

SECTION III

Time—35 minutes

25 Questions

Directions: The questions in this section are based on the reasoning contained in brief statements or passages. For some questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer; that is, the response that most accurately and completely answers the question. You should not make assumptions that are by commonsense standards implausible, superfluous, or incompatible with the passage. After you have chosen the best answer, blacken the corresponding space on your answer sheet.

1. It is difficult to keep deep wounds free of bacteria. Even strong antibiotics fail to kill the bacteria that live in such wounds. However, many physicians have succeeded in eliminating bacteria from deep wounds by packing the wound with a sweet substance like sugar.

Which one of the following, if true, most helps to explain why treating deep wounds with sugar as described above is successful?

- (A) Bacteria that live in deep wounds thrive in a moist environment, and sugar has a dehydrating effect.
- (B) Sugar that is nearly pure is readily available for use in medical treatments.
- (C) Many kinds of bacteria can use sugar as a nutrient and will reproduce rapidly when sugar is available to them.
- (D) Some foods that contain sugar can weaken the effects of certain antibiotics.
- (E) Strong antibiotics were developed only recently, but the use of sugar as a treatment for wounds dates back to ancient times.

2. People who are red/green color-blind cannot distinguish between green and brown. Gerald cannot distinguish between green and brown. Therefore Gerald is red/green color-blind.

Which one of the following most closely parallels the reasoning in the argument presented in the passage?

- (A) People who are fair-skinned suffer from sunburn. William is fair-skinned. Therefore William suffers from sunburn.
- (B) People who are suffering from sinusitis lose their sense of smell. Mary has lost her sense of smell. Therefore Mary is suffering from sinusitis.
- (C) People who have suffered from jaundice cannot become blood donors. Jean is a blood donor. Therefore Jean has not suffered from jaundice.
- (D) People who are color-blind cannot become airline pilots. Arthur is color-blind. Therefore Arthur cannot become an airline pilot.
- (E) People who are diabetic cannot eat large amounts of sugar. Freda is diabetic. Therefore Freda is on a special diet.

3. Early in this century Alfred Wegener developed the concept of continental drift. His ideas were rejected vehemently because he postulated no identifiable force strong enough to make the continents move. We have come to accept Wegener's theory, not because we have pinpointed such a force, but because new instruments have finally allowed continental movement to be confirmed by observation.

The passage best illustrates which one of the following statements about science?

- (A) The aim of science is to define the manifold of nature within the terms of a single harmonious theory.
- (B) In accepting a mathematical description of nature, science has become far more accurate at identifying underlying forces.
- (C) The paradox of science is that every improvement in its measuring instruments seems to make adequate theories harder to work out.
- (D) Science, employing statistics and the laws of probability, is concerned not with the single event but with mass behavior.
- (E) When the events a theory postulates are detected, the theory is accepted even without an explanation of how those events are brought about.

GO ON TO THE NEXT PAGE.



4. The theory of military deterrence was based on a simple psychological truth, that fear of retaliation makes a would-be aggressor nation hesitate before attacking and is often sufficient to deter it altogether from attacking. Clearly, then, to maintain military deterrence, a nation would have to be believed to have retaliatory power so great that a potential aggressor nation would have reason to think that it could not defend itself against such retaliation.

If the statements above are true, which one of the following can be properly inferred?

- (A) A would-be aggressor nation can be deterred from attacking only if it has certain knowledge that it would be destroyed in retaliation by the country it attacks.
- (B) A nation will not attack another nation if it believes that its own retaliatory power surpasses that of the other nation.
- (C) One nation's failing to attack another establishes that the nation that fails to attack believes that it could not withstand a retaliatory attack from the other nation.
- (D) It is in the interests of a nation that seeks deterrence and has unsurpassed military power to let potential aggressors against it become aware of its power of retaliatory attack.
- (E) Maintaining maximum deterrence from aggression by other nations requires that a nation maintain a retaliatory force greater than that of any other nation.

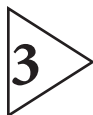
5. To the Editor:

In 1960, an astronomer proposed a mathematical model for determining whether extraterrestrial life exists. It was based on the assumptions that life as we know it could exist only on a planet and that many stars are, like our Sun, orbited by planets. On the basis that there are nine planets in our solar system and one of them has life as we know it, the astronomer predicted that there are as many as one million extraterrestrial civilizations across all solar systems. Yet astronomers to date have not detected even one planet outside our solar system. This indicates that the astronomer's model is wrong, and life as we know it exists only on the planet Earth.

Clay Moltz

Which one of the following, if accepted by Clay Moltz, would require him to reconsider his conclusion?

- (A) Forms of life other than life as we know it exist on other planets.
 - (B) There are many stars that are not orbited by planets.
 - (C) Detecting planets outside our solar system requires more sophisticated instruments than are currently available.
 - (D) The soundness of the conclusion reached by applying a mathematical model depends on the soundness of the assumptions on which the model is based.
 - (E) Due to sheer distances and expanses of space involved, any extraterrestrial civilization would have great difficulty communicating with ours.
6. If Max were guilty, he would not ask the police to investigate. Therefore, his asking the police to investigate shows that he is not guilty.
- The logical structure of the argument above is most similar to which one of the following?
- (A) If Lucille were in the next room, I would not be able to see her. Therefore, the fact that I can see her shows that she is not in the next room.
 - (B) If Sam were rich, he would not spend his vacation in Alaska. Therefore, his spending his vacation in the Bahamas shows that he is rich.
 - (C) If Joe were over 40 he would not want to learn to ski. Therefore, the fact that he does not want to learn to ski shows that he is over 40.
 - (D) If Mark were a good cook, he would not put cinnamon in the chili. Therefore, the fact that he is not a good cook shows that he put cinnamon in the chili.
 - (E) If Sally were sociable, she would not avoid her friends. Therefore, the fact that she is sociable shows that she does not avoid her friends.



7. A population of game ducks at a western lake contains 55 males to every 45 females, while a population of game ducks at an eastern lake contains 65 males for every 35 females. Among those ducks that have not yet bred there are only slightly more males than females, but among older ducks the number of males greatly exceeds the number of females. Because there are appreciably more males among adult ducks than among young ducks, we can infer that the greater the disparity in overall sex ratios, the greater the percentage of older male ducks in the population.

Which one of the following can be inferred from the passage?

- (A) The population of game ducks at the western lake contains a lower percentage of adult males than the population at the eastern lake contains.
- (B) The population of game ducks at the eastern lake contains a higher percentage of nonadult game ducks than the population at the western lake contains.
- (C) The total number of male game ducks is higher in the eastern lake's population than in the western lake's population.
- (D) The number of nonadult ducks hatched in a breeding season is higher in the eastern lake's population than in the western lake's population.
- (E) Adult female game ducks outnumber nonadult female game ducks in the eastern lake's population.

8. The common procedure for determining whether a food additive should be banned from use is to compare its health-related benefits with its potential risks. Yellow Dye No. 5, an additive used to color lemon soda, might cause allergic reactions in a few consumers. For most consumers of lemon soda, however, the coloring enhances their enjoyment of the beverage. This particular additive should not be banned, therefore, because its benefits greatly outweigh its risks.

A flaw in the argument is that the author

- (A) implies that the dye entails no health-related risks
- (B) treats enjoyment of a beverage as a health-related benefit
- (C) ignores the possibility that some food additives are harmful to most people
- (D) bases the argument on an unproven claim regarding a danger in using Yellow Dye No. 5
- (E) presumes that most consumers heed the warning labels on beverage containers

9. Fines levied against those responsible for certain environmentally damaging accidents are now so high that it costs a company responsible for such an accident more to pay the fine than it would have cost to adopt measures that would have prevented the accident. Therefore, since businesses value their profits, those that might have such accidents will now install adequate environmental safeguards.

Which one of the following, if true, most seriously weakens the argument?

- (A) Businesses generally greatly underestimate the risk of future accidents.
- (B) Businesses are as concerned with long-term as they are with short-term strategies for maximizing profits.
- (C) Businesses generally do the environmentally "right" thing only if doing so makes good business sense.
- (D) Businesses treat fines that are levied against them as an ordinary business expense.
- (E) Businesses are learning to exploit the public's environmental awareness in promoting themselves.

GO ON TO THE NEXT PAGE.



10. Even in a democracy, it is necessary to restrict the dissemination of advanced technological knowledge that is of commercial or national-security value. Dissemination to certain countries, those that are or will be competitors or enemies, should be selectively prohibited. There must, however, be free exchange of scientific information.

In order to act in accordance with the position above, it would be necessary to be able to rely on each of the following EXCEPT:

- (A) It is possible to distinguish with confidence, despite any changes in the international environment, friendly or noncompetitive from hostile or competitive nations.
- (B) In a democracy, it is not necessary that the public have detailed knowledge of the country's advanced technology in order, for example, to make informed decisions about the direction public policy should take.
- (C) In most fields of science, basic scientific research is further advanced in countries that are democracies than in countries that are not democracies.
- (D) In each field of science, it is possible to distinguish scientific information from advanced technological knowledge that is of commercial or national-security value.
- (E) In cases where a company that uses advanced technology is a multinational organization, it is possible to keep information about the technology from being passed across designated national boundaries.

11. Water vapor evaporated from the ocean contains a greater proportion of oxygen-16 and a smaller proportion of the heavier oxygen-18 than does seawater. Normally, this phenomenon has no effect on the overall composition of the ocean, because evaporated seawater returns to the ocean through precipitation. During an ice age, however, a large amount of precipitation falls on ice caps, where it is trapped as ice.

Which one of the following conclusions about a typical ice age is most strongly supported by the statements above?

- (A) The proportions of oxygen-16 and oxygen-18 are the same in vapor from seawater as in the seawater itself.
- (B) The concentration of oxygen-18 in seawater is increased.
- (C) Rain and snow contain relatively more oxygen-16 than they do in interglacial periods.
- (D) During the ice age, more of the Earth's precipitation falls over land than falls over the ocean.
- (E) The composition of seawater changes more slowly than it does in interglacial periods.

12. Some of the most prosperous nations in the world have experienced a pronounced drop in national savings rates—the percentage of after-tax income an average household saves. This trend will undoubtedly continue if the average age of these nations' populations continues to rise, since older people have fewer reasons to save than do younger people.

Which one of the following indicates an error in the reasoning leading to the prediction above?

- (A) It fails to specify the many reasons younger people have for saving money, and it fails to identify which of those reasons is the strongest.
- (B) It assumes that a negative savings rate—the result of the average household's spending all of its after-tax income as well as some of its existing savings—cannot ever come about in any nation.
- (C) It fails to cite statistics showing that the average age of the population of certain nations is rising.
- (D) It only takes into account the comparative number of reasons older and younger people, respectively, have for saving, and not the comparative strength of those reasons.
- (E) It uses after-tax income as the base for computing the national savings rate without establishing by argument that after-tax income is a more appropriate base than before-tax income.



13. The term “pit bull” does not designate a breed of dog, as do the terms “German shepherd” and “poodle.” It is like the terms “Seeing-Eye dog” and “police dog,” which designate dogs according to what they do. If you take two German shepherds and place them side by side, you cannot tell by appearance alone which is the police dog and which is the Seeing-Eye dog.

Which one of the following is the main point of the passage?

- (A) German shepherds can be pit bulls.
 - (B) Pit bulls can be distinguished from other kinds of dogs by appearance alone.
 - (C) A dog is a pit bull because of what it does, not because of its breed.
 - (D) German shepherds can function both as police dogs and as Seeing-Eye dogs.
 - (E) Some breeds of dogs cannot be distinguished from other breeds of dogs by appearance alone.
14. Historically, monetary systems have developed only in population centers with marketplaces. Through the fourth century B.C., Mesopotamian cities engaged in trade, but had never had marketplaces. By that period, however, Greek cities all had marketplaces, or agorae. The Greek cities’ agorae were centrally located and goods were traded there either for money or for commodities.

If all of the statements in the passage are true, then which one of the following must also be true?

- (A) In the fourth century B.C., Greek cities were the only population centers with monetary systems.
- (B) The development of monetary systems has historically led to the development of marketplaces.
- (C) In the fourth century B.C., the Greeks and the Mesopotamians traded with each other.
- (D) After the fourth century B.C., Mesopotamian cities had marketplaces and monetary systems.
- (E) The Mesopotamian cities of the fourth century B.C. did not have monetary systems.

Questions 15–16

Computer operating system software has become increasingly standardized. But when a large business with multiple, linked computer systems uses identical operating system software on all of its computers, a computer vandal who gains access to one computer automatically has access to the data on all the computers. Using a program known as a “virus,” the vandal can then destroy much of the data on all the computers. If such a business introduced minor variations into its operating system software, unauthorized access to all the computers at the same time could be virtually eliminated. Furthermore, variations in operating system software can be created without any loss of computer compatibility to the business. Therefore, it is advisable for businesses to implement such variations.

15. Which one of the following, if true, supports the conclusion in the passage?
- (A) Standardization of computer operating system software has increased computer compatibility among different businesses.
 - (B) Correcting any damage resulting from an invasion by a computer virus program is more expensive than preventing the damage.
 - (C) It is not costly for a business to maintain incompatible computer operating systems.
 - (D) There are other kinds of destructive computer programs that do not depend on intercomputer links.
 - (E) Not all businesses need to share data among their internal computer systems.
16. Which one of the following can be inferred from the passage?
- (A) If a business does not introduce variety into its computer operating systems, it will lose data on its computers because of damage from virus programs.
 - (B) If a computer virus program is introduced into a business’ computer, all of the data on that computer will be destroyed.
 - (C) If a business introduces variety into its linked computer operating systems, it will have increased overall protection for its systems, but will not have protected every computer from viral invasion.
 - (D) If a business does not have multiple, linked computer systems, its computers cannot be protected from computer viruses.
 - (E) If minor variations are created in computer operating system software, it will be easier to access the data on the computers that use that software.



17. It is the mark of a superior conductor that he or she has the authority to insist, even with a top orchestra, that rehearsal work must be intensified. This authority cannot simply be claimed; the conductor must earn it by winning the orchestra's respect for the artistic interpretations he or she is currently pursuing.

In taking the position outlined, the author presupposes which one of the following?

- (A) Superior conductors devise different interpretations of a composition for each orchestra with which they perform it.
- (B) Superior conductors are perfectionists who are never satisfied with any performance even by a top orchestra.
- (C) Top orchestras are always ready to put in additional work on rehearsals if the conductor considers additional rehearsing necessary.
- (D) Top orchestras can appreciate the merits of an interpretation even before they have brought it to full realization.
- (E) Even top orchestras are not always led by superior conductors.

18. In the United States proven oil reserves—the amount of oil considered extractable from known fields—are at the same level as they were ten years ago. Yet over this same period no new oil fields of any consequence have been discovered, and the annual consumption of domestically produced oil has increased.

Which one of the following, if true, best reconciles the discrepancy described above?

- (A) Over the past decade the annual consumption of imported oil has increased more rapidly than that of domestic oil in the United States.
- (B) Conservation measures have lowered the rate of growth of domestic oil consumption from what it was a decade ago.
- (C) Oil exploration in the United States has slowed due to increased concern over the environmental impact of such exploration.
- (D) The price of domestically produced oil has fallen substantially over the past decade.
- (E) Due to technological advances over the last decade, much oil previously considered unextractable is now considered extractable.

19. Train service suffers when a railroad combines commuter and freight service. By dividing its attention between its freight and commuter customers, a railroad serves neither particularly well. Therefore, if a railroad is going to be a successful business, then it must concentrate exclusively on one of these two markets.

For the argument to be logically correct, it must make which of the of the following assumptions?

- (A) Commuter and freight service have little in common with each other.
- (B) The first priority of a railroad is to be a successful business.
- (C) Unless a railroad serves its customers well, it will not be a successful business.
- (D) If a railroad concentrates on commuter service, it will be a successful business.
- (E) Railroad commuters rarely want freight service as well.

20. Most people in the United States view neither big nor small business as particularly efficient or dynamic and regard both as providing consumers with fairly priced goods and services. However, most people consistently perceive small business as a force for good in society, whereas big business is perceived as socially responsible only in times of prosperity.

The statements above, if true, would provide the strongest support for which one of the following hypotheses?

- (A) Most people in the United States give little thought to the value of business to society.
- (B) If big business were more efficient, it would be perceived more favorably by the public generally.
- (C) If small business were regarded as being more dynamic, it, too would receive strongly favorable ratings only in times of general prosperity.
- (D) Even if people did not regard big business as providing consumers with value for their money, they would still regard it as socially responsible in times of general prosperity.
- (E) Many people in the United States regard the social responsibility of big business as extending beyond providing consumers with fairly priced goods and services.

GO ON TO THE NEXT PAGE.



21. The energy an animal must expend to move uphill is proportional to its body weight, whereas the animal's energy output available to perform this task is proportional to its surface area. This is the reason that small animals, like squirrels, can run up a tree trunk almost as fast as they can move on level ground, whereas large animals tend to slow down when they are moving uphill.

Which one of the following is an assumption on which the explanation above depends?

- (A) The amount of energy needed to move uphill is no greater for large animals than it is for small animals.
 - (B) Small animals can move more rapidly than large animals can.
 - (C) The ratio of surface area to body weight is smaller in large animals than it is in small animals.
 - (D) There is little variation in the ratio of energy output to body weight among animals.
 - (E) The amount of energy needed to run at a given speed is proportional to the surface area of the running animal.
22. The 1980s have been characterized as a period of selfish individualism that threatens the cohesion of society. But this characterization is true of any time. Throughout history all human actions have been motivated by selfishness. When the deeper implications are considered, even the simplest "unselfish" acts prove to be instances of selfish concern for the human species.

Which one of the following is a flaw in the argument?

- (A) The claim that selfishness has been present throughout history is not actually relevant to the argument.
- (B) No statistical evidence is provided to show that humans act selfishly more often than they act unselfishly.
- (C) The argument assumes that selfishness is unique to the present age.
- (D) The argument mentions only humans and does not consider the behavior of other species.
- (E) The argument relies on two different uses of the term "selfish."

23. A medical journal used a questionnaire survey to determine whether a particular change in its format would increase its readership. Sixty-two percent of those who returned the questionnaire supported that change. On the basis of this outcome, the decision was made to introduce the new format.

Which one of the following, if it were determined to be true, would provide the best evidence that the journal's decision will have the desired effect?

- (A) Of the readers who received questionnaires, 90 percent returned them.
- (B) Other journals have based format changes on survey results.
- (C) The percentage of surveyed readers who like the format change was almost the same as the percentage of the entire potential readership who would like the format change.
- (D) It was determined that the new format would be less costly than the old format.
- (E) Ninety percent of the readers who were dissatisfied with the old format and only 50 percent of the readers who liked the old format returned their questionnaires.

GO ON TO THE NEXT PAGE.



Questions 24–25

Shanna: Owners of any work of art, simply by virtue of ownership, ethically have the right to destroy that artwork if they find it morally or aesthetically distasteful, or if caring for it becomes inconvenient.

Jorge: Ownership of unique artworks, unlike ownership of other kinds of objects, carries the moral right to possess but not to destroy. A unique work of art with aesthetic or historical value belongs to posterity and so must be preserved, whatever the personal wishes of its legal owner.

24. Which one of the following principles, if accepted, would contribute most to Shanna's defense of her position against that of Jorge?
- (A) Truly great works of art are never morally or aesthetically distasteful to any serious student of the history of art.
 - (B) The right of future generations to have their artistic heritage preserved is of greater importance than the rights of any presently living individual.
 - (C) It would be imprudent to allow the present stock of artworks to be destroyed without some guarantee that the artists of the future will produce works as great as those produced in the past.
 - (D) There are certain entities over which no one would be ethically justified in claiming absolute rights to ownership.
 - (E) The autonomy of individuals to do what they wish with what is theirs must not be compromised in the absence of a threat to anyone's health or safety.

25. On the basis of their statements, Shanna and Jorge are committed to disagreeing about the truth of which one of the following statements?
- (A) Anyone who owns a portrait presenting his or her father in an unflattering light would for that reason alone be ethically justified in destroying it.
 - (B) People who own aesthetically valuable works of art have no moral obligation to make them available for public viewing.
 - (C) Valuable paintings by well-known artists are seldom intentionally damaged or destroyed by their owners.
 - (D) If a piece of sculpture is not unique, its owner has no ethical obligation to preserve it if doing so proves burdensome.
 - (E) It is legally permissible for a unique and historically valuable mural to be destroyed by its owner if he or she tires of it.

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.
DO NOT WORK ON ANY OTHER SECTION IN THE TEST.