.** its political separation from China.
- **D.** a change in the type of business done in Hong Kong.

3. Hong Kong's commerce was most adversely affected by the
- **A.** liberation.
- **B.** Japanese occupation.
- **C.** British administration.
- **D.** retreat of the Chinese National Government.

4. From the passage it would appear that
- **A.** the British succeeded in holding fast to Hong Kong through all events.
- **B.** the population of Hong Kong has grown steadily.
- **C.** the British were successful in their original plans for Hong Kong.
- **D.** Hong Kong is still the trading capital of the Orient.

5. In the decade following World War II, all of the following were stated or implied to be important factors in Hong Kong's economic development except
- **A.** capital from Shanghai.
- **B.** experts from Shanghai.
- **C.** manufacturing machinery from Shanghai.
- **D.** the Korean War.

6. The author of this passage is most probably a(n)
- **A.** Hong Kong politician.
- **B.** American journalist.
- **C.** Oriental manufacturer.
- **D.** student of Far Eastern economic history.

7. If the trends cited in the passage continue, which of the following is the most likely?
- **A.** By the year 2000 the large majority of the Hong Kong work force will be engaged in manufacture for export.
- **B.** By the year 1995 the majority of Hong Kong's exports will have become manufactured items.
- **C.** By the year 1990 Hong Kong's population pressures will be absolutely unmanageable.
- **D.** By the year 1989 most Hong Kong businessmen will be very well-off.

Passage 47

Educators are seriously concerned about the high rate of dropouts among the doctor of philosophy candidates and the consequent loss of talent to a nation in need of Ph.D.'s. Some have placed the dropout loss as high as 50 percent. The extent of the loss was, however, largely a matter of expert guessing.

Then a well-rounded study was published. It was based on 22,000 questionnaires sent to former graduate students who were enrolled in 24 universities between 1950 and 1954 and seemed to show many past fears to be groundless. The dropout rate was found to be 31 percent, and in most cases the dropouts, while not completing the Ph.D. requirements, went on to productive work. They are not only doing well financially, but, according to the report, are not far below the income levels of those who went on to complete their doctorates. The study, called "Attrition of Graduate Students at the Ph.D. Level in the Traditional Arts and Sciences," was made at Michigan State University under a $60,000 grant from the United States Office of Education. It was conducted by Dr. Allan Tucker.

Discussing the study, Dr. Tucker said the project was initiated "because of the concerns frequently expressed by graduate faculties and administrators that some of the individuals who dropped out of Ph.D. programs were capable of completing the requirements for the degree." "Attrition at the Ph.D. level is also thought to be a waste of precious faculty time and a drain on university resources already being used to capacity. Some people expressed the opinion that the shortage of highly trained specialists and college teachers could be reduced by persuading the dropouts to return to graduate school to complete the Ph.D. program." "The results of our research," Dr. Tucker concluded, "did not support these opinions.

The study found that:
(1) Lack of motivation was the principal reason for dropping out.
(2) Most dropouts went as far in their doctoral programs as was consistent with their levels of
ability or their specialties.
(3) Most dropouts are now engaged in work consistent with their education and motivation.
(4) The dropout rate was highest in the humanities (50 percent) and lowest in the natural sciences (29 percent), and was higher in lower quality graduate schools.

Nearly 75 percent of the dropouts said there was no academic reason for their decision, but those who mentioned academic reasons cited failure to pass qualifying examinations, uncompleted research, and failure to pass language exams. Among the single most important personal reasons identified by dropouts for non-completion of their Ph.D. programs, the study found "lack of finances" was marked by 19 percent. As an indication of how well the dropouts were doing, a chart showed that 2 percent of those whose studies were in the humanities were receiving $20,000 and more annually while none of the Ph.D.'s with that background reached this figure. The Ph.D.'s did extremely well in the $7,500 to $15,000 bracket with 78 percent at that level against 50 percent for the dropouts. This may also be an indication of the fact that top salaries in the academic fields, where Ph.D.'s tend to rise to the highest salaries, lag behind other fields. In the social sciences 5 percent of the Ph.D.'s reached the $20,000 plus figure as against 3 percent of the dropouts, but in the physical sciences they were neck-and-neck with 5 percent each.

Academic institutions employed 90 percent of the humanities Ph.D.'s as against 57 percent of the humanities dropouts. Business and industry employed 47 percent of the physical science Ph.D.'s and 38 percent of the physical science dropouts. Government agencies took 16 percent of the social science Ph.D.'s and 32 percent of the social science dropouts.

As to the possibility of getting dropouts back on campus, the outlook was glum. "The main conditions which would have to prevail for at least 25 percent of the dropouts who might consider returning to graduate school would be to guarantee that they would retain their present level of income and in some cases their present job."

1. After reading the passage it could be suggested that
- **A.** the majority of humanities doctoral students received inadequate academic preparation for graduate studies.
- **B.** the majority of engineering students are less well-read than humanities students in their respective areas.
- **C.** undergraduate students are poorly motivated.
- **D.** doctoral candidates in the natural sciences are better prepared for their studies than those in other fields.

2. After reading the article, one would refrain from concluding that
- **A.** colleges and universities employ a substantial number of Ph.D. dropouts.
- **B.** Ph.D.'s are not earning what they deserve in non-academic positions.
- **C.** the study was conducted efficiently and is probably valid.
- **D.** optimism reigns in regard to getting Ph.D. dropouts to return to their pursuit of the degree.

3. The article states that
- **A.** not having sufficient funds to continue accounts for more. Ph.D. dropouts than all the other reasons combined.
- **B.** in fields such as English, philosophy, and the arts, the dropouts are doing better in the highest salary brackets than the Ph.D.'s.
- **C.** at the $10,000 earning level, there is a higher percentage of dropouts than the percentage of Ph.D.'s.
- **D.** in physics, geology, and chemistry, the Ph.D.'s are twice as numerous in the higher salary brackets than the dropouts.

4. It would be fair to infer that Dr. Tucker agrees with the statement that
- **A.** there are students admitted to doctoral programs who should be content not to finish them.
- **B.** a well-motivated student will never have to drop out of a doctoral program.
- **C.** substantial scholarship aid is available to most dropouts who wish to return to school.
- **D.** dropping out of a doctoral program reflects badly on all concerned.

5. Research has shown that
- **A.** all dropouts are substantially below Ph.D.'s in financial attainment.
- **B.** the incentive factor is a minor one in regard to pursuing Ph.D. studies.
- **C.** the Ph.D. candidate is likely to change his field of specialization if he drops out.
- **D.** about one-third of those who start Ph.D. work do not complete the work to earn the degree.

6. Dr. Tucker based his distinction between higher and lower quality graduate schools on
- **A.** degrees and publications of the faculty.
- **B.** estimates made by deans of graduate schools.
- **C.** later attainments of the students.
- **D.** a basis not mentioned in the passage.

7. What may we infer was Dr. Tucker's reasoning in stating that the dropouts were not wasting precious faculty time and draining away university resources?
- **A.** The dropouts were self-selected by lack of motivation.
- **B.** The rate was highest in the poorer schools.
- **C.** Most dropouts were using their education in their work.
- **D.** There wasn't enough money for many of the dropouts to continue.

Passage 48

The nucleus of a town's population is the local businessmen, whose interests constitute the municipal policy and control its municipal administration. These local businessmen are such as the local bankers, merchants of many kinds and degrees, real estate promoters, local lawyers, local clergymen, and so forth. The businessmen, who take up the local traffic in merchandising, litigation, church enterprise and the like, commonly begin with some share in the real estate speculation. This affords a common bond and a common ground of pecuniary interest, which commonly masquerades under the name of local patriotism, public spirit, civic pride, and the like. This pretense of public spirit is so consistently maintained that most of these men come presently to believe in their own professions on that head. Pecuniary interest in local land values involves an interest in the continued growth of the town. Hence any creditable misrepresentation of the town's volume of business traffic, population, tributary farming community, or natural resources, is rated as serviceable to the common good. And any member of this business-like community will be rated as a meritorious citizen in proportion as he is serviceable to this joint pecuniary interest of these "influential citizens."

1. The tone of the paragraph is
- **A.** bitter.
- **B.** didactic.
- **C.** complaining.
- **D.** satirical.

2. The foundation for the "influential citizens"' interest in their community is
- **A.** their control of the municipal administration.
- **B.** their interests in trade and merchandising.
- **C.** their natural feeling of civic pride.
- **D.** ownership of land for speculation.

3. The "influential citizens"' type of civic pride may be compared with the patriotism of believers in
- **A.** dollar diplomacy.
- **B.** racial superiority.
- **C.** laissez faire.
- **D.** a high tariff.

4. The important men in the town
- **A.** are consciously insincere in their local patriotism.
- **B.** are drawn together for political reasons.
- **C.** do not scruple to give their community a false boost.
- **D.** regard strict economy as a necessary virtue.

5. The writer considers that the influential men of the town
- **A.** are entirely hypocritical in their conception of their motives.
- **B.** are blinded to facts by their patriotic spirit.
- **C.** have deceived themselves into thinking they are altruistic.
- **D.** look upon the welfare of their community as of paramount importance.

6. Probably the author's own view of patriotism is that it
- **A.** should be a disinterested passion untinged by commercial motives.
- **B.** is found only among the poorer classes.
- **C.** is usually found in urban society.
- **D.** grows out of a combination of the motives of self interest and altruism.

Passage 49

Foods are overwhelmingly the most advertised group of all consumer products in the United States. Food products lead in expenditures for network and spot television advertisements, discount coupons, trading stamps, contests, and other forms of premium advertising. In other media - newspapers, magazines, newspaper supplements, billboards, and radio - food advertising expenditures rank near the top. Food manufacturers spend more on advertising than any other manufacturing group, and the nation's grocery stores rank first among all retailers.

Throughout the 1970's, highly processed foods have accounted for the bulk of total advertising. Almost all coupons, electronic advertising, national printed media advertising, consumer premiums (other than trading stamps) as well as most push promotion come from processed and packaged food products. In 1978, breakfast cereals, soft drinks, candy and other desserts, oils and salad dressings, coffee, and prepared foods accounted for only an estimated 20 percent of the consumer food dollar. Yet these items accounted for about one-half of all media advertising.

By contrast, highly perishable foods such as unprocessed meats, poultry, fish and eggs, fruits and vegetables, and dairy products accounted for over half of the consumer food-at-home dollar. Yet these products accounted for less than 8 percent of national media advertising in 1978, and virtually no discount coupons. These products tend to be most heavily advertised by the retail sector in local newspapers, where they account for an estimated 40 percent of retail grocery newspaper ads.

When measured against total food-at-home expenditures, total measured food advertising accounts for between 3 to 3.7 cents out of every dollar spent on food in the nation's grocery stores. A little less than one cent of this amount is accounted for by electronic advertising (mostly television) while incentives account for 0.6 cents. The printed media accounts for 0.5 cents and about one-third of one cent is comprised of discount coupon redemptions. The estimate for the cost of push promotion ranges from 0.7 to 1.4 cents. This range is necessary because of the difficulty in separating non-promotional aspects of direct selling - transportation, technical, and other related services.

Against this gross consumer cost must be weighed the joint products or services provided by advertising. In the case of electronic advertising, the consumer who views commercial television receives entertainment, while readers of magazines and newspapers receive reduced prices on these publications. The consumer pays directly for some premiums, but also receives non-food merchandise as an incentive to purchase the product. The "benefits" must, therefore, be subtracted from the gross cost to the consumer to assess the net cost of advertising fully.

Also significant are the impacts of advertising on food demand, nutrition, and competition among food manufacturers. The bulk of manufacturers' advertising is concentrated on a small portion of consumer food products. Has advertising changed the consumption of these highly processed products relative to more perishable foods such as meats, produce, and dairy products? Has the nutritional content of U.S. food consumption been influenced by food advertising? Has competition among manufacturers and retailers been enhanced or weakened by advertising? These are important questions and warrant continued research.

1. The author's attitude toward advertising can be characterized as
- **A.** admiring.
- **B.** condemning.
- **C.** uncertain.
- **D.** inquisitive.

2. As used in the passage, the term "push promotion" means
- **A.** coupon redemption.
- **B.** retail advertising.
- **C.** advertising in trade journals.
- **D.** direct selling.

3. The author implies that advertising costs
- **A.** are greater for restaurants than for at-home foods.
- **B.** should be discounted by the benefits of advertising to the consumer.
- **C.** are much higher in the United States than anywhere else in the world.
- **D.** for prepared foods are considerably higher than for natural foods for all media.

4. The purpose of the article is to
- **A.** warn about rising food advertising costs.
- **B.** let experts see how overextended food advertising has become.
- **C.** describe the costs of food advertising and the issues yet to be understood about its effects.
- **D.** congratulate the food industry on its effective advertising.

5. All of the following are stated or implied to be important topics for further research except
- **A.** effects of advertising on food and nutrient consumption patterns.
- **B.** effects of advertising on food manufacturer competitive patterns.
- **C.** effects of advertising on meat consumption patterns.
- **D.** effects of advertising on out-of-home eating patterns.

6. According to the passage, all of the following are definitely false except
- **A.** total food advertisements in newspapers cost more than those on television.
- **B.** less money is spent advertising food than automobiles.
- **C.** more of the food advertising budget is spent on push promotion than television ads.
- **D.** less money is spent on food store advertising than on clothing store ads.

7. If it were discovered that the nutritional content of the U.S. food supply were degraded by the advertising of highly processed foods, and such advertising were totally banned, which of the following would be a possible result of the ban that could be inferred from the passage?
- **A.** The subscription costs of publications might rise.
- **B.** The cost of cable television might decrease.
- **C.** The cost of free television might rise.
- **D.** Fewer consumers would watch certain television shows.

Passage 50

Negative thinking and lack of confidence in oneself or in the pupils are probably the greatest hindrances to inspirational teaching. Confronted with a new idea, one teacher will exclaim: "Oh, my children couldn't do that! They're too young." Another will mutter, "If I tried that stunt, the whole class would be in an uproar." Such are the self-justifications for mediocrity.

Here and there it is good to see a teacher take a bold step away from the humdrum approach. For example, Natalie Robinson Cole was given a class of fourth-year pupils who could hardly speak English. Yet in her book, "The Arts in the Classroom," she describes how she tried clay work, creative writing, interpretive dancing, and many other exciting activities with them. Did her control of the class suffer? Were the results poor? Was morale adversely affected? The answer is "no" on all three counts.

But someone may point out that what Mrs. Cole did on the fourth-grade could not be done in the primary grades. Wrong again! The young child is more malleable than his older brother. Furthermore, his radiant heritage of originality has not been enveloped in clouds of self-consciousness. Given the proper encouragement, he will paint an interesting design on the easel, contribute a sparkling expression to the "class poem" as it takes shape on the blackboard, make a puppet speak his innermost thoughts, and react with sensitivity in scores of other ways.

All teachers on all grade levels need to think positively and act confidently. Of course, any departure from the commonplace must be buttressed by careful preparation, firm handling of the situation, and consistent attention to routines. Since these assets are within the reach of all teachers there should be no excuse for not putting some imagination into their work.

1. The central idea of the above passage is best conveyed by the
- **A.** first sentence in the first paragraph.
- **B.** last sentence in the first paragraph.
- **C.** first sentence in the second paragraph.
- **D.** last sentence in the passage.

2. If the concepts of this passage were to be expanded into a book, the title that would be most suitable is
- **A.** *The Arts in the Classroom.*
- **B.** *The Power of Positive Thinking.*
- **C.** *The Hidden Persuaders*.
- **D.** *Kids Say the Darndest Things*.

3. Of the following reasons for uninspired teaching, the one which is not given explicitly in the passage is
- **A.** negative thinking.
- **B.** teachers' underestimation of pupils' ability or stability.
- **C.** teachers' failure to broaden themselves culturally.
- **D.** teachers' lack of self-assurance.

4. From reading the passage one can gather that Natalie R. Cole
- **A.** teaches in New York City.
- **B.** has been married.
- **C.** is an expert in art.
- **D.** teaches in the primary grades.

5. An activity for children in the primary grades which is not mentioned in the passage is
- **A.** creative expression.
- **B.** art work.
- **C.** puppetry.
- **D.** constructing with blocks.

6. A basic asset of the inspirational teacher not mentioned in the passage is
- **A.** a pleasant, outgoing personality.
- **B.** a firm hand.
- **C.** a thorough, careful plan.
- **D.** acting confidently.

Passage 51

If present trends continue, nearly one out of every three of today's farms may not be around by the turn of the century. The prime culprit won't be urban sprawl. Most of the decline in the number of farms will come as larger units absorb smaller ones, resulting in an increasing concentration of farmland and farm production among the biggest operations.

Of course, these projections are by no means inevitable. Farm policies, the economy, energy costs, technology, foreign market developments, and other perhaps unanticipated factors will all influence the future of U.S. agriculture. While much of the move to larger operations will reflect farmers' expansion decisions, price inflation will also play a role in pushing farms into larger sales classes. These projections assume an average annual increase in farm prices of 7.5 percent - about equal to the average rate of the 1970's.

Under these conditions, about a third of the build up in larger farms will reflect nothing more than changes in farm prices. A higher price inflation rate would shift more farms into the largest sales classes, while a lower rate would slow the trend. In either case, U. S. agricultural production will become increasingly concentrated among fewer and larger farms. Recent figures show that the largest 1 percent of the farms produce about a fourth of the nation's food. In 20 years, they'll account for half of total U.S. output, while the smallest 50 percent of our farms will produce less than 1 percent of America's crops and livestock. By then, farms with annual sales of $100,000 or more will produce virtually all the food going into commercial marketing channels.

The diminished role of small farms will partly reflect their size. Small farms of the year 2000 will be very small according to projections that the largest million farms will operate almost all of the nation's farmland. Three-fourths of the farmland will be in the hands of the top 200,000 operators. Total farm wealth will show a similar pattern of concentration. Equity capital (farmers' ownership share of their total assets) was distributed evenly among farm sales classes in 1978 - the small, medium, and large classes each accounted for about a third of total U. S. farm equity. In 20 years, however, two-thirds of the total wealth of the farm sector will be in farms with sales of $100,000 or more.

Partly for these reasons, it will become even more difficult for new farmers to get started. They may need about $2 million in assets for a farm to generate sales of more than $100,000, double the estimated requirement of 1978.

Of course, capital requirements for small farms will be much lower, and a large percentage of operators are now at the age where they'll be retiring sometime in the next few decades. However, even when smaller, less expensive tracts of farmland are available for sale or rental, many aspiring young farmers will face intense competition from established farmers expanding their operations. There may also be sales competition from non-farm investors seeking to develop the land or rent it to a "proven" operator. Those who do manage to enter farming on a small scale will be heavily dependent on off-farm income. Very few will succeed in making the transition to full-time farming. Most small farms won't generate enough income to support a family, let alone enough for expansion. Also, as many of these units are bought up to expand existing farms, there will be fewer farms around for the future, particularly at the sizes a young person may be able to afford.

In fact, for every three operators who leave farms with sales of less than $100,000, only one will begin. The total number of new farmers under age 35 may shrink from about 377,000 just a few years ago to 233,000 by the end of the century. Of course, the number of large farms will be expanding, but that won't open many doors for new entrants because the capital requirements will usually be far beyond their reach. Opportunities will be

confined mostly to those who inherit a farm, and - more often than in the past - they'll be inheriting not an entire farm, but partnerships or shares in a family farm corporation that's highly specialized.

1. The tone of the passage is best described as
- **A.** alarmed.
- **B.** cautious.
- **C.** factual.
- **D.** rustic.

2. According to the passage, a large farm is one that
- **A.** produces two-thirds of the nation's crops and livestock.
- **B.** has sales of over $100,000 per year.
- **C.** covers more than 2 square miles.
- **D.** can support a family of six.

3. The passage would be most likely to have appeared as an article in which of the following?
- **A.** a publication of the United States Department of Defense.
- **B.** a publication of the University School of Forests and Mines.
- **C.** a publication of the United States Department of Agriculture.
- **D.** a publication of the United States Internal Revenue Service.

4. The passage predicts all of the following except
- **A.** fewer younger farmers.
- **B.** fewer smaller farms.
- **C.** fewer farms producing relatively more.
- **D.** more families will be living on farms.

5. According to the passage, a lower rate of inflation would slow the trend to larger farms because
- **A.** reduced inflation will slow the economy and make farming a less attractive investment.
- **B.** inflation is necessary for economic growth.
- **C.** population pressures will lower food prices.
- **D.** prices received for farm produce would increase less, and sales are the measure of farm size.

6. It can be inferred from the passage that
- **A.** predicting agricultural trends is a complex process.
- **B.** reducing the number of farms will surely increase productivity.
- **C.** increasing the size of farms will necessarily increase productivity.
- **D.** increasing farm size will increase the total wealth held by farmers.

7. Good advice for the aspiring farmer would be
- **A.** "Go west, young man, go west."
- **B.** "Make hay while the sun shines."
- **C.** "Many are called, but few are chosen."
- **D.** "Millions for defense, but not one cent for tribute."

Passage 52

In my early childhood I received no formal religious education. I did, of course, receive the ethical and moral training that moral and conscientious parents give their children. When I was about ten years old, my parents decided that it would be good for me to receive some formal religious instruction and to study the Bible, if for no other reason than that a knowledge of both is essential to the understanding of literature and culture.

As lapsed Catholics, they sought a group which had as little doctrine and dogma as possible, but what they considered good moral and ethical values. After some searching, they joined the local Meeting of the Religious Society of Friends. Although my parents did not attend Meetings for Worship very often, I went to First Day School there regularly, eventually completing the course and receiving an inscribed Bible.

At the Quaker school, I learned about the concept of the "inner light" and it has stayed with me. I was, however, unable to accept the idea of Jesus Christ being any more divine than, say, Buddha. As a result. I became estranged from the Quakers who, though believing in substantially the same moral and ethical values as I do, and even the same religious concept of the inner light, had arrived at these conclusions from a premise which I could not accept. I admit that my religion is the poorer for having no revealed word and no supreme prophet, but my inherited aversion to dogmatism limits my faith to a Supreme Being and the goodness of man.

Later, at another Meeting for Worship, I found that some Quakers had similar though not so strong reservations about the Christian aspects of their belief. I made some attempt to rejoin a Meeting for Worship, but found that though they remained far closer to me than any other organized religious group, I did not wish to become one again. I do attend Meetings for Worship on occasion, but it is for the help in deep contemplation which it brings rather than any lingering desire to rejoin the fold.

I do believe in a "Supreme Being" (or ground of our Being, as Tillich would call it). This Being is ineffable and not to be fully understood by humans. He is not cut off from the world and we can know him somewhat through the knowledge which we are limited to the world. He is interested and concerned for humankind but on man himself falls the burden of his own life. To me the

message of the great prophets, especially Jesus, is that good is its own reward, and indeed the only possible rewards are intrinsic in the actions themselves. The relationship between each human and the Supreme Being is an entirely personal one.

It is my faith that each person has this unique relationship with the Supreme Being. To me that is the meaning of the inner light. This purpose of life, insofar as a human can grasp it, is to understand and increase this lifeline to the Supreme Being, this piece of divinity that *every* human has. Thus, the taking of any life by choice is the closing of some connection to God, and unconscionable. Killing anyone not only denies them their purpose, but corrupts the purpose of all men.

1. The author of the preceding passage is most probably writing in order to
- **A.** persuade a friend to convert to Quakerism.
- **B.** reassure a Friend that he has not become immoral.
- **C.** explain the roots of his pacifism.
- **D.** analyze the meaning of the "inner light."

2. If offered a reward for doing a good deed, the author would
- **A.** spurn the reward indignantly.
- **B.** accept it only as a token of the other person's feelings of gratitude.
- **C.** neither take nor refuse the reward.
- **D.** explain to the offerer that rewards are blasphemous.

3. According to the passage, the Quakers
- **A.** are the group he wishes to become a member of again.
- **B.** have historically been pacifists.
- **C.** are Christians, but only in a weak sense.
- **D.** share basic religious thought with the author.

4. Which of the following would the author see as most divine?
- **A.** Jesus Christ.
- **B.** Buddha.
- **C.** Mohammed.
- **D.** They would be seen as equally divine.

5. It can be inferred that
- **A.** the author views the inner light as uniquely an attribute of Quakers.
- **B.** Quakers treat all men the same, whether they have inner light or not.
- **C.** the Catholics are not concerned with killing.
- **D.** the author's parents found Catholic religious views unsuitable or inadequate.

6. The author argues that
- **A.** we must seek greater comprehension of our own inner lights.
- **B.** humans must always seek to increase the number of inner lights, hence, population increase is desirable.
- **C.** the unique relationship between each person and his inner light makes him more divine than those without an inner light.
- **D.** only a person without an inner light could kill.

7. If the author, were faced with a situation where the killing of another human would occur both by his action and his inaction, then
- **A.** he could not act because it would kill someone.
- **B.** he could not fail to act because it would kill someone.
- **C.** he would have to kill himself to avoid the situation.
- **D.** he would have to choose to act or not act on some basis other than whether a human would die.

Passage 53

An action of apparent social significance among animals is that of migration. But several different factors are at work causing such migrations. These may be concerned with food-getting; with temperature, salinity, pressure, and light changes; with the action of sex hormones; and probably combinations of these and other factors.

The great aggregations of small crustaceans found at the surface of the ocean, swarms of insects about a light, or the masses of plankton in the lakes and oceans are all examples of non-social aggregations of organisms brought together because of the presence or absence of certain factors in their environment, such as air currents, water currents, food or the lack of it, oxygen, or carbon dioxide, etc.

Insects make long migrations, most of which seem due to the urge for food. The migrations of the locust, both in this country and elsewhere, are well-known. While fish, such as salmon, return to the same stream where they grew up, such return migrations are rare in insects, the only known instance being in the monarch butterfly. This is apparently due to the fact that it is long-lived and has the power of strong flight. The mass migrations of the Rocky Mountain and the African species of locust seem attributable to the need for food. Locusts live, eat, sun themselves, and migrate in groups. It has been suggested that their social life is in response to the two fundamental instincts - aggregation and imitation.

Migrations of fish have been studied carefully by many investigators. Typically, the migrations are from deep to shallow waters, as in the herring, mackerel, and many other marine fish. Fresh water fish, in general, exhibit this type of migration in the spawning season. Spawning habits of many fish show a change in habitat - from salt to fresh water. In the North American and European eels, long migrations take place at the breeding season. All these migrations are obviously not brought about by a quest for food; for the salmon and many other fish feed only sparingly during the spawning season, but are undoubtedly brought about by metabolic changes in the animal initiated by the interaction of sex hormones. If this thesis holds, then here is the beginning of social life.

Bird migrations have long been a matter of study. The reasons for the migration of the golden plover from the Arctic regions to the tip of South America and back in a single year are not fully explainable. Several theories have been advanced, although none have been fully proved. The reproductive "instinct," food scarcity, temperature and light changes, the metabolic changes brought about by the activity of the sex hormones, and the length of the day all have been suggested, and ultimately several may prove to be factors. Aside from other findings, it is interesting to note that bird migrations take place year after year on about the same dates. Recent studies in the biochemistry of metabolism, showing that there is a seasonal cycle in the blood sugar that has a definite relation to activity and food, seem to be among the most promising leads.

In mammals, the seasonal migrations that take place, such as those of the deer, which travel from the high mountains in summer to the valleys in winter, or the migration of the caribou in the northern areas of Canada, are based on the factor of temperature, which regulates the food supply.

Another mystery is the migration of the lemming, a small rat-like animal found in Scandinavia and Canada. The lemming population varies greatly from year to year, and at times when it greatly increases a migration occurs in which hordes of lemmings march across the country, swimming rivers, and even plunging into the ocean if it bars their way. This again cannot be purely social association of animals. The horde is usually made up entirely of males, as the females seldom migrate.

1. The reasons for the migrations of birds may ultimately be determined by scientists working in the field of
- **A.** population studies.
- **B.** biology.
- **C.** metabolism chemistry.
- **D.** reproduction.

2. A characteristic of migration is the return of the migrants to their former home areas. This is, however, not typically true of migrating
- **A.** birds.
- **B.** insects.
- **C.** mammals.
- **D.** fish.

3. The reproductive instinct is probably not a factor in the actual migration of the
- **A.** salmon.
- **B.** lemming.
- **C.** golden plover.
- **D.** monarch butterfly.

4. The main purpose of the passage is to
- **A.** show that social factors may be of lesser importance to understanding animal behavior than first appears.
- **B.** present a new theory in regard to biological evolution.
- **C.** teach the reader how to evaluate a natural phenomenon.
- **D.** describe a phenomenon that has not yet been satisfactorily explained.

5. However mysterious, the migration of the lemmings cannot be considered one of social association since
- **A.** usually only males migrate.
- **B.** migrations occur only with population increases.
- **C.** it is probably due to the absence of some factor in the environment.
- **D.** the migrants do not return.

6. If the author of the above passage were called on to explain the apparently social behavior of ants or bees in their hills and hives, we may infer that he would probably
- **A.** refuse to speculate in any way.
- **B.** compare the hills and hives to human cities.
- **C.** find their behavior mysterious.
- **D.** first seek to find other than purely social explanations

7. All of the following are posited as reasons for migration except
- **A.** lack of food.
- **B.** hormonal changes.
- **C.** temperature changes.
- **D.** Peer pressure.

Passage 54

Of all the areas of learning the most important is the development of attitudes. Emotional reactions as well as logical thought processes affect the behavior of most people. "The burnt child fears the fire" is one instance;

another is the rise of despots like Hitler. Both these examples also point up the fact that attitudes stem from experience. In the one case the experience was direct and impressive; in the other it was indirect and cumulative. The Nazis were indoctrinated largely by the speeches they heard and the books they read.

The classroom teacher in the elementary school is in a strategic position to influence attitudes. This is true partly because children acquire attitudes from these adults whose word they respect. Another reason it is true is that pupils often delve somewhat deeply into a subject in school that has only been touched upon at home or has possibly never occurred to them before. To a child who had previously acquired little knowledge of Mexico, his teacher's method of handling such a unit would greatly affect his attitude toward Mexicans.

The media through which the teacher can develop wholesome attitudes are innumerable. Social studies (with special reference to races, creeds, and nationalities), science, matters of health and safety, the very atmosphere of the classroom - these are a few of the fertile fields for the inculcation of proper emotional reactions.

However, when children come to school with undesirable attitudes, it is unwise for the teacher to attempt to change their feelings by cajoling or scolding them. She can achieve the proper effect by helping them obtain constructive experiences. To illustrate, first grade pupils afraid of policemen will probably alter their attitudes after a classroom chat with the neighborhood officer in which he explains how he protects them. In the same way, a class of older children can develop attitudes through discussion, research, outside reading, and all-day trips.

Finally, a teacher must constantly evaluate her own attitude because her influence can be deleterious if she has personal prejudices. This is especially true in respect to controversial issues and questions on which children should be encouraged to reach their own decisions as a result of objective analysis of all the facts.

1. The central idea conveyed in the above passage is that
- **A.** attitudes affect our actions.
- **B.** teachers play a significant role in developing or changing pupils' attitudes.
- **C.** by their attitudes, teachers inadvertently affect pupils' attitudes.
- **D.** attitudes can be changed by some classroom experiences.

2. The author implies that
- **A.** children's attitudes often come from those of other children.
- **B.** in some aspects of social studies a greater variety of methods can be used in the upper grades than in the lower grades.
- **C.** the teacher should guide all discussions by revealing her own attitude.
- **D.** people usually act on the basis of reasoning rather than emotion.

3. A statement not made or implied in the passage is that
- **A.** attitudes cannot easily be changed by rewards and lectures.
- **B.** a child can develop in the classroom an attitude about the importance of brushing his teeth.
- **C.** attitudes can be based on the learning of falsehoods.
- **D.** the attitudes of children are influenced by all the adults in their environment.

4. The passage specifically states that
- **A.** teachers should always conceal their own attitudes.
- **B.** whatever attitudes a child learns in school have already been introduced at home.
- **C.** direct experiences are more valuable than indirect ones.
- **D.** teachers can sometimes have an unwholesome influence on children.

5. The first and fourth paragraphs have all the following points in common except
- **A.** how reading affects attitudes.
- **B.** the importance of experience in building attitudes.
- **C.** how attitudes can be changed in the classroom.
- **D.** how fear sometimes governs attitudes.

Passage 55

The word geology refers to the study of the composition, structure, and history of the earth. The term is derived from the Latin, geologia, coined by Bishop Richard de Bury in 1473 to distinguish lawyers who study "earthy things" from theologians. It was first consistently used in its present sense in the latter part of the 17th Century. The great mass of detail that constitutes geology is classified under a number of subdivisions which, in turn, depend upon the fundamental sciences, physics, chemistry and biology. The principal subdivisions of geology are: mineralogy, petrology, structural geology, physiography (geomorphology), usually grouped under physical or dynamical geology; and paleontology, stratigraphy and paleogeography, grouped under historical geology. The term economic geology usually refers to the study of

valuable mineral "ore" deposits, including coal and oil. The economic aspects of geology are, however, much more embracive, including many subjects associated with civil engineering, economic geography, and conservation. Some of the more important of these subjects are meteorology, hydrology, agriculture, and seismology. Subjects which are also distinctly allied to geology are geophysics, geochemistry, and cosmogony.

1. The statement that geology treats of the history of the earth and its life, especially as recorded in the rocks, is
- **A.** contrary to the paragraph.
- **B.** made in the paragraph.
- **C.** neither made nor implied in the paragraph.
- **D.** not made, but implied in the paragraph.

2. The statement that the principal branches or phases of geology are dynamical geology and historical geology are
- **A.** contrary to the paragraph.
- **B.** made in the paragraph.
- **C.** neither made nor implied in the paragraph.
- **D.** not made, but implied in the paragraph.

3. The statement that mining geology is a subdivision of geophysics is
- **A.** contrary to the paragraph.
- **B.** made in the paragraph.
- **C.** neither made nor implied in the paragraph.
- **D.** not made, but implied in the paragraph.

4. The statement that the study of both the exterior of the earth and its inner constitution constitutes the fundamental subject matter of geology is
- **A.** contrary to the paragraph.
- **B.** made in the paragraph.
- **C.** neither made nor implied in the paragraph.
- **D.** not made, but implied in the paragraph.

5. The statement that geology utilizes the principles of astronomy, zoology, and botany is
- **A.** contrary to the paragraph.
- **B.** made in the paragraph.
- **C.** neither made nor implied in the paragraph.
- **D.** not made, but implied in the paragraph.

6. The statement that geology is synonymous with the study of the attributes of rocks, rock formation, or rock attributes is
- **A.** contrary to the paragraph.
- **B.** made in the paragraph.
- **C.** neither made nor implied in the paragraph.
- **D.** not made, but implied in the paragraph.

Passage 56

Schiller was the first to ring a change on this state of things by addressing himself courageously to the entire population of his country in all its social strata at one time. He was the great popularizer of our theatre, and remained for almost a century the guiding spirit of the German drama of which Schiller's matchless tragedies are still by many people regarded as the surpassing manifestos. Schiller's position, while it demonstrates a whole people's gratitude to those who respond to its desires, does not however furnish a weapon of self-defense to the "popularizers" of drama, or rather its diluters. Schiller's case rather proves that the power of popular influence wrought upon a poet may be vastly inferior to the strength that radiates from his own personality. Indeed, whereas the secret of ephemeral power is only too often found in paltriness or mediocrity, an influence of enduring force such as Schiller exerts on the Germans can only emanate from a strong and self-assertive character. No poet lives beyond his day who does not exceed the average in mental stature, or who, through a selfish sense of fear of the general, allows himself to be ground down to the conventional size and shape. Schiller, no less than Ibsen, forced his moral demands tyrannically upon his contemporaries. And in the long run your moral despot, provided he be high-minded, vigorous, and able, has a better chance of fame than the pliant time-server. However, there is a great difference between the two cases. For quite apart from the striking dissimilarities between the poets themselves, the public, through the gradual growth of social organization, has become greatly altered.

1. Schiller's lasting popularity may be attributed to
- **A.** his meeting the desires of a whole people, not just a segment of the people.
- **B.** his abiding by his innermost convictions.
- **C.** his mediocrity and paltriness.
- **D.** his courageous facing up to the problems of his day.

2. In the first sentence, "on this state of things" refers to
- **A.** romantic drama.
- **B.** the French play of contrived construction.
- **C.** drama directed to the rich and well-born.
- **D.** the popularizers of the theatre of today.

3. In the second sentence from the last, "the two cases" refer to
- **A.** pliant time-server and moral despot.
- **B.** the one who exceeds the average in mental stature and the one who allows himself to be ground down to conventional size.
- **C.** the popularizer and the poet of enduring fame.
- **D.** Ibsen and Schiller.

4. We may assume that the author
- **A.** is no believer in the democratic processes.
- **B.** has no high opinions of the "compact majority."
- **C.** regards popularity with the people as a measure of enduring success.
- **D.** is opposed to the aristocracy.

Passage 57

It has always been difficult for the philosopher or scientist to fit time into his view of the universe. Prior to Einsteinian physics, there was no truly adequate formulation of the relationship of time to the other forces in the universe, even though some empirical equations included time quantities. However, even the Einsteinian formulation is not perhaps totally adequate to the job of fitting time into the proper relationship with the other dimensions, as they are called, of space. The primary problem arises in relation to things which might be going faster than the speed of light, or have other strange properties.

Examination of the Lorentz-Fitzgerald formulas yields the interesting speculation that if something did actually exceed the speed of light it would have its mass expressed as an imaginary number and would seem to be going backwards in time. The barrier to exceeding the speed of light is the calculation that only an infinite mass can move at exactly the speed of light. If this situation could be leaped over in a large quantum jump - which seems highly unlikely for masses that are large in normal circumstances - then the other side may be achievable.

The idea of going backwards in time is derived from the existence of a time vector that is negative, although just what this might mean to our senses in the unlikely circumstance of our experiencing this state cannot be conjectured.

There have been, in fact, some observations of particle chambers which have led some scientists to speculate that a particle called the tachyon may exist with the trans-light properties we have just discussed.

The difficulties of imagining and coping with these potential implications of our mathematical models points out the importance of studying alternative methods of notation for advanced physics. Professor Zuckerkandl, in his book Sound and Symbol, hypothesizes that it might be better to express the relationships found in quantum mechanics through the use of a notation derived from musical notations. To oversimplify greatly, he argues that music has always given time a special relationship to other factors or parameters or dimensions. Therefore, it might be a more useful language in which to express the relationships in physics where time again has a special role to play, and cannot be treated as just another dimension.

The point of this, or any other alternative to the current methods of describing basic physical processes, is that time does not appear - either by common experience or sophisticated scientific understanding - to be the same sort of dimension or parameter as physical dimensions, and is deserving of completely special treatment, in a system of notation designed to accomplish that goal.

One approach would be to consider time to be a field effect governed by the application of energy to mass; that is to say, by the interaction of different forms of energy, if you wish to keep in mind the equivalence of mass and energy. The movement of any normal sort of mass is bound to produce a field effect that we call positive time. An imaginary mass would produce a negative time field effect. This is not at variance with Einstein's theories, since the "faster" a given mass moves, the more energy was applied to it and the greater - would be the field effect. The time effects predicted by Einstein and confirmed by experience are, it seems, consonant with this concept.

1. The "sound" of Professor Zuckerkandl's book title probably refers to
- **A.** the music of the spheres.
- **B.** music in the abstract.
- **C.** musical notation.
- **D.** the seemingly musical sounds produced by tachyons.

2. The passage supports the inference that
- **A.** Einstein's theory of relativity is wrong.
- **B.** the Lorentz-Fitzgerald formulas contradict Einstein's theories.
- **C.** time travel is clearly possible.
- **D.** it is impossible to travel at precisely the speed of light.

3. The tone of the passage is
- **A.** critical but hopeful.
- **B.** hopeful but suspicious.
- **C.** suspicious but speculative.
- **D.** speculative but hopeful.

4. The central idea of the passage can be best described as being which of the following?
- **A.** Anomalies in theoretical physics notation permit intriguing hypotheses and indicate the need for refined notation of the time dimension.
- **B.** New observations require the development of new theories and new methods of describing the new theories.

C. Einsteinian physics can be much improved on in its treatment of tachyons.
D. Zuckerkandl's theories of tachyon formation are preferable to Einstein's.

5. According to the author, it is too soon to
A. call Beethoven a physicist.
B. adopt proposals such as Zuckerkandl's.
C. plan for time travel.
D. study particle chambers for tachyon traces.

6. It can be inferred that the author sees Zuckerkandl as believing that mathematics is a
A. necessary evil.
B. language.
C. musical notation.
D. great hindrance to full understanding of physics.

7. In the first sentence, the author refers to "philosopher" as well as to "scientist" because
A. this is part of a larger work.
B. philosophers study all things.
C. physicists get Doctor of Philosophy degrees.
D. the nature of time is a basic question in philosophy as well as physics.

Passage 58

In one sense, of course, this is not a new insight: all our great social and philosophical thinkers have been keenly aware of the fact of individual differences. It has remained, however, for psychologists to give the insight scientific precision.

What all this adds up to is more than just a working body of information about this and that skill. It adds up to a basic recognition of one important factor in the maturing of the individual. If each individual has a certain uniqueness of power, his maturing will best be accomplished along the line of that power. To try to develop him along lines that go in directions contrary to that of his major strength is to condition him to defeat. Thus, the non-mechanical person who is arbitrarily thrust into a mechanical occupation cannot help but do his work poorly and reluctantly, with some deep part of himself in conscious or unconscious rebellion.

He may blame himself for the low level of his accomplishment or for his persistent discontent; but not all his self-berating, nor even all his efforts to become more competent by further training, can make up for the original aptitude-lack. Unless he discovers his aptitude-lack, he may be doomed to a lifetime of self-blame, with a consequent loss of self-confidence and a halting of his psychological growth.

Or he may take refuge in self-pity, finding reason to believe that his failure is due to one or another bad break, to the jealousy of a superior, to lack of sympathy and help at home, to an initial bad start, to a lack of appreciation of what he does. If he thus goes the way of self-pity, he is doomed to a lifetime of self-commiseration that makes sound growth impossible.

The characteristic of the mature person is that he affirms life. To affirm life he must be involved, heart and soul, in the process of living. Neither the person who feels himself a failure nor the person who consciously or unconsciously resents what life has done to him can feel his heart and soul engaged in the process of living. That experience is reserved for the person whose full powers are enlisted. This, then, is what this fourth insight signifies: to mature, the individual must know what his powers are and must make them competent for life.

1. It is the author's view that
A. "all men are created equal."
B. "each man in his life plays many parts."
C. "all comes to him who waits."
D. "no kernel of nourishing corn can come to one but through his toil bestowed on that plot of ground given to him to till ...."

2. Ignorance of this fourth insight
A. may very likely cause one to take refuge in self-pity or conscious or unconscious rebellion.
B. constitutes a failure to understand that each individual is different and must cultivate his special powers in socially rewarding ways.
C. is a major deterrent to a growth to maturity.
D. means unawareness of the fact that each must use all his energy and powers to the best of his ability to make him competent for life.

3. Two possible maladjustments of a man thrust into a position he is unfitted for may be summed up in the phrase
A. conscious and unconscious rebellion.
B. guilt-feelings and scapegoating.
C. halting of psychological growth and blaming the "breaks."
D. "Peccavi - I have sinned" and "all the world is made except thee and me and I am not so sure of thee."

4. We will expect a person placed in a job he is unequal to, to
A. strike out for himself as an entrepreneur.
B. display quick angers and fixed prejudices.
C. show a great love of life outside of his work.
D. engage in labor union activities.

Passage 59

In its current application to art, the term "primitive" is as vague and unspecific as the term "heathen" is in its application to religion. A heathen sect is simply one which is not affiliated with one or another of three or four organized systems of theology. Similarly, a primitive art is one which flourishes outside the small number of cultures which we have chosen to designate as civilizations. Such arts differ vastly and it is correspondingly difficult to generalize about them. Any statements which will hold true for such diverse aesthetic experiences as the pictographs of the Australians, the woven designs of the Peruvians, and the abstract sculptures of the African Negroes must be of the broadest and simplest sort. Moreover, the problem is complicated by the meaning attached to the term "primitive" in its other uses. It stands for something simple, undeveloped, and, by implication, ancestral to more evolved forms. Its application to arts and cultures other than our own is an unfortunate heritage from the nineteenth-century scientists who laid the foundations of anthropology. Elated by the newly enunciated doctrines of evolution, these students saw all cultures as stages in a single line of development and assigned them to places in this series on the simple basis of the degree to which they differed from European culture, which was blandly assumed to be the final and perfect flower of the evolutionary process. This idea has long since been abandoned by anthropologists, but before its demise it diffused to other social sciences and became a part of the general body of popular misinformation. It still tinges a great deal of the thought and writing about the arts of non-European peoples and has been responsible for many misunderstandings.

1. The main purpose of the passage is to
- **A.** explain the various definitions of the term "primitive."
- **B.** show that the term "primitive" can be applied validly to art.
- **C.** compare the use of the term "primitive" to the use of the term "heathen."
- **D.** deprecate the use of the term "primitive" as applied to art.

2. The nineteenth-century scientists believed that the theory of evolution
- **A.** could be applied to the development of culture.
- **B.** was demonstrated in all social sciences.
- **C.** was substantiated by the diversity of "primitive" art.
- **D.** could be applied only to European culture.

3. With which of the following would the author agree?
- **A.** The term "primitive" is used only by the misinformed.
- **B.** "Primitive" arts may be as highly developed as "civilized" arts.
- **C.** The arts of a culture often indicated how advanced that culture was.
- **D.** Australian, Peruvian, and African Negro arts are much like the ancestral forms from which European art evolved.

4. According to the author, many misunderstandings have been caused by the belief that
- **A.** most cultures are fundamentally different.
- **B.** inferior works of art in any culture are "primitive" art.
- **C.** "primitive" arts are diverse.
- **D.** European civilization is the final product of the evolutionary process.

Passage 60

Political scientists, as practitioners of a negligibly formalized discipline, tend to be accommodating to formulations and suggested techniques developed in related behavioral sciences. They even tend, on occasion, to speak of psychology, sociology, and anthropology as "hard core sciences." Such a characterization seems hardly justified. The disposition to uncritically adopt into political science nonindigenous sociological and general systems concepts tends, at times, to involve little more than the adoption of a specific, and sometimes barbarous, academic vocabulary which is used to re-describe reasonably well-confirmed or intuitively-grasped low-order empirical generalizations.

At its worst, what results in such instances is a runic explanation, a re-description in a singular language style, i.e. no explanation at all. At their best, functional accounts as they are found in the contemporary literature provide explanation sketches, the type of elliptical explanation characteristic of historical and psychoanalytic accounts. For each such account, there is an indeterminate number of equally plausible ones, the consequence of either the complexity of the subject matter, differing perspectives, conceptual vagueness, the variety of sometimes mutually exclusive empirical or quasi-empirical generalizations employed, or syntactical obscurity, or all of them together.

Functional explanations have been most reliable in biology and physiology (where they originated) and in the analysis of servomechanical and cybernetic systems (to which they have been effectively extended). In these areas we possess a well-standardized body of law-like generalizations. Neither sociology nor political science has as yet the same resource of well-confirmed law-like

statements. Certainly sociology has few more than political science. What passes for functional explanation in sociology is all too frequently parasitic upon suggestive analogy and metaphor, trafficking on our familiarity with goal directed-systems.

What is advanced as "theory" in sociology is frequently a non-theoretic effort at classification or "codification," the search for an analytic conceptual schema which provides a typology or a classificatory system serviceable for convenient storage and ready retrieval of independently established empirical regularities. That such a schema takes on a hierarchic and deductive character, imparting to the collection of propositions a prime facie theoretical appearance, may mean no more than that the terms employed in the high-order propositions are so vague that they can accommodate almost any inference and consequently can be made to any conceivable state of affairs.

1. The author implies that, when the political scientist is at his best, his explanations
- **A.** are essentially a retelling of events.
- **B.** only then form the basis of an organized discipline.
- **C.** plausibly account for past occurrences.
- **D.** are prophetic of future events.

2. With which of the following would the author probably agree ?

I. Because of an abundance of reasonable explanations for past conduct, there is the possibility of contending schools within the field of political science developing.

II. Political science is largely devoid of predictive power.

III. Political science has very few verified axioms.

The correct answer is:
- **A.** III only
- **B.** I and III
- **C.** I and II
- **D.** I, II, and III

3. The passage implies that many sociological theories
- **A.** are capable of being widely applied to various situations.
- **B.** do not even appear to be superficially theoretical in appearance.
- **C.** contrast with those of political science in that there are many more confirmed law-like statements.
- **D.** are derived from deep analysis and exhaustive research.

4. The author's thesis would be unsupportable if
- **A.** the theories of the political scientist possessed predictive power.
- **B.** political science did not consist of re-description.
- **C.** political scientists were not restricted to "hard core sciences."
- **D.** political science consisted of a body of theories capable of application to any situation.

5. The author believes that sociology, as a "hard core science,"
- **A.** contains reliable and functional explanations.
- **B.** is never more than a compilation of conceptual schema.
- **C.** is in nearly every respect unlike political science.
- **D.** is a discipline which allows for varied inferences to be drawn from its general propositions.

Passage 61

James's own prefaces to his works were devoted to structural composition and analytics and his approach in those prefaces has only recently begun to be understood. One of his contemporary critics, with the purest intention to blame, wrote what might be recognized today as sophisticated praise when he spoke of the later James as "an impassioned geometer" and remarked that "what interested him was not the figures but their relations, the relations which alone make pawns significant." James's explanations of his works often are so bereft of interpretation as to make some of our own austere defenses against interpretation seem almost embarrassingly rich with psychological meanings. They offer, with a kind of brazen unselfconsciousness, an astonishingly artificial, even mechanical view of novelistic invention. It's not merely that James asserts the importance of technique; more radically, he tends to discuss character and situation almost entirely as functions of technical ingenuities. The very elements in a Jamesian story which may strike us as requiring the most explanation are presented by James either as a solution to a problem of compositional harmony or else as the donnee about which it would be irrelevant to ask any questions at all.

James should constantly be referred to as a model of structuralist criticism. He consistently redirects our attention from the referential aspect of a work of art (its extensions into "reality") to its own structural coherence as the principal source of inspiration.

What is most interesting about James's structurally functional view of character is that a certain devaluation of what we ordinarily think of as psychological interest

is perfectly consistent with an attempt to portray reality. It's as if he came to feel that a kind of autonomous geometric pattern, in which the parts appeal for their value to nothing but their contributive place in the essentially abstract pattern, is the artist's most successful representation of life. Thus he could perhaps even think that verisimilitude - a word he liked - has less to do with the probability of the events the novelist describes than with those processes, deeply characteristic of life, by which he creates sense and coherence from any event. The only faithful picture of life in art is not in the choice of a significant subject (James always argues against the pseudorealistic prejudice), but rather in the illustration of sense-, of designmaking processes. James proves the novel's connection with life by deprecating its derivation from life; and it's when he is most abstractly articulating the growth of a structure that James is almost most successfully defending the mimetic function of art (and of criticism). His deceptively banal position that only execution matters means most profoundly that verisimilitude, properly considered, is the grace and the truth of a formal unity.

1. The author suggests that James, in explanations of his art,
- **A.** was not bound by formalistic strictures but concentrated on verisimilitude.
- **B.** was deeply psychological and concentrated on personal insight.
- **C.** felt that his art had a one-to-one connection with reality.
- **D.** was basically mechanical and concentrated on geometrical form.

2. The passage indicates that James's method of approaching reality was
- **A.** that objective reality did not exist and was patterned only by the mind.
- **B.** that formalism and pattern were excellent means of approaching reality.
- **C.** not to concentrate on specific events but rather on character development.
- **D.** that the only objective reality is the psychological processes of the mind.

3. The main purpose of the passage is to
- **A.** indicate that James's own approach to his work is only now beginning to be understood.
- **B.** deprecate the geometrical approach towards the novel.
- **C.** question whether James's novels were related to reality.
- **D.** discuss James's explanation of his works.

4. In discussing his own works, James
- I. talks of people and events as a function of technique to the exclusion of all else
- II. is quick to emphasize the referential aspect of the work
- III. felt that verisimilitude could be derived not from character but rather from the ordering of events

The correct answer is:
- **A.** I only
- **B.** II only
- **C.** III only
- **D.** I and III

5. The author
- **A.** approves of James's explanations of his own work but disapproves his lack of discussion into the psychological makings of his characters.
- **B.** disapproves of James's explanation of his own work and his lack of discussion into the psychological makings of his characters.
- **C.** approves of James's explanations of his works in terms of structure as being well related to life.
- **D.** disapproves of James's explanation of his works in terms of structure as lacking verisimilitude.

6. The following is not true of James's explanation of his works, he:
- **A.** did not explain intriguing elements of a story except as part of a geometric whole.
- **B.** felt the artist could represent life by its patterns rather than its events.
- **C.** defended the imitative function of art by detailing the growth of a structure.
- **D.** attempted to give the reader insight into the psychology of his characters by insuring that his explanation followed a strict geometrical pattern.

7. James believed it to be essential to
- **A.** carefully choose a subject which would lend itself to processes by which sense and cohesion is achieved.
- **B.** defend the mimetic function of art by emphasizing verisimilitude.
- **C.** emphasize the manner in which different facets of a story could fit together.
- **D.** explain character in order to achieve literary harmony.

Passage 62

The popular image of the city as it is now is a place of decay, crime, of fouled streets, and of people who are poor or foreign or odd. But what is the image of the city of the future? In the plans for the huge redevelopment projects to come, we are being shown a new image of the city. Gone are the dirt and the noise - and the variety and the excitement and the spirit. That it is an ideal makes it all the worse; these bleak new utopias are not bleak because they have to be; they are the concrete manifestation - and how literally - of a deep, and at times arrogant, misunderstanding of the function of the city.

Being made up of human beings, the city is, of course, a wonderfully resilient institution. Already it has reasserted itself as an industrial and business center. Not so many years ago, there was much talk of decentralizing to campus-like offices, and a wholesale exodus of business to the countryside seemed imminent. But a business pastoral is something of a contradiction in terms, and for the simple reason that the city is the center of things because it is a center, the suburban heresy never came off. Many industrial campuses have been built, but the overwhelming proportion of new office building has been taking place in the big cities.

But the rebuilding of downtown is not enough; a city deserted at night by its leading citizens is only half a city. If it is to continue as the dominant cultural force in American life, the city must have a core of people to support its theatres and museums, its shops and its restaurants - even a Bohemia of sorts can be of help. For it is the people who like living in the city who make it an attraction to the visitors who don't. It is the city dwellers who support its style; without them there is nothing to come downtown to.

The cities have a magnificent opportunity. There are definite signs of a small but significant move back from suburbia. There is also evidence that many people who will be moving to suburbia would prefer to stay in the city - and it would not take too much more in amenities to make them stay.

But the cities seem on the verge of muffing their opportunity -and muffing it for generations to come. In a striking failure to apply marketing principles and an even more striking failure of aesthetics, the cities are freezing on a design for living ideally calculated to keep everybody in suburbia. These vast, barracks-like superblocks are not designed for people who like cities, but for people who have no other choice. A few imaginative architects and planners have shown that redeveloped blocks don't have to be repellent to make money, but so far their ideas have had little effect. The institutional approach is dominant, and, unless the assumptions embalmed in it are re-examined, the city is going to be turned into a gigantic bore.

1. The author would not be pleased with
- **A.** a crowded, varied, stimulating city.
- **B.** the dedication of new funds to the reconstruction of the cities.
- **C.** a more detailed understanding of the poor.
- **D.** the adoption of a laissez faire attitude by those in charge of redevelopment.

2. "The rebuilding of downtown" (1st sentence, 3rd paragraph) refers to
- **A.** huge redevelopment projects to come.
- **B.** the application of marketing and aesthetic principles to rejuvenating the city.
- **C.** keeping the city as the center of business.
- **D.** attracting a core of people to support the city's functions.

3. According to the author, the city, in order to better itself, must
- **A.** increase its downtown population.
- **B.** attract an interested core of people to support its cultural institutions.
- **C.** adhere to an institutional approach rather than be satisfied with the status quo.
- **D.** erect campus-like business complexes.

4. The main purpose of the passage is to
- **A.** show that the present people inhabiting the city do not make the city viable.
- **B.** discuss the types of construction which should and should not take place in the city's future.
- **C.** indicate that imaginative architects and planners have shown that redeveloped areas don't have to be ugly to make money.
- **D.** point out the lack of understanding by many city planners of the city's functions.

5. The author's thesis would be less supportable if
- I. city planners presently understood that stereotyped reconstruction is doomed to ultimate failure
- II. the institutional approach referred to in the passage was based upon assumptions which took into account the function of the city
- III. there were signs that a shift back to the city from suburbia were occurring

The correct answer is:
- **A.** II only
- **B.** II and III
- **C.** I and II
- **D.** I only

Passage 63

Democracy is not logically antipathetic to most doctrines of natural rights, fundamental or higher law, individual rights, or any similar ideals - but merely asks citizens to take note of the fact that the preservation of these rights rests with the majority, in political processes, and does not depend upon a legal or constitutional Maginot line. Democracy may, then, be supported by believers in individual rights providing they believe that rights - or any transcendental ends - are likely to be better safeguarded under such a system. Support for democracy on such instrumental grounds may, of course, lead to the dilemma of loyalty to the system vs. loyality to a natural right - but the same kind of dilemma may arise for anyone, over any prized value, and in any political system, and is insoluble in advance.

There is unanimous agreement that - as a matter of fact and law, not of conjecture - no single right can be realized, except at the expense of other rights and claims. For that reason their absolute status, in some philosophic sense, is of little political relevance. Political policies involve much more than very general principles or rights. The main error of the older natural rights school was not that it had an absolute right, but that it had too many absolute rights. There must be compromise, and, as any compromise destroys the claim to absoluteness, the natural outcome of experience was the repudiation of all of them. And now the name of "unnatural right" can only creep into sight with the reassuring placard, "changing content guaranteed." Nor is it at all easy to see how any doctrine of inalienable, natural, individual rights can be reconciled with a political doctrine of common consent - except in an anarchist society, or one of saints. Every natural right ever put forward, and the lists are elusive and capricious, is every day invaded by governments, in the public interest and with widespread public approval.

To talk of relatively attainable justice or rights in politics is not to plump for a moral relativism - in the sense that all values are equally good. But while values may be objective, the specific value judgments and policies are inevitably relative to a context, and it is only when a judgment divorces context from general principle that it looks like moral relativism. Neither, of course, does the fact of moral diversity invalidate all moral rules.

Any political system, then, deals only with relatively attainable rights, as with relative justice and freedoms. Hence we may differ in given instances on specific policies, despite agreement on broad basic principles such as a right or a moral "ought"; and, per contra, we may agree on specific policies while differing on fundamental principles or long-range objectives or natural rights. Politics and through politics, law and policies, give these rights - and moral principles - their substance and limits. There is no getting away from the political nature of this or any other prescriptive ideal in a free society.

1. With which of the following would the author agree?
- **A.** Natural and individual rights can exist at all only under a democracy.
- **B.** While natural rights may exist, they are only relatively attainable.
- **C.** Civil disobedience has no place in a democracy where natural rights have no philosophic relevance.
- **D.** Utilitarianism, which draws its criteria from the happiness and welfare of individuals, cannot logically be a goal of a democratic state.

2. It can be inferred that a democratic form of government
- **A.** can be supported by natural rightists as the best pragmatic method of achieving their aims.
- **B.** is a form of government wherein fundamental or higher law is irrelevant.
- **C.** will in time repudiate all inalienable rights.
- **D.** forces a rejection of moral absolutism.

3. The main purpose of the passage is to
- **A.** discuss natural rights doctrine.
- **B.** compare and contrast democracy to individual rights.
- **C.** discuss the reconciliation of a doctrine of inalienable natural rights with a political system.
- **D.** discuss the safeguarding of natural rights in a democratic society.

4. The author indicates that natural rights
- I. are sometimes difficult to define
- II. are easily definable but at times irreconcilable with a system of government predicated upon majority rule
- III. form a basis for moral relativism

The correct answer is:
- **A.** I only
- **B.** III only
- **C.** II and III
- **D.** I and II

5. The fact that any political system deals with relatively attainable rights
- **A.** shows that all values are equally good or bad.
- B. is cause for divorcing political reality from moral rules.
- **C.** shows that the list of natural rights is elusive and capricious.
- **D.** does not necessarily mean that natural rights do not exist.

6. The passage indicates that an important conflict which can exist in a democracy is the
- **A.** rights of competing groups, e.g. labor versus management.
- **B.** adherence to the democratic process versus non-democratic actions by government.
- **C.** difficulty in choosing between two effective compromises.
- **D.** adherence to the democratic process versus the desire to support a specific right.

Passage 64

The development (or, to be more precise, the lack of development) of Latin America has been a structural problem. For example, the distribution of the population is, with no exception at all, uneven in every country. The dangerous growth of urban centers without parallel development of urban mentality has pulled out not only people but resources from the hinterland, creating an internal colonialism in both structure and attitude. Few urban areas have grown as centers of industrial activity. Most of them have grown as refuges of drop-outs from the disintegrating agrarian life. Thus the metropolis itself is a gigantic village. The urban-rural ratio is just a ratio - a quantitative difference that does not at all imply the qualitative differences most people assume.

Uneven growth has serious antecedents and consequences. It has been a product of governmental and economic administration geared toward extra-continental markets: the surviving colonial heritage. Latin America has not developed internal markets and governments have been mere custom brokers, often unskilled, of the export-oriented economics. In the process, public and private bureaucracies express this fact by their very growth. In short, Latin American urban areas are administration centers more often than centers of production. Services must be provided for the bureaucrats and thus a new basis for growth emerges. Presidents, cabinet members, and bureau chiefs make sumptuous expenditures on monuments to their ancestors, on streets in front of their residences, and on public and private mansions, and thus a third basis for growth appears. In the meantime the social distance has increased in proportion to the location of people along the ladder of political and economic power, and the urban masses remain as illiterate and poor and disorganized as the rural ones from which most of their members came.

In every country, a very small proportion of the population controls the largest proportion of agricultural land. This is true even of Mexico after fifty years of "revolution." The sole exception to this generalization is Cuba. But Cuba had to cut itself out of the inter-American system to achieve this miracle in a short time, and pay the price of revolution. The rest of Latin America hardly wants agrarian reform at the cost of violence, although some form of violence has accompanied agrarian reform everywhere.

The answer is an alternative: Either charisma from the top or charisma from the bottom. Both must operate (as they have in the past) outside the legal system. The charisma from the bottom has been called revolution. Modern revolutions - that is, guerrilla warfare - do not fit the Latin American modality. They require organizational discipline, and Latin Americans know little of this. They require economic resources which the masses do not possess; international support has been a modern myth when compared with the support the military can attract. Witness the recent history of United States military foreign aid to Latin America. Moreover, Latin Americans have little respect for human life. Poorly planned and financed revolutions are bound to end in mass murders of the poor.

The sole alternative, therefore, is charisma from the top. Not the "national" leader whom the military, with blessings from abroad, would promptly eliminate, or who would become the dictator a Latin American country experiences repeatedly. But the local leader - a mixture of religious and political messiah - whom Latin America has produced and will continue to produce. Hundreds of these leaders pack the Latin American scene today. Students and clergymen have in recent times been instrumental in helping these charismatic leaders to emerge. They respond to local needs with local strategies that governments and parties cannot safely ignore. And they are contributing - unwittingly - to a meaningful Latin American integration that can only rest on solid ground when built on a local base.

1. An effective solution to Latin American problems
- **A.** must involve revolution.
- **B.** would always require an impressive figure to lead the way.
- **C.** is more likely to come from charisma from the top than from the bottom.
- **D.** is almost impossible due to the prevailing political climate.

2. Generally, the inhabitants of Latin American urban areas are
- **A.** far more sophisticated and urbane than rural inhabitants.
- **B.** filled with "refugees" from agrarian life.
- **C.** ideal subjects for a charismatic leader to induce to revolution.
- **D.** incapable of any sustained industrial activity.

3. The author implies that agrarian reform
- **A.** is impossible without a communistic form of government.
- **B.** is very unlikely without some accompanying violence.
- **C.** can never take place without a charismatic figurehead.
- **D.** is very unlikely without a revolution such as took place in Cuba.

4. In recent times, the emergence of charismatic figures has been encouraged and aided by
- **A.** the local governmental agencies.
- **B.** poets and authors.
- **C.** the professional class, i.e. doctors and lawyers.
- **D.** students and clergymen.

5. The solution of "charisma from the bottom" for Latin America's problems is not feasible because
- **A.** revolution will cause mass murder of the poor.
- **B.** Latin America is too stable for revolution to occur.
- **C.** Latin Americans have too little respect for human life.
- **D.** Latin Americans do not have the necessary organization, discipline, and economic resources to effectuate a modern revolution.

6. The author's view on urban growth in Latin America is that
- **A.** it has occurred because of increasing industrialization.
- **B.** it has occurred because charismatic leaders attracted agrarian workers to the cities.
- **C.** it has occurred due to such non-constructive factors as growing bureaucracies and extravagant expenditures by government officials.
- **D.** urban growth is a deterrent to effective economic development.

7. This passage indicates that the effective leaders needed for "charisma from the top"
- **A.** do not exist today in Latin America.
- **B.** are only to be found outside of Latin America and must be drafted into service.
- **C.** exist in large numbers today and are contributing to local reforms.
- **D.** have been executed by the military as soon as they emerge.

8. The urban-rural ratio in Latin America is misleading because
- **A.** there is a difference in kind and not degree between urban and rural communities.
- **B.** the population in urban areas is much larger than in rural areas, and is not essentially different.
- **C.** the population in rural areas has become decimated.
- **D.** the urban areas have adopted a colonial attitude toward rural areas.

9. The main purpose of the passage is to
- **A.** provide an exposition of the problems facing Latin America.
- **B.** describe why revolution is not the answer to Latin America's problems.
- **C.** explain why revolution is not the answer to Latin America's problems.
- **D.** indicate why local political and religious leaders are necessary to solve Latin America's problems.

10. The integration of social classes in Latin America
- **A.** has been accelerating rapidly due to local leaders.
- **B.** has not been improving and in fact classes have stratified further.
- **C.** will be impossible without mass murder of the poor.
- **D.** cannot be accomplished until racial integration has been first accomplished.

Passage 65

In estimating the child's conceptions of the world, the first question is to decide whether external reality is as external and objective for the child as it is for adults. In other words, can the child distinguish the self from the external world? So long as the child supposes that everyone necessarily thinks like himself, he will not spontaneously seek to convince others, nor to accept common truths, nor, above all, to prove or test his opinions. If his logic lacks exactitude and objectivity, it is because the social impulses of maturer years are counteracted by an innate egocentricity. In studying the

child's thought, not in this case in relation to others but to things, one is faced at the outset with the analogous problem of the child's capacity to dissociate thought from self in order to form an objective conception of reality.

The child, like the uncultured adult, appears exclusively concerned with things. He is indifferent to the life of thought, and the originality of individual points of view escapes him. His earliest interests, his first games, his drawings are all concerned solely with the imitation of what is. In short, the child's thought has every appearance of being exclusively realistic.

But realism is of two types, or, rather, objectivity must be distinguished from realism. Objectivity consists in so fully realizing the countless intrusions of the self in everyday thought and the countless illusions which result - illusions of sense, language, point of view, value, etc. - that the preliminary step to every judgment is the effort to exclude the intrusive self. Realism, on the contrary, consists in ignoring the existence of self and thence regarding one's own perspective as immediately objective and absolute. Realism is thus anthropocentric illusion, finality - in short, all those illusions which teem in the history of science. So long as thought has not become conscious of self, it is a prey to perpetual confusions between objective and subjective, between the real and the ostensible; it values the entire content of consciousness on a single plane in which ostensible realities and the unconscious interventions of the self are inextricably mixed. It is thus not futile, but, on the contrary, indispensable to establish clearly and before all else the boundary the child draws between the self and the external world.

1. The result of a child's not learning that others think differently than he does is that
- **A.** the child will not be able to function as an adult.
- **B.** when the child has matured, he will be innately egocentric.
- **C.** when the child has matured, his reasoning will be poor.
- **D.** upon maturity, the child will not be able to distinguish thought from objects.

2. Objectivity is the ability to
- **A.** distinguish ego from the external world.
- **B.** dissociate oneself from others.
- **C.** realize that others have a different point of view.
- **D.** dissociate ego from thought.

3. When thought is not conscious of self,
- **A.** one is able to draw the correct conclusions from his perceptions.
- **B.** the apparent may not be distinguishable from the actual.
- **C.** conscious thought may not be distinguishable from the unconscious.
- **D.** the ego may influence the actual.

4. The main purpose of the passage is to
- **A.** argue that the child should be made to realize that others may not think like he does.
- **B.** estimate the child's conception of the world.
- **C.** explain the importance of distinguishing the mind from external objects.
- **D.** emphasize the importance of non-ego-influenced perspective.

5. The author implies that if an adult is to think logically
- **A.** his reasoning, as he matures, must be tempered by other viewpoints.
- **B.** he must be able to distinguish one physical object from another.
- **C.** he must be exclusively concerned with thought instead of things.
- **D.** he must be able to perceive reality without the intrusions of the self.

6. Realism, according to the passage, is
- **A.** the realization of the countless intrusions of the self.
- **B.** final and complete objectivity.
- **C.** a desire to be truly objective and absolute.
- **D.** none of the above.

7. The child who is exclusively concerned with things
- **A.** thinks only objectively.
- **B.** is concerned with imitating the things he sees.
- **C.** must learn to distinguish between realism and anthropomorphism.
- **D.** has no innate ability.

Passage 66

One of the ways the intellectual avant-garde affects the technical intelligentsia is through the medium of art, and art is, if only implicitly, a critique of experience. The turning upon itself of modern culture in the forms of the new visual art, the utilization of the detritus of daily experience to mock that experience, constitutes a mode of social criticism. Pop art, it is true, does not go beyond the surface of the visual and tactile experience of an industrial (and a commercialized) culture. Dwelling on the surface, it allows its consumers to mock the elements of their daily life, without abandoning it. Indeed, the consumption of art in the organized market for leisure serves at times to encapsulate the social criticism of the

avant-garde. However, the recent engagement of writers, artists, and theater people in contemporary issues suggests that this sort of containment may have begun to reach its limits.

In an atmosphere in which the intellectually dominant group insists on the contradictions inherent in daily experience, the technical intelligentsia will find it difficult to remain unconscious of those contradictions. The technical intelligentsia have until now avoided contradictions by accepting large rewards for their expertise. As expertise becomes increasingly difficult to distinguish from ordinary service on the one hand, and merges on the other with the change of the social environment, the technical intelligentsia's psychic security may be jeopardized. Rendering of labor services casts it back into spiritual proletarianization; a challenge to the social control exercised by elites, who use the technical intelligentsia's labor power, pushes it forward to social criticism and revolutionary politics. That these are matters, for the moment, of primarily spiritual import does not diminish their ultimate political significance. A psychological precondition for radical action is usually far more important than an "objectively" revolutionary situation -- whatever that may be.

The chances for a radicalization of the technical intelligentsia, thus extending the student revolt, cannot be even approximated. I believe I have shown there is a chance.

1. It may be inferred that the technical intelligentsia are:

I. the executives and employers in society.
II. critics of avant-garde art.
III. highly skilled technical workers.

The correct answer is:

A. I only
B. I and III
C. I, II, and III
D. III only

2. The engagement of the intellectual avant-garde in contemporary issues

A. indicates that people tire of questioning the contradictions inherent in day-to-day living.
B. indicates that the technical intelligentsia are close to the point where they will rebel against the avant-garde.
C. could cause a challenge to the social control of the elite.
D. could cause the public to become more leisure-oriented.

3. The possible effect of the intellectual avant-garde on technical intelligentsia is that

A. the intellectual avant-garde makes the technical intelligentsia conscious of society's contradictions.
B. rapid curtailment of large rewards for expertise will result.
C. it may cause a strong likelihood of a radicalization of the technical intelligentsia.
D. the avant-garde will replace the employment of the technical intelligentsia in contemporary issues.

4. If it is assumed that the technical intelligentsia become fully aware of the contradictions of modern life, it is the author's position that

A. revolution will result.
B. the technical intelligentsia may refuse to perform manual labor.
C. the technical intelligentsia will be pushed forward to social criticism and revolutionary politics.
D. the technical intelligentsia will experience some psychic dislocation.

5. According to the author,

A. the state of mind of a particular group may have more influence on its action than the effect of environmental factors.
B. the influence of art will often cause social upheaval.
C. matters of primarily spiritual import necessarily lack political significance.
D. the detritus of day-to-day living should be mocked by the intellectual avant-garde.

6. With which of the following would the author agree?

I. As contradictions are less contained, the psychic security of all members of the working class would be jeopardized.
II. The expertise of the technical intelligentsia evolved from the ownership and management of property.
III. The technical intelligentsia are not accustomed to rendering labor services.

The correct answer is:

A. I only
B. III only
C. I and III
D. II only

7. The main purpose of the passage is to
- **A.** discuss the influence of the avant-garde art form on the expertise of the technical intelligentsia.
- **B.** discuss the effect of the intellectual avant-garde on the working classes.
- **C.** discuss the social significance of the technical intelligentsia.
- **D.** discuss the possible effects of the de-encapsulation of avant-garde social criticism.

Passage 67

The distribution and nature of Irish mumming has been made fairly well known in recent years, and the continuity of the custom is traceable back at least to the 1780s, and perhaps to the late seventeenth century if the somewhat enigmatic Cork reference can be accepted. Both Chambers and Tiddy had very limited access to Irish examples of mummers' plays. The first systematic attempt to analyze the Irish plays was published only in 1946 by Green, who knew of eighteen play texts from oral tradition; he also listed various printings of late nineteenth-century chapbook texts published in Belfast. Helm's recent analysis of chapbook mummers' plays included comment on the Belfast printed version. Some material that became available since Helm wrote has made clarification of the sequence of Belfast printings possible, and has slightly revised his dating.

In October 1973 a copy of a hitherto unknown Belfast printing on the mummers' plays was acquired by the Ulster Folk and Transport Museum. It was published by the Belfast printers Smythe and Lyons, who were in partnership between 1803 and 1810. Comparison with Helm's listing of other chapbook versions shows it to be the third earliest known chapbook play in these islands, only two of the Alexander group of texts being older, published at Newcastle in 1771 and 1788. Plays of the latter kind are totally unrepresented in Ireland.

Green recently reiterated his view, stated first in 1946, that the east Ulster versions of the mummer's play "are much more likely to have been established by chapbook versions and are probably quite late in date," than that they have developed from textual prototypes introduced from seventeenth-century (or perhaps early eighteenth-century) English oral tradition. The present writer recently took issue on this point with Green, in discussing Helm's listing of a missing Belfast chapbook version which he had dated to as early as about 1806.

In the absence of certainty about the textual content of this missing version, and because of the late printing (about 1890) of the known chapbook plays from Belfast, all printed by Nicholson, extended analysis of the relationships between the printed and oral plays was unjustified. Indeed, it seemed reasonable to assume that this earlier missing version might well have been the text transcribed by Patterson in 1872, which is very close to the later Nicholson texts. However, Tiddy's reprinting of a transcription of a Belfast chapbook version, sent to him by a correspondent, had been overlooked; nobody has ever commented on some differences between it and the Nicholson texts. Perhaps this was due to Tiddy's own confusing the two. Discovery of the Smyth and Lyons chapbook version now proves the accuracy of Tiddy's informant. A chronological sequence of the known chapbook versions printed in Belfast is now established from which it seems fairly clear that if Helm's information was correct, the missing version he listed falls between the Smyth and Lyons chapbook and the Patterson transcription, and as suggested above, these two may be the same.

The certainty that now exists as to the nature of an early nineteenth-century chapbook play text permits an attempt to assess the connections between oral and printed plays in Ireland. Questions of textual origins are not at issue here. Some conclusions will be possible, however, of wider application than simply to Ireland, mainly on account of the very "modern" aspect of the Smyth and Lyons text.

The Smyth and Lyons chapbook measures approximately 8 cm by 5.3 cm, and consists of thirty-two pages, including the covers. The paper is of poor quality, slightly yellowish in color, and the chapbook is thread stitched. Apart from the centrally placed words CHRISTMAS RHIME, the front and back covers are decorated all over with repeat leaf patterns of the kind frequently used for borders in nineteenth-century chapbooks. It is illustrated by a series of woodcuts, obviously all prepared specifically for this chapbook, and some of them show details of clothing consistent with the date of printing during Smyth and Lyons's partnership. It should be noted that the illustrations differ from those used in the 1890s by Nicholson. The chapbook includes other rhymes, for children, also illustrated by cuts of the same character. The mummers' play text occupies sixteen pages, including the title page.

1. The author believes that Ulster versions of the mummer's play:
- I. have never been established by chapbook versions.
- II. are quite late in date.
- III. have developed from textual prototypes.
- IV. were introduced from English oral tradition.
- V. The author expresses no opinion of his own on this point.

The correct choices are:
A. V only
B. I, II, III, and IV
C. III and IV
D. I only

2. The first systematic analysis of Irish mumming was published in
A. 1771.
B. 1806.
C. 1872.
D. 1946.

3. The author believes that the Belfast chapbook listed by Helm as missing
A. probably never existed.
B. was discovered by Tiddy.
C. might have been transcribed by Patterson.
D. was probably the forerunner of the Srnyth and Lyons chapbook.

4. Which of the following statements about the Smythe and Lyons chapbook is false?
A. It is illustrated with woodcuts.
B. The mummer's play text fills about half of it.
C. The illustrations are more modern than those used in the Nicholson printing.
D. The covers are characteristic of chapbooks printed in the 1800s.

5. The person who we can infer had access to the most complete collection of Irish mummer's plays was
A. Helm.
B. Green.
C. Cork.
D. Chambers.

6. A chapbook is
A. a small volume containing popular tales, plays, or nursery rhymes.
B. an analysis of Irish mumming.
C. a book of mummer's plays.
D. strictly an Irish institution.

Passage 68

"For the ease and pleasure of treading the old road, accepting the fashions, the education, the religion of society, he takes the cross of making his own, and, of course, the self-accusation, the faint heart, the frequent uncertainty and loss of time, which are the nettles and tangling vines in the way of the self-relying and self directed; and the state of virtual hostility in which he seems to stand to society, and especially to educated society. For all this loss and scorn, what offset? He is to find consolation in exercising the highest functions of human nature. He is one who raises himself from private consideration and breathes and lives on public and illustrious thoughts. He is the world's eye. He is the world's heart. He is to resist the vulgar prosperity that retrogrades ever to barbarism, by preserving and communicating heroic sentiments, noble biographies, melodious verse, and the conclusions of history. Whatsoever oracles the human heart, in all emergencies, in all solemn hours, has uttered as its commentary on the world of actions -- these he shall receive and impart. And whatsoever new verdict Reason from her inviolable seat pronounces on the passing men and events of today -- this he shall hear and promulgate.

"These being his functions, it becomes him to feel all confidence in himself, and to defer never to the popular cry. He and he only knows the world. The world of any moment is the merest appearance. Some great decorum, some fetish of a government, some ephemeral trade, or war, or man, is cried up by half mankind and cried down by the other half, as if all depended on this particular up or down. The odds are that the whole question is not worth the poorest thought which the scholar has lost in listening to the controversy. Let him not quit his belief that a popgun is a popgun, though the ancient and honorable of the earth affirm it to be the crack of doom. In silence, in steadiness, in severe abstraction, let him hold by himself; add observation to observation, patient of neglect, patient of reproach, and bide his own time -- happy enough if he can satisfy himself alone that this day he has seen something truly. Success treads on every right step. For the instinct is sure, that prompts him to tell his brother what he thinks. He then learns that in going down into the secrets of his own mind he has descended into the secrets of all minds. He learns that he who has mastered any law in his private thoughts, is master to the extent of all translated. The poet, in utter solitude remembering his spontaneous thoughts and recording them, is found to have recorded that which men in crowded cities find true for them also. The orator distrusts at first the fitness of his frank confessions, his want of knowledge of the persons he addresses, until he finds that he is the complement of his hearers that they drink his words because he fulfils for them their own nature; the deeper he delves into his privatest, secretest presentiment, to his wonder he finds this is the most acceptable, most public, and universally true. The people delight in it; the better part of every man feels. His is my music; this is myself."

1. It is a frequent criticism of the scholar that he lives by himself, in an "ivory tower," remote from the problems and business of the world. Which of these below constitutes the best refutation by the writer of the passage to the criticism here noted?
A. The world's concern being ephemeral, the scholar does well to renounce them and the world.

B. The scholar lives in the past to interpret the present.
C. The scholar at his truest is the spokesman of the people.
D. The scholar is not concerned with the world's doing because he is not selfish and therefore not engrossed in matters of importance to himself and neighbors.

2. The scholar's road is rough, according to the passage. Which of these is his greatest difficulty?
A. He must renounce religion.
B. He must pioneer new approaches.
C. He must express scorn for, and hostility to, society.
D. He is uncertain of his course.

3. When the writer speaks of the "world's eye" and the "world's heart," he means
A. the same thing.
B. culture and conscience.
C. culture and wisdom.
D. a scanning of all the world's geography and a deep sympathy for every living thing.

4. By the phrase, "nettles and tangling vines" the author probably refers to
A. "self-accusation" and "loss of time."
B. "faint heart" and "self accusation."
C. "self-accusation" and "uncertainty."
D. a general term for the difficulties of a scholar's life.

5. The various ideas in the passage are best summarized in which of these groups?
I. (a) truth versus society (b) the scholar and books (c) the world and the scholar
II. (a) the ease of living traditionally (b) the glory of a scholar's life (c) true knowledge versus trivia
III. (a) the hardships of the scholar (b) the scholar's function (c) the scholar's justifications for disregarding the world's business

The correct choices are
A. I and III
B. III only
C. I and II
D. I only

6. "Seems to stand" (first sentence) means
A. is.
B. gives the false impression of being.
C. ends probably in becoming.
D. is seen to be.

7. "Public and illustrious thoughts" means
A. what the people think.
B. thoughts for the good of mankind.
C. thoughts in the open.
D. thoughts transmitted by the people.

Passage 69

The smaller the remnant population of some organism, the more difficult it is to study. Still, bit by bit, over the past several decades, the biological evidence of dwindling species has been brought together in the files of the Survival Service Commission of the International Union for the Conservation of Natural Resources. A few years ago the information on birds and mammals threatened with extinction was published in two *Red Data Books.* For each such animal, there is a page of condensed information on biology and status. As new information comes in, a new page is printed to replace the old.

The organization of the *Red Data Books is* taxonomic, so that it is a simple matter, for example, to scan the parrots for threatened forms. The present volume, too, is based on the files of the Survival Service Commission. Its authors include those of the *Red Data Books* and like those books it consists of accounts of threatened organisms taxonomically arranged. These accounts, however, are really individual essays. Each stands alone, yet the threat of extinction constitutes a theme which links them all together. Each is clearly written, logically organized, and packed with interesting information. Abundant, well-executed illustrations enliven the text. To the large sections on mammals and birds are added shorter ones on the much less intensively studied reptiles, amphibians, fishes, and plants. The book is introduced with a preface, a foreword, and an introduction - it really introduces the subject of the volume, which is the natural history of biotic extinction.

Biotic extinction is, of course, nothing new. Fisher, from the fossil record, places the mean life of a bird species at about two million years, and of a mammal at not much over 600,000. After that a species evolves into other species or becomes extinct. The pace of evolution - and of extinction - is much more rapid for island populations. Island forms, therefore, are prominent among species both extinct and threatened with extinction. In the West Indies the life of a bird species before colonization by man was only 180,000 years. But - and here is Fisher's main point - this figure dropped to 30,000 with colonization by aboriginal man, and to 12,000 with colonization from Europe.

The various major causes of biotic extinction can be grouped into natural causes (that is, changing through adaptation or being unable to adapt or compete) and effects of man, including hunting, introduced predators,

introduced competitors, introduced diseases, and habitat alteration. Focusing on the period since 1600, which marked the beginning both of a rather definite knowledge of bird and mammal species and of the age of colonization, Fisher estimates that about 70 to 80 percent of both extinctions and serious population declines can be attributed to man's actions.

1. The main purpose for having written this article was to
- **A.** relate the history of animal extinction.
- **B.** urge the need to practice good conservation.
- **C.** list animals that face extinction.
- **D.** review a book.

2. It can be inferred from the passage that the animal most difficult to study would be
- **A.** cats.
- **B.** buffalo.
- **C.** mice.
- **D.** dogs.

3. It can be expected that with the colonization of an island by modern man, the life of a bird species would be cut by
- **A.** 10%.
- **B.** 30%.
- **C.** 90%.
- **D.** 70%.

4. From the information presented in the passage, it can be said that animal species have been faced with extinction for
- **A.** more than 2 million years.
- **B.** nearly 12,000 years.
- **C.** about 180,000 years.
- **D.** about 2 million years.

5. All of the following are mentioned as a cause of biotic extinction except
- **A.** man-made change to living areas.
- **B.** change through adaptation.
- **C.** nuclear holocaust.
- **D.** the transport of animals by man.

Passage 70

It is a common belief that a thing is desirable because it is scarce and thereby has ostentation value. The notion that such a standard of value is an inescapable condition of settled social existence rests on one of two implicit assumptions. The first is that the attempt to educate the human race so that the desire to display one's possessions is not a significant feature of man's social behavior, is an infringement against personal freedom. The greatest obstacle to lucid discourse in these matters is the psychological anti-vaccinationist who uses the word freedom to signify the natural right of men and women to be unhappy and unhealthy through scientific ignorance instead of being healthy and happy through the knowledge which science confers. Haunted by a perpetual fear of the dark, the last lesson which man learns in the difficult process of growing up is "ye shall know the truth, and the truth shall make you free." The professional economist who is too sophisticated to retreat into the obscurities of this curious conception of liberty may prefer to adopt the second assumption, that the truth does not and cannot make us free because the need for ostentation is a universal species characteristic, and all attempts to eradicate the unconscionable nuisance and discord which arise from overdeveloped craving for personal distinction artificially fostered by advertisement propaganda and so-called good breeding are therefore destined to failure. It may be earnestly hoped that those who entertain this view have divine guidance. No rational basis for it will be found in textbooks of economics. Whatever can be said with any plausibility in the existing state of knowledge rests on the laboratory materials supplied by anthropology and social history.

1. According to the writer, the second assumption
- **A.** is fostered by propaganda and so-called good breeding.
- **B.** is basically opposite to the view of the psychological anti-vaccinationist.
- **C.** is not so curious a conception of liberty as is the first assumption.
- **D.** is unsubstantiated.

2. The author's purpose in writing this paragraph is most probably to
- **A.** denounce the psychological anti-vaccinationists.
- **B.** demonstrate that the question under discussion is an economic rather than a psychological problem.
- **C.** prove that ostentation is not an inescapable phenomenon of settled social existence.
- **D.** prove the inability of economics to account for ostentation.

3. The writer implies that
- **A.** neither the psychological anti-vaccinationist nor the professional economist recognizes the undesirability of ostentation.
- **B.** our cultural standards are at fault in enhancing ostentation value.
- **C.** scarcity as a criterion of value is an inexplicable concept.
- **D.** his main objection is to the inescapable standard of values.

4. The writer believes that both assumptions
- **A.** are invalid because they ignore the lesson "ye shall know the truth, and the truth shall make you free."
- **B.** are fallacious because they agree that a thing is desirable because it is scarce.
- **C.** are implicit in the conception of ostentation value.
- **D.** dispute the efficacy of education in eliminating ostentation.

5. In his reference to divine guidance, the writer is
- **A.** being ironic.
- **B.** implying that only divine guidance can solve the problem.
- **C.** showing how the professional economist is opposing divine laws.
- **D.** referring to opposition which exists between religion and science.

6. The writer believes that personal freedom is
- **A.** less important than is scientific knowledge.
- **B.** a requisite for the attainment of truth.
- **C.** attained by eradicating false beliefs.
- **D.** no concern of the professional economist.

7. We may infer that this writer does not believe that
- **A.** education can solve the problem.
- **B.** people have any "natural rights."
- **C.** the psychological anti-vaccinationist is more than a lipservant of the cause of freedom.
- **D.** people can be happy under the present value system.

8. The writer would consider as most comparable to the effect of a vaccination on the body, the effect of
- **A.** fear upon personality.
- **B.** science upon the supposed need for ostentation.
- **C.** truth upon the mind.
- **D.** knowledge upon ignorance.