

SECTION I

Time—35 minutes

26 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. Some critics argue that an opera's stage directions are never reflected in its music. Many comic scenes in Mozart's operas, however, open with violin phrases that sound like the squeaking of changing scenery. Clearly Mozart intended the music to echo the sounds occurring while stage directions are carried out. Hence, a change of scenery—the most basic and frequent stage direction—can be reflected in the music, which means that other operatic stage directions can be as well.

In the argument, the statement that many comic scenes in Mozart's operas open with violin phrases that sound like the squeaking of changing scenery is offered in support of the claim that

- (A) a change of scenery is the stage direction most frequently reflected in an opera's music
- (B) an opera's stage directions are never reflected in its music
- (C) an opera's music can have an effect on the opera's stage directions
- (D) a variety of stage directions can be reflected in an opera's music
- (E) the most frequent relation between an opera's music and its stage directions is one of musical imitation of the sounds that occur when a direction is carried out

2. Lecturer: Given our current state of knowledge and technology, we can say that the generalization that the entropy of a closed system cannot decrease for any spontaneous process has not been falsified by any of our tests of that generalization. So we conclude it to be true universally. Yet, it must be admitted that this generalization has not been conclusively verified, in the sense that it has not been tested in every corner of the universe, under every feasible condition. Nevertheless, this generalization is correctly regarded as a scientific law; indeed, it is referred to as the Second Law of Thermodynamics.

Which one of the following principles, if valid, most justifies the lecturer's classification of the generalization described above?

- (A) Whatever is a scientific law has not been falsified.
- (B) If a generalization is confirmed only under a few circumstances, it should not be considered a scientific law.
- (C) Whatever is true universally will eventually be confirmed to the extent current science allows.
- (D) If a generalization is confirmed to the extent current science allows, then it is considered a scientific law.
- (E) Whatever is regarded as a scientific law will eventually be conclusively verified.

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3. More women than men suffer from Alzheimer's disease—a disease that is most commonly contracted by elderly persons. This discrepancy has often been attributed to women's longer life span, but this theory may be wrong. A recent study has shown that prescribing estrogen to women after menopause, when estrogen production in the body decreases, may prevent them from developing the disease. Men's supply of testosterone may help safeguard them against Alzheimer's disease because much of it is converted by the body to estrogen, and testosterone levels stay relatively stable into old age.

Which one of the following most accurately expresses the main conclusion of the argument?

- (A) A decrease in estrogen, rather than longer life span, may explain the higher occurrence of Alzheimer's disease in women relative to men.
 - (B) As one gets older, one's chances of developing Alzheimer's disease increase.
 - (C) Women who go through menopause earlier in life than do most other women have an increased risk of contracting Alzheimer's disease.
 - (D) The conversion of testosterone into estrogen may help safeguard men from Alzheimer's disease.
 - (E) Testosterone is necessary for preventing Alzheimer's disease in older men.
4. Parent P: Children will need computer skills to deal with tomorrow's world. Computers should be introduced in kindergarten, and computer languages should be required in high school.

Parent Q: That would be pointless. Technology advances so rapidly that the computers used by today's kindergartners and the computer languages taught in today's high schools would become obsolete by the time these children are adults.

Which one of the following, if true, is the strongest logical counter parent P can make to parent Q's objection?

- (A) When technology is advancing rapidly, regular training is necessary to keep one's skills at a level proficient enough to deal with the society in which one lives.
- (B) Throughout history people have adapted to change, and there is no reason to believe that today's children are not equally capable of adapting to technology as it advances.
- (C) In the process of learning to work with any computer or computer language, children increase their ability to interact with computer technology.
- (D) Automotive technology is continually advancing too, but that does not result in one's having to relearn to drive cars as the new advances are incorporated into new automobiles.
- (E) Once people have graduated from high school, they have less time to learn about computers and technology than they had during their schooling years.

Questions 5–6

Proponent: Irradiation of food by gamma rays would keep it from spoiling before it reaches the consumer in food stores. The process leaves no radiation behind, and vitamin losses are comparable to those that occur in cooking, so there is no reason to reject irradiation on the grounds of nutrition or safety. Indeed, it kills harmful *Salmonella* bacteria, which in contaminated poultry have caused serious illness to consumers.

Opponent: The irradiation process has no effect on the bacteria that cause botulism, a very serious form of food poisoning, while those that cause bad odors that would warn consumers of botulism are killed. Moreover, *Salmonella* and the bacteria that cause botulism can easily be killed in poultry by using a safe chemical dip.

- 5. The opponent's argument proceeds by
 - (A) isolating an ambiguity in a crucial term in the proponent's argument
 - (B) showing that claims made in the proponent's argument result in a self-contradiction
 - (C) establishing that undesirable consequences result from the adoption of either one of two proposed remedies
 - (D) shifting perspective from safety with respect to consumers to safety with respect to producers
 - (E) pointing out an alternative way of obtaining an advantage claimed by the proponent without risking a particular disadvantage
- 6. Which one of the following could the opponent properly cite as indicating a flaw in the proponent's reasoning concerning vitamin losses?
 - (A) After irradiation, food might still spoil if kept in storage for a long time after being purchased by the consumer.
 - (B) Irradiated food would still need cooking, or, if eaten raw, it would not have the vitamin advantage of raw food.
 - (C) Vitamin loss is a separate issue from safety.
 - (D) Vitamins can be ingested in pill form as well as in foods.
 - (E) That food does not spoil before it can be offered to the consumer is primarily a benefit to the seller, not to the consumer.

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7. Due to wider commercial availability of audio recordings of authors reading their own books, sales of printed books have dropped significantly.

Which one of the following conforms most closely to the principle illustrated above?

- (A) Because of the rising cost of farm labor, farmers began to make more extensive use of machines.
 - (B) Because of the wide variety of new computer games on the market, sales of high-quality computer video screens have improved.
 - (C) Because a new brand of soft drink entered the market, consumers reduced their consumption of an established brand of soft drink.
 - (D) Because a child was forbidden to play until homework was completed, that child did much less daydreaming and focused on homework.
 - (E) Because neither of the two leading word processing programs has all of the features consumers want, neither has been able to dominate the market.
8. Lobsters and other crustaceans eaten by humans are more likely to contract gill diseases when sewage contaminates their water. Under a recent proposal, millions of gallons of local sewage each day would be rerouted many kilometers offshore. Although this would substantially reduce the amount of sewage in the harbor where lobsters are caught, the proposal is pointless, because hardly any lobsters live long enough to be harmed by those diseases.

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

- (A) Contaminants in the harbor other than sewage are equally harmful to lobsters.
- (B) Lobsters, like other crustaceans, live longer in the open ocean than in industrial harbors.
- (C) Lobsters breed as readily in sewage-contaminated water as in unpolluted water.
- (D) Gill diseases cannot be detected by examining the surface of the lobster.
- (E) Humans often become ill as a result of eating lobsters with gill diseases.

9. Researcher: The rate of psychological problems is higher among children of divorced parents than among other children. But it would be a mistake to conclude that these problems are caused by the difficulty the children have adjusting to divorce. It is just as reasonable to infer that certain behaviors that increase the likelihood of divorce—hostility, distrust, lack of empathy—are learned by children from their parents, and that it is these learned behaviors, rather than the difficulty of adjusting to divorce, that cause the children's psychological problems.

The assertion that children of divorced parents have a higher rate of psychological problems than other children figures in the argument in which one of the following ways?

- (A) It is the conclusion of the argument.
 - (B) It is the claim that the argument tries to refute.
 - (C) It is offered as evidence for the claim that divorce is harmful to the children of the divorcing parents.
 - (D) It is offered as evidence for the claim that certain behaviors are often responsible for divorce.
 - (E) It is cited as an established finding for which the argument proposes an explanation.
10. Although marathons are 26.2 miles (42.2 kilometers) long and take even world-class marathoners over 2 hours to run, athletes who train by running 90 minutes a day fare better in marathons than do those who train by running 120 minutes or more a day.
- Each of the following, if true, contributes to an explanation of the difference in marathon performances described above EXCEPT:
- (A) The longer period of time that one runs daily, the greater the chances of suffering adverse health effects due to air pollution.
 - (B) The longer the period of time that one runs daily, the easier it is to adjust to different race lengths.
 - (C) The longer the run, the more frequent is the occurrence of joint injuries that significantly interfere with overall training.
 - (D) Runners who train over 90 minutes per day grow bored with running and become less motivated.
 - (E) Runners who train over 90 minutes per day deplete certain biochemical energy reserves, leaving them less energy for marathons.

11. Linguist: Some people have understood certain studies as showing that bilingual children have a reduced “conceptual map” because bilingualism overstates the child’s linguistic capacities. Vocabulary tests taken by bilingual children appear to show that these children tend to have a smaller vocabulary than do most children of the same age group. But these studies are deeply flawed, since the tests were given in only one language. Dual-language tests revealed that the children often expressed a given concept with a word from only one of their two languages.

The linguist’s argument proceeds by

- (A) offering evidence for the advantages of bilingualism over monolingualism
 - (B) pointing out an inconsistency in the view that bilingualism overstates a child’s linguistic capabilities
 - (C) offering evidence that undermines the use of any vocabulary test to provide information about a child’s conceptual map
 - (D) providing a different explanation for the apparent advantages of bilingualism from the explanation suggested by the results of certain studies
 - (E) pointing out a methodological error in the technique used to obtain the purported evidence of a problem with bilingualism
12. Gene splicing can give rise to new varieties of farm animals that have only a partially understood genetic makeup. In addition to introducing the genes for whichever trait is desired, the technique can introduce genes governing the production of toxins or carcinogens, and these latter undesirable traits might not be easily discoverable.

The statements above, if true, most strongly support which one of the following?

- (A) All toxin production is genetically controlled.
- (B) Gene splicing to produce new varieties of farm animals should be used cautiously.
- (C) Gene splicing is not effective as a way of producing new varieties of farm animals.
- (D) Most new varieties of farm animals produced by gene splicing will develop cancer.
- (E) Gene splicing will advance to the point where unforeseen consequences are no longer a problem.

13. Journal: In several psychological studies, subjects were given statements to read that caused them to form new beliefs. Later, the subjects were told that the original statements were false. The studies report, however, that most subjects persevered in their newly acquired beliefs, even after being told that the original statements were false. This strongly suggests that humans continue to hold onto acquired beliefs even in the absence of any credible evidence to support them.

Which one of the following, if true, most undermines the journal’s argument?

- (A) Regardless of the truth of what the subjects were later told, the beliefs based on the original statements were, for the most part, correct.
- (B) It is unrealistic to expect people to keep track of the original basis of their beliefs, and to revise a belief when its original basis is undercut.
- (C) The statements originally given to the subjects would be highly misleading even if true.
- (D) Most of the subjects had acquired confirmation of their newly acquired beliefs by the time they were told that the original statements were false.
- (E) Most of the subjects were initially skeptical of the statements originally given to them.

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14. Novelists cannot become great as long as they remain in academia. Powers of observation and analysis, which schools successfully hone, are useful to the novelist, but an intuitive grasp of the emotions of everyday life can be obtained only by the kind of immersion in everyday life that is precluded by being an academic.

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

- (A) Novelists require some impartiality to get an intuitive grasp of the emotions of everyday life.
 - (B) No great novelist lacks powers of observation and analysis.
 - (C) Participation in life, interspersed with impartial observation of life, makes novelists great.
 - (D) Novelists cannot be great without an intuitive grasp of the emotions of everyday life.
 - (E) Knowledge of the emotions of everyday life cannot be acquired by merely observing and analyzing life.
15. Statistician: A financial magazine claimed that its survey of its subscribers showed that North Americans are more concerned about their personal finances than about politics. One question was: "Which do you think about more: politics or the joy of earning money?" This question is clearly biased. Also, the readers of the magazine are a self-selecting sample. Thus, there is reason to be skeptical about the conclusion drawn in the magazine's survey.

Each of the following, if true, would strengthen the statistician's argument EXCEPT:

- (A) The credibility of the magazine has been called into question on a number of occasions.
- (B) The conclusions drawn in most magazine surveys have eventually been disproved.
- (C) Other surveys suggest that North Americans are just as concerned about politics as they are about finances.
- (D) There is reason to be skeptical about the results of surveys that are biased and unrepresentative.
- (E) Other surveys suggest that North Americans are concerned not only with politics and finances, but also with social issues.

Questions 16–17

On the basis of the available evidence, Antarctica has generally been thought to have been covered by ice for at least the past 14 million years. Recently, however, three-million-year-old fossils of a kind previously found only in ocean-floor sediments were discovered under the ice sheet covering central Antarctica. About three million years ago, therefore, the Antarctic ice sheet must temporarily have melted. After all, either severe climatic warming or volcanic activity in Antarctica's mountains could have melted the ice sheet, thus raising sea levels and submerging the continent.

16. Which one of the following is the main conclusion of the argument?
- (A) Antarctica is no longer generally thought to have been covered by ice for the past 14 million years.
 - (B) It is not the case that ancient fossils of the kind recently found in Antarctica are found only in ocean-floor sediments.
 - (C) The ice sheet covering Antarctica has not been continuously present throughout the past 14 million years.
 - (D) What caused Antarctica to be submerged under the sea was the melting of the ice sheet that had previously covered the continent.
 - (E) The ice sheet covering Antarctica was melted either as a result of volcanic activity in Antarctica's mountains or as a result of severe climatic warming.
17. The reasoning in the argument is most vulnerable to which one of the following criticisms?
- (A) That a given position is widely believed to be true is taken to show that the position in question must, in fact, be true.
 - (B) That either of two things could independently have produced a given effect is taken to show that those two things could not have operated in conjunction to produce that effect.
 - (C) Establishing that a certain event occurred is confused with having established the cause of that event.
 - (D) A claim that has a very general application is based entirely on evidence from a narrowly restricted range of cases.
 - (E) An inconsistency that, as presented, has more than one possible resolution is treated as though only one resolution is possible.

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18. The current pattern of human consumption of resources, in which we rely on nonrenewable resources, for example metal ore, must eventually change. Since there is only so much metal ore available, ultimately we must either do without or turn to renewable resources to take its place.

Which one of the following is an assumption required by the argument?

- (A) There are renewable resource replacements for all of the nonrenewable resources currently being consumed.
- (B) We cannot indefinitely replace exhausted nonrenewable resources with other nonrenewable resources.
- (C) A renewable resource cannot be exhausted by human consumption.
- (D) Consumption of nonrenewable resources will not continue to increase in the near future.
- (E) Ultimately we cannot do without nonrenewable resources.

19. Lathyrism, a debilitating neurological disorder caused by the consumption of the legume *Lathyrus sativus*, is widespread among the domestic animals of some countries. Attempts to use rats to study lathyrism have generally failed. Rats that ingested *Lathyrus sativus* did not produce the symptoms associated with the disorder.

Which one of the following is most strongly supported by the information above?

- (A) The physiology of rats is radically different from that of domestic animals.
- (B) The rats did not consume as much *Lathyrus sativus* as did the domestic animals that contracted lathyrism.
- (C) Not all animal species are equally susceptible to lathyrism.
- (D) Most of the animals that can contract lathyrism are domestic.
- (E) Laboratory conditions are not conducive to the development of lathyrism.

20. Columnist: Almost anyone can be an expert, for there are no official guidelines determining what an expert must know. Anybody who manages to convince some people of his or her qualifications in an area—whatever those may be—is an expert.

The columnist's conclusion follows logically if which one of the following is assumed?

- (A) Almost anyone can convince some people of his or her qualifications in some area.
- (B) Some experts convince everyone of their qualifications in almost every area.
- (C) Convincing certain people that one is qualified in an area requires that one actually be qualified in that area.
- (D) Every expert has convinced some people of his or her qualifications in some area.
- (E) Some people manage to convince almost everyone of their qualifications in one or more areas.

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21. A patient complained of feeling constantly fatigued. It was determined that the patient averaged only four to six hours of sleep per night, and this was determined to contribute to the patient's condition. However, the patient was not advised to sleep more.

Which one of the following, if true, most helps to resolve the apparent discrepancy in the information above?

- (A) The shorter one's sleep time, the easier it is to awaken from sleeping.
 - (B) The first two hours of sleep do the most to alleviate fatigue.
 - (C) Some people required less sleep than the eight hours required by the average person.
 - (D) Most people who suffer from nightmares experience them in the last hour of sleep before waking.
 - (E) Worry about satisfying the need for sufficient sleep can make it more difficult to sleep.
22. No chordates are tracheophytes, and all members of Pteropsida are tracheophytes. So no members of Pteropsida belong to the family Hominidae.
- The conclusion above follows logically if which one of the following is assumed?
- (A) All members of the family Hominidae are tracheophytes.
 - (B) All members of the family Hominidae are chordates.
 - (C) All tracheophytes are members of Pteropsida.
 - (D) No members of the family Hominidae are chordates.
 - (E) No chordates are members of Pteropsida.

23. Some statisticians claim that the surest way to increase the overall correctness of the total set of one's beliefs is: never change that set, except by rejecting a belief when given adequate evidence against it. However, if this were the only rule one followed, then whenever one were presented with any kind of evidence, one would have to either reject some of one's beliefs or else leave one's beliefs unchanged. But then, over time, one could only have fewer and fewer beliefs. Since we need many beliefs in order to survive, the statisticians' claim must be mistaken.

The argument is most vulnerable to criticism on the grounds that it

- (A) presumes, without providing any justification, that the surest way of increasing the overall correctness of the total set of one's beliefs must not hinder one's ability to survive
- (B) neglects the possibility that even while following the statisticians' rule, one might also accept new beliefs when presented with some kinds of evidence
- (C) overlooks the possibility that some large sets of beliefs are more correct overall than are some small sets of beliefs
- (D) takes for granted that one should accept some beliefs related to survival even when given adequate evidence against them
- (E) takes for granted that the beliefs we need in order to have many beliefs must all be correct beliefs

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24. In every case of political unrest in a certain country, the police have discovered that some unknown person or persons organized and fomented that unrest. Clearly, therefore, behind all the cases of political unrest in that country there has been a single mastermind who organized and fomented them all.

The flawed reasoning in the argument above most closely parallels that in which one of the following?

- (A) Every Chicago driver has a number on his or her license, so the number on some Chicago driver's license is the exact average of the numbers on all Chicago drivers' licenses.
 - (B) Every telephone number in North America has an area code, so there must be at least as many area codes as telephone numbers in North America.
 - (C) Every citizen of Edmonton has a social insurance number, so there must be one number that is the social insurance number for all citizens of Edmonton.
 - (D) Every loss of a single hair is insignificant, so no one who has a full head of hair at twenty ever becomes bald.
 - (E) Every moment in Vladimir's life is followed by a later moment in Vladimir's life, so Vladimir's life will never end.
25. A company that produces men's cologne had been advertising the product in general-circulation magazines for several years. Then one year the company decided to advertise its cologne exclusively in those sports magazines with a predominantly male readership. That year the company sold fewer bottles of cologne than it had in any of the three immediately preceding years.

Which one of the following, if true, best helps to explain why the sale of the company's cologne dropped that year?

- (A) Television advertising reaches more people than does magazine advertising, but the company never advertised its cologne on television because of the high cost.
- (B) The general-circulation magazines in which the company had placed its advertisements experienced a large rise in circulation recently.
- (C) Most men do not wear cologne on a regular basis.
- (D) Women often buy cologne as gifts for male friends or relatives.
- (E) Successful advertisements for men's cologne often feature well-known athletes.

26. Kim: The rapidly growing world population is increasing demands of food producers in ways that threaten our natural resources. With more land needed for both food production and urban areas, less land will be available for forests and wildlife habitats.

Hampton: You are overlooking the promise of technology. I am confident that improvements in agriculture will allow us to feed the world population of ten billion predicted for 2050 without significantly increasing the percentage of the world's land now devoted to agriculture.

Kim's and Hampton's statements most strongly support the claim that both of them would agree with which one of the following?

- (A) Efforts should be taken to slow the rate of human population growth and to increase the amount of land committed to agriculture.
- (B) Continued research into more-efficient agricultural practices and innovative biotechnology aimed at producing more food on less land would be beneficial.
- (C) Agricultural and wilderness areas need to be protected from urban encroachment by preparing urban areas for greater population density.
- (D) In the next half century, human population growth will continue to erode wildlife habitats and diminish forests.
- (E) The human diet needs to be modified in the next half century because of the depletion of our natural resources due to overpopulation.

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.