

# Logical Reasoning

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## I Identifying the 'premise + conclusion' structure in an argument

1. Although free international trade allows countries to specialize, which in turn increases productivity, such specialization carries risks. After all, small countries often rely on one or two products for the bulk of their exports. If those products are raw materials, the supply is finite and can be used up. If they are foodstuffs, a natural disaster can wipe out a season's production overnight.

Which one of the following most accurately expresses the conclusion of the argument as a whole?

- (A) Specialization within international trade comes with risks.
  - (B) A natural disaster can destroy a whole season's production overnight, devastating a small country's economy.
  - (C) A small country's supply of raw materials can be used up in a short period.
  - (D) Some countries rely on a small number of products for the export-based sectors of their economies.
  - (E) When international trade is free, countries can specialize in what they export.
2. Editorialist: The positions advanced by radical environmentalists often contain hypotheses that are false and proposals that are economically infeasible. But there is a positive role to be played even by these extremists, for the social and political inertia

that attends environmental issues is so stubborn that even small areas of progress can be made only if the populace fears environmental disaster, however untenable the reasons for those fears may be.

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

- (A) The little progress that has been made in improving the environment is mainly due to the fear created by radical environmentalists.
- (B) Radical environmentalists, by promoting their views, stimulate progress on environmental issues.
- (C) Social and political inertia is most effectively overcome by an extremely fearful populace, regardless of whether its fears are well-founded.
- (D) Radical environmentalists often put forth untenable positions in order to produce the fear that is required to bring about moderate reforms.
- (E) Radical environmentalists advocate positions without regard for factual support or economic feasibility.

3. Camera manufacturers typically advertise their products by citing the resolution of their cameras' lenses, the resolution of a lens being the degree of detail the lens is capable of reproducing in the image it projects onto the film. Differences between cameras in this respect are irrelevant for practical photography, however, since all modern lenses are so excellent that they project far more detail onto the film than any photographic film is capable of reproducing in a developed image.

Which one of the following most accurately states the main point of the argument?

- (A) Camera manufacturers ought to concentrate on building other desirable qualities into their cameras' lenses, rather than concentrating only on the lenses' resolution.
- (B) Apart from differences in resolution, there is no practical difference among modern cameras in the quality of the images that they produce.
- (C) Advertised differences among cameras in the resolution of their lenses have no practical bearing on the cameras' relative quality as photographic tools.
- (D) In concentrating their advertising on the issue of image quality, manufacturers are making a mistake about the interests of potential purchasers of cameras.

(E) Differences among photographic films in the amount of detail they reproduce have a more significant effect on the quality of the developed image than do differences in the resolution of camera lenses.

4. Software reviewer: Dictation software allows a computer to produce a written version of sentences that are spoken to it. Although dictation software has been promoted as a labor-saving invention, it fails to live up to its billing. The laborious part of writing is in the thinking and the editing, not in the typing. And proofreading the software's error-filled output generally squanders any time saved in typing.

Which one of the following most accurately describes the role played in the software reviewer's argument by the claim that dictation software fails to live up to its billing?

- (A) It is the argument's main conclusion but not its only conclusion.
- (B) It is the argument's only conclusion.
- (C) It is an intermediate conclusion that is offered as direct support for the argument's main conclusion.
- (D) It is a premise offered in support of the argument's conclusion.
- (E) It is a premise offered as direct support for an intermediate conclusion of the argument.

## **II Inferential reasoning**

1. Light is registered in the retina when photons hit molecules of the pigment rhodopsin and change the molecules' shape. Even when they have not been struck by photons of light, rhodopsin molecules sometimes change shape because of normal molecular motion, thereby introducing error into the visual system. The amount of this molecular motion is directly proportional to the temperature of the retina.

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

- (A) The temperature of an animal's retina depends on the amount of light the retina is absorbing.
- (B) The visual systems of animals whose body temperature matches that of their surroundings are more error-prone in hot surroundings than in cold ones.

- (C) As the temperature of the retina rises, rhodopsin molecules react more slowly to being struck by photons.
- (D) Rhodopsin molecules are more sensitive to photons in animals whose retinas have large surface areas than in animals whose retinas have small surface areas.
- (E) Molecules of rhodopsin are the only pigment molecules that occur naturally in the retina.

2. Manager: I recommend that our company reconsider the decision to completely abandon our allegedly difficult-to-use computer software and replace it companywide with a new software package advertised as more flexible and easier to use. Several other companies in our region officially replaced the software we currently use with the new package, and while their employees can all use the new software, unofficially many continue to use their former software as much as possible.

Which one of the following is most strongly supported by the manager's statements?

- (A) The current company software is as flexible as the proposed new software package.
- (B) The familiarity that employees have with a computer software package is a more important consideration in selecting software than flexibility or initial ease of use.
- (C) The employees of the manager's company would find that the new software package lacks some of the capabilities of the present software.
- (D) Adopting the new software package would create two classes of employees, those who can use it and those who cannot.
- (E) Many of the employees in the manager's company would not prefer the new software package to the software currently in use.

3. Until 1985 all commercial airlines completely replenished the cabin air in planes in flight once every 30 minutes. Since then the rate has been once every hour. The less frequently cabin air is replenished in a plane in flight, the higher the level of carbon dioxide in that plane and the easier it is for airborne illness to be spread.

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

- (A) In 1985 there was a loosening of regulations concerning cabin air in commercial airline flights.

- (B) People who fly today are more likely to contract airborne illness than were people who flew prior to 1985.
- (C) Low levels of carbon dioxide in cabin air make it impossible for airborne illnesses to spread.
- (D) In 1980 the rate at which the cabin air was replenished in commercial airliners was sufficient to protect passengers from the effects of carbon dioxide buildup.
- (E) In 1980 the level of carbon dioxide in the cabin air on a two-hour commercial airline flight was lower than it is today on a similar flight.

4. The law of the city of Weston regarding contributions to mayoral campaigns is as follows: all contributions to these campaigns in excess of \$100 made by nonresidents of Weston who are not former residents of Weston must be registered with the city council. Brimley's mayoral campaign clearly complied with this law since it accepted contributions only from residents and former residents of Weston.

If all the statements above are true, which one of the following statements must be true?

- (A) No nonresident of Weston contributed in excess of \$100 to Brimley's campaign.
- (B) Some contributions to Brimley's campaign in excess of \$100 were registered with the city council.
- (C) No contributions to Brimley's campaign needed to be registered with the city council.
- (D) All contributions to Brimley's campaign that were registered with the city council were in excess of \$100.
- (E) Brimley's campaign did not register any contributions with the city council.

5. All social systems are based upon a division of economic roles. The values of a social system are embodied in the prestige accorded persons who fill various economic roles. It is therefore unsurprising that, for any social system, the introduction of labor-saving technology that makes certain economic roles obsolete will tend to undermine the values in that social system.

Which one of the following can most reasonably be concluded on the basis of the information above?

- (A) Social systems will have unchanging values if they are shielded from technological advancement.
- (B) No type of technology will fail to undermine the values in a social system.
- (C) A social system whose values are not susceptible to change would not be one in which technology can eliminate economic roles.
- (D) A technologically advanced society will place little value on the prestige associated with an economic role.
- (E) A technological innovation that is implemented in a social system foreign to the one in which it was developed will tend to undermine the foreign social system.

6. Science journalist: Brown dwarfs are celestial objects with more mass than planets but less mass than stars. They are identified by their mass and whether or not lithium is present in their atmospheres. Stars at least as massive as the Sun have lithium remaining in their atmospheres because the mixing of elements in their internal nuclear furnaces is incomplete. Stars with less mass than the Sun have no lithium because the element has been fully mixed into their nuclear furnaces and consumed. A brown dwarf does not have a fully functional nuclear furnace and so its lithium cannot be consumed.

Which one of the following is most strongly supported by the science journalist's statements?

- (A) Any celestial object without lithium in its atmosphere is a star with less mass than the Sun.
- (B) Any celestial object with lithium in its atmosphere has a nuclear furnace that has incompletely mixed the object's elements.
- (C) No celestial object that has no lithium in its atmosphere is a brown dwarf.
- (D) No celestial object with lithium in its atmosphere has less mass than the Sun.
- (E) No celestial object less massive than a brown dwarf has lithium in its atmosphere.

### III Correlation vs. Causation

1. Scientists have shown that older bees, which usually forage outside the hive for food, tend to have larger brains than do younger bees, which usually do not forage but

instead remain in the hive to tend to newly hatched bees. Since foraging requires greater cognitive ability than does tending to newly hatched bees, it appears that foraging leads to the increased brain size of older bees.

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

- (A) Bees that have foraged for a long time do not have significantly larger brains than do bees that have foraged for a shorter time.
- (B) The brains of older bees that stop foraging to take on other responsibilities do not become smaller after they stop foraging.
- (C) Those bees that travel a long distance to find food do not have significantly larger brains than do bees that locate food nearer the hive.
- (D) In some species of bees, the brains of older bees are only marginally larger than those of younger bees.
- (E) The brains of older bees that never learn to forage are the same size as those of their foraging counterparts of the same age.

2. High school students who feel that they are not succeeding in school often drop out before graduating and go to work. Last year, however, the city's high school dropout rate was significantly lower than the previous year's rate. This is encouraging evidence that the program instituted two years ago to improve the moral of high school students has begun to take effect to reduce dropouts.

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

- (A) There was a recession that caused a high level of unemployment in the city.
- (B) The moral of students who dropped out of high school had been low even before they reached high school.
- (C) As in the preceding year, more high school students remained in school than dropped out.
- (D) High schools in the city established placement officers to assist their graduates in obtaining employment.
- (E) The anti-dropout program was primarily aimed at improving students' moral in those high schools with the highest dropout rates.

3. The five senses have traditionally been viewed as distinct yet complementary. Each sense is thought to have its own range of stimuli that are incapable of stimulating the other senses. However, recent research has discovered that some people taste a banana and claim that they are tasting blue, or see a color and say that it has a specific smell. This shows that such people, called synesthiacs, have senses that do not respect the usual boundaries between the five recognized senses.

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

- (A) Synesthiacs demonstrate a general, systematic impairment in their ability to use and understand words.
  - (B) Recent evidence strongly suggests that there are other senses besides sight, touch, smell, hearing and taste.
  - (C) The particular ways in which sensory experiences overlap in synesthiacs follow a definite pattern.
  - (D) The synesthetic phenomenon has been described in the legends of various cultures.
  - (E) Synesthiacs can be temporarily rid of their synesthetic experiences by the use of drugs.
4. A person is more likely to become disabled as that person ages. Among adults in the country of East Wendell, however, the proportion receiving disability benefit payments shrinks from 4% among 55 to 64 year olds to 2% for those aged 65 to 74 and 1% for those aged 75 and older. The explanation of this discrepancy is that the proportion of jobs offering such a disability benefit has greatly increased in recent years.

Which one of the following, if true about East Wendell, shows that the explanation above is at best incomplete?

- (A) The treatment of newly incurred disabilities is more successful now than in the past in restoring partial function in the affected area within six months.
- (B) Some people receive disability benefit payments under employers' insurance plans, and some receive them from the government.
- (C) Medical advances have prolonged the average lifespan beyond what it was 20 years ago.



(D) For persons receiving disability benefit payments, those payments on average represent a smaller share of their pre-disability income now than was the case 20 years ago.

(E) Under most employers' plans, disability benefit payments stop when an employee with a disability reaches the usual retirement age of 65.

#### **IV Sufficient Assumption**

1. In some countries, there is a free flow of information about infrastructure, agriculture, and industry, whereas in other countries, this information is controlled by a small elite. In the latter countries, the vast majority of the population is denied vital information about factors that determine their welfare. Thus, these countries are likely to experience more frequent economic crises than other countries do.

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

(A) It is more likely that people without political power will suffer from economic crises than it is that people in power will.

(B) Economic crises become more frequent as the amount of information available to the population about factors determining its welfare decreases.

(C) In nations in which the government controls access to information about infrastructure, agriculture, and industry, economic crises are common.

(D) The higher the percentage of the population that participates in economic decisions, the better those decisions are.

(E) A small elite that controls information about infrastructure, agriculture, and industry is likely to manipulate that information for its own benefit.

2. Although the Charter of Westside School states that the student body must include some students with special educational needs, no students with learning disabilities have yet enrolled in the school. Therefore, the school is currently in violation of its charter.

The conclusion of the argument follows logically if which one of the following is assumed?

(A) All students with learning disabilities have special educational needs.

(B) The school currently has no students with learning disabilities.

(C) The school should enroll students with special educational needs.

(D) The only students with special educational needs are students with learning disabilities.

(E) The school's Charter cannot be modified in order to avoid its being violated.

3. Attacks on an opponent's character should be avoided in political debates. Such attacks do not confront the opponent's argument; instead they attempt to cast doubt on the opponent's moral right to be in the debate at all.

Which one of the following principles, if valid, most helps to justify the reasoning above?

(A) Attacks on an opponent's character result from an inability to confront the opponent's argument properly.

(B) Attacks on an opponent's character should not impress those watching a political debate.

(C) Debating techniques that do not confront every argument should be avoided.

(D) Attacking the character of one's opponent does nothing to preserve one's moral right to enter into further political debates.

(E) Questions of character should be raised in political debate if they are relevant to the opponent's argument.

4. When investigators discovered that the director of a local charity had repeatedly overstated the number of people his charity had helped, the director accepted responsibility for the deception. However, the investigators claimed that journalists were as much to blame as the director was for inflating the charity's reputation, since they had naively accepted what the director told them, and simply reported as fact the numbers he gave them.

Which one of the following principles, if valid, most helps to justify the investigators' claim?

(A) Anyone who works for a charitable organization is obliged to be completely honest about the activities of that organization.

(B) Anyone who knowingly aids a liar by trying to conceal the truth from others is also a liar.

(C) Anyone who presents as factual a strong that turns out to be untrue without first attempting to verify that story is no less responsible for the consequences of that story than anyone else is.

(D) Anyone who lies in order to advance his or her own career is more deserving of blame than someone who lies in order to promote a good cause.

(E) Anyone who accepts responsibility for a wrongful act that he or she committed is less deserving of blame than someone who tries to conceal his or her own wrongdoing.

5. Ethicist: In a recent judicial decision, a contractor was ordered to make restitution to a company because of a bungled construction job, even though the company had signed a written agreement prior to entering into the contract that the contractor would not be financially liable should the task not be adequately performed. Thus, it was morally wrong for the company to change its mind and seek restitution.

Which one of the following principles, if valid, most helps to justify the ethicist's reasoning?

(A) It is morally wrong for one party not to abide by its part of an agreement only if the other party abides by its part of the agreement.

(B) It is morally wrong to seek a penalty for an action for which the agent is unable to make restitution.

(C) It is morally wrong for one person to seek to penalize another person for an action that the first person induced the other person to perform.

(D) It is morally wrong to ignore the terms of an agreement that was freely undertaken only if there is clear evidence that the agreement was legally permissible.

(E) It is morally wrong to seek compensation for an action performed in the context of a promise to forgo such compensation.

6. It is not good for a university to have class sizes that are very large or very small, or to have professors with teaching loads that are very light or very heavy. After all, crowded classes and overworked faculty cripple the institution's ability to recruit and retain both qualified students and faculty.

Which one of the following, if added as a premise to the argument, most helps to justify its conclusion?

(A) Professors who have very light teaching loads tend to focus their remaining time on research.

(B) Classes that have very low numbers of students tend to have a lot of classroom discussion.

(C) Very small class sizes or very light teaching loads indicate incompetence in classroom instruction.

(D) Very small class sizes or very light teaching loads are common in the worst and the best universities.

(E) Professors with very light teaching loads have no more office hours for students than professors with normal teaching loads.

7. Figorian Wildlife Commission: The development of wetlands in industrialized nations for residential and commercial uses has endangered many species. To protect wildlife we must regulate such development in

Figoria: future wetland development must be offset by the construction of replacement wetland habitats. Thus, development would cause no net reduction of wetlands and pose no threat to the species that inhabit them.

Figorian Development Commission: Other nations have flagrantly developed wetlands at the expense of wildlife. We have conserved. Since Figorian wetland development might not affect wildlife and is necessary for growth, we should allow development. We have as much right to govern our resources as countries that have already put their natural resources to commercial use.

Which one of the following principles, if accepted, would most strongly support the Figorian Development Commission's position against the Figorian Wildlife Commission's position?

(A) Natural resources should be regulated by international agreement when wildlife is endangered.

(B) The right of future generations to have wildlife preserved supersedes the economic needs of individual nations.

(C) Only when a reduction of populations of endangered species by commercial development has been found should regulation be implemented to prevent further damage.

(D) Environmental regulation must aim at preventing any further environmental damage and cannot allow for the different degrees to which different nations have already harmed the environment.

(E) It is imprudent to allow further depletion of natural resources.

8. Consumers will be hurt by the new lower ceilings on halibut catches. Given the law of supply and demand, these restrictions are likely to result in an increase in the price of the fish.

Which one of the following, if assumed, would do most to justify the claim that the price of halibut will increase?

(A) The demand for halibut will not decrease substantially after the new restrictions are imposed.

- (B) There is a connection between the supply of halibut and the demand for it.
- (C) The lost production of halibut will not be replaced by increased production of other fish.
- (D) The demand for other fish will be affected by the new restrictions.
- (E) The amount of halibut consumed represents a very small proportion of all fish consumed.

9. 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.

10. In a certain municipality, a judge overturned a suspect's conviction for possession of an illegal weapon. The suspect had fled upon seeing police and subsequently discarded the illegal weapon after the police gave chase. The judge reasoned as follows: the only cause for the police giving chase was the suspect's flight; by itself, flight from the police does not create a reasonable suspicion of a criminal act; evidence collected during an illegal chase is inadmissible; therefore, the evidence in this case was inadmissible.

Which one of the following principles, if valid, most helps to justify the judge's decision that the evidence was inadmissible?

- (A) Flight from the police could create a reasonable suspicion of a criminal act as long as other significant factors are involved.

(B) People can legally flee from the police only when those people are not involved in a criminal act at the time.

(C) Police can legally give chase to a person only when the person's actions have created a reasonable suspicion of a criminal act.

(D) Flight from the police should not itself be considered a criminal act.

(E) In all cases in which a person's actions have created a reasonable suspicion of a criminal act, police can legally give chase to that person.

11. Folklorist: Oral traditions are often preferable to written ones. Exclusive dependence on speech improves the memory; literate populations grow sluggish in recall, running to written sources whenever they need information. Because writing has no limits, it can proliferate to the point where writer and reader both become confused. Since oral traditions are dependent on memory, what is useless and irrelevant is quickly eradicated.

Which one of the following principles, if valid, most helps to justify the folklorist's argumentation?

(A) Accuracy in communication breeds mental self-reliance.

(B) Literate populations need to make efforts to communicate efficiently.

(C) Tradition is of greater value than accumulation of knowledge.

(D) Economy of expression is to be preferred over verbosity.

(E) Ideas that cannot be discussed clearly should not be discussed at all.

### **V Necessary Assumption**

1. The folktale that claims that a rattlesnake's age can be determined from the number of sections in its rattle is false, but only because the rattles are brittle and sometimes partially or completely break off. So if they were not so brittle, one could reliably determine a rattlesnake's age simply from the number of sections in its rattle, because one new section is formed each time a rattlesnake molts.

Which one of the following is an assumption the argument requires in order for its conclusion to be properly drawn?

(A) Rattlesnakes molt exactly once a year.

(B) The rattles of rattlesnakes of different species are identical in appearance.

(C) Rattlesnakes molt more frequently when young than when old.

(D) The brittleness of a rattlesnake's rattle is not correlated with the length of the rattlesnake's life.

(E) Rattlesnakes molt as often when food is scarce as they do when food is plentiful.

2. Birds need so much food energy to maintain their body temperatures that some of them spend most of their time eating. But a comparison of a bird of seed-eating species to a bird of a nectar-eating species that has the same overall energy requirement would surely show that the seed-eating bird spends more time eating than does the nectar-eating bird, since a given amount of nectar provides more energy than does the same amount of seeds.

The argument relies on which one of the following questionable assumptions?

(A) Birds of different species do not generally have the same overall energy requirements as each other.

(B) The nectar-eating bird does not sometimes also eat seeds.

(C) The time it takes for the nectar-eating bird to eat a given amount of nectar is not longer than the time it takes the seed-eating bird to eat the same amount of seeds.

(D) The seed-eating bird does not have a lower body temperature than that of the nectar-eating bird.

(E) The overall energy requirements of a given bird do not depend on factors such as the size of the bird, its nest-building habits, and the climate of the region in which it lives.

3. So-called 'engineered foods', usually in powder or liquid form, consist of protein that is distilled from natural sources and supplemented with vitamins and minerals. Although the amino acids contained in such products stimulate the production of growth hormones, these hormones produce growth in connective tissue rather than in muscle mass; this does not improve muscle strength. Hence, athletes, who need to improve their muscular strength, should not consume engineered foods.

The argument depends on assuming which one of the following?

(A) An increase in muscle mass produces an increase in strength.

(B) People who are not athletes require neither stronger connective tissue nor muscle strength.

(C) If an engineered food does not improve muscle strength, there is no other substantial advantage to athletes from consuming it.

(D) Consuming engineered foods that provide nutrients that can be obtained more easily elsewhere is unhealthy.

(E) Growth of muscle mass enhances muscle strength only when accompanied by growth of connective tissue.

4. Editorial: Medical schools spend one hour teaching preventive medicine for every ten hours spent teaching curative medicine, even though doctors' use of the techniques of preventive medicine cuts down medical costs greatly. Therefore, if their goal is to make medicine more cost-effective, medical schools spend insufficient time teaching preventive medicine.

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

(A) Preventive medicine makes use of technologies that are lower in initial cost than the technologies used within the practice of curative medicine.

(B) Every hour devoted to the teaching of preventive medicine reduces medical costs by 10 percent or more.

(C) Medical schools could increase their total number of teaching hours.

(D) Improvements in doctors' use of the techniques of curative medicine would only increase overall medical costs.

(E) The time required to teach preventive medicine thoroughly is greater than one hour for every ten that are now spent teaching curative medicine.

5. Ethicist: Studies have documented the capacity of placebos to reduce pain in patients who believe that they are receiving beneficial drugs. Some doctors say that they administer placebos because medically effective treatment reinforced by the placebo effect sometimes helps patients recover faster than good treatment alone. But administering placebos is nonetheless ethically questionable, for even if a placebo benefits a patient, a doctor might, for example, have prescribed it just to give the patient satisfaction that something was being done.

The ethicist's argument depends on which one of the following assumptions?

(A) A patient's psychological satisfaction is not a consideration in administering medical treatment.

(B) The motivation for administering a placebo can be relevant to the ethical justification for doing so.



- (C) Medical treatment that relies on the placebo effect alone is ethically indefensible.
- (D) The pain relief produced by the placebo effect justifies the deception involved in administering a placebo.
- (E) Administering a placebo is not ethically justified if that treatment is not prescribed by a doctor.

6. Curator: Since ancient times, the fine arts were developed and sustained with the aid of large subsidies from the aristocracies and religious institutions that were the public sectors of their day; it is doubtful that the arts would have survived without these subsidies. Clearly, contemporary societies should fulfill their obligation as stewards of cultural heritage without the assistance of aristocracies or religious institutions, so governments must help finance the maintenance, advancement, and enrichment of the fine arts today.

The curator's argument depends on assuming which one of the following?

- (A) The fine arts would be more highly developed now if they had been given greater governmental subsidies in the past.
- (B) If contemporary governments help to maintain and enrich the fine arts, private support for the arts will become unnecessary.
- (C) In contemporary societies, aristocracies and religious institutions are not willing to help finance the fine arts.
- (D) Serving as stewards of cultural heritage requires that contemporary societies help to maintain the fine arts.
- (E) Maintenance, advancement, and enrichment of the fine arts in any area require governmental subsidies.

7. Historian: Political regimes that routinely censor various forms of expression on the grounds that they undermine public morality inevitably attempt to expand the categories of proscribed expression to include criticisms that these regimes perceive to threaten their power. Accordingly, many totalitarian regimes classify as blasphemous or pornographic those writings that would, if widely influential, reduce public passivity.

Which one of the following is an assumption on which the historian's reasoning depends?

(A) Unless a piece of writing expresses something that is widely believed, it is unlikely to be very popular.

(B) Not all political regimes that routinely censor forms of expression on the grounds that they erode public morality are totalitarian regimes.

(C) A totalitarian regime can perceive loss of public passivity as a threat to its power.

(D) Widespread public passivity is usually needed for a regime to retain political power.

(E) Most writings that totalitarian regimes label blasphemous or pornographic would, if widely influential, reduce public passivity.

8. Some people claim that the reason herbs are not prescribed as drugs by licensed physicians is that the medical effectiveness of herbs is seriously in doubt. No drug can be offered for sale, however, unless it has regulatory-agency approval for medicinal use in specific illnesses or conditions. It costs about \$200 million to get regulatory-agency approval for a drug, and only the holder of a patent can expect to recover such large expenses. Although methods of extracting particular substances from herbs can be patented, herbs themselves and their medicinal uses cannot be. Therefore, under the current system licenses physicians cannot recommend the medicinal use of herbs.

The argument depends on the assumption that

(A) the medical ineffectiveness of many herbs as treatments for specific illnesses or conditions is well established.

(B) the only time a substance is properly used as a drug is when it is prescribed as a drug by a licensed physician.

(C) a licensed physician cannot recommend the medicinal use of a herb unless that herb is offered for sale as a drug.

(D) some other substances, besides herbs, are not available as drugs because the illnesses they could effectively treat are too uncommon to allow those substances to be marketed profitably as drugs.

(E) the cost of medical care would be substantially reduced if faster ways of obtaining regulatory-agency approval for new drugs could be found.

9. Zoologist: Animals can certainly signal each other with sounds and gestures. However, this does not confirm the thesis that animals possess language, for it does not prove that

animals possess the ability to use sounds or gestures to refer to concrete objects or abstract ideas.

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

- (A) Animals do not have the cognitive capabilities to entertain abstract ideas.
- (B) If an animal's system of sounds or gestures is not a language, then that animal is unable to entertain abstract ideas.
- (C) When signaling each other with sounds or gestures, animals refer neither to concrete objects nor abstract ideas.
- (D) If a system of sounds or gestures contains no expressions referring to concrete objects or abstract ideas, then that system is not a language.
- (E) Some animals that possess a language can refer to both concrete objects and abstract ideas.

10. The present goal of the field of medicine seems to be to extend life indefinitely. Increasingly, the ability to transplant such organs as hearts, lungs, livers, and kidneys will allow us to live longer. But we can never achieve brain transplants. There are, for a start, ten million nerves running from the brain down the neck, not to mention the millions joining the brain to the sensing organs. Clearly, then, as the transplantation of organs allow more and more people to live longer, those with degenerative brain disorders will form an ever-increasing proportion of the population.

The argument above is based on which one of the following assumptions?

- (A) Degenerative brain disorders will increasingly strike younger and younger patients.
- (B) It is still quite rare for people to live long enough to need more than one transplant of any given organ.
- (C) There are degenerative brain disorders that will not be curable without brain transplants.
- (D) Degenerative brain disorders account for a very small proportion of deaths in the population at large.
- (E) More is being spent on research into degenerative brain disorders than on research into transplantation.

## VI Weakening & Strengthening an argument

1. Economist: As should be obvious, raising the minimum wage significantly would make it more expensive for businesses to pay workers for minimum-wage jobs. Therefore, businesses could not afford to continue to employ as many workers for such jobs. So raising the minimum wage significantly will cause an increase in unemployment.

Which one of the following, if true, most weakens the economist's argument?

- (A) Businesses typically pass the cost of increased wages on to consumers without adversely affecting profits.
- (B) When the difference between minimum wage and a skilled worker's wage is small, a greater percentage of a business's employees will be skilled workers.
- (C) A modest increase in unemployment is acceptable because the current minimum wage is not a livable wage.
- (D) Most workers are earning more than the current minimum wage.
- (E) The unemployment rate has been declining steadily in recent years.

2. Historian: Flavius, an ancient Roman governor who believed deeply in the virtues of manual labor and moral temperance, actively sought to discourage the arts by removing state financial support for them. Also, Flavius was widely unpopular among his subjects, as we can conclude from the large number of satirical plays that were written about him during his administration.

The historian's argumentation is most vulnerable to criticism on the grounds that it

- (A) fails to consider the percentage of plays written during Flavius's administration that were not explicitly about Flavius.
  - (B) treats the satirical plays as a reliable indicator of Flavius's popularity despite potential bias on the part of the playwrights.
  - (C) presumes, without providing evidence, that Flavius was unfavorably disposed toward the arts.
  - (D) takes for granted that Flavius's attempt to discourage the arts was successful.
  - (E) fails to consider whether manual labor and moral temperance were widely regarded as virtues in ancient Rome.
3. If the flowers Drew received today had been sent by someone who knows Drew well, that person would have known that Drew prefers violets to roses. Yet Drew received roses. On the other hand, if the flowers had been sent by some who does not know

Drew well, then that person would have sent a signed card with the flowers. Yet Drew received no card. Therefore, the florist must have made some sort of mistake: either Drew was supposed to receive violets, or a card, or these flowers were intended for someone else.

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

- (A) Most people send roses when they send flowers.
  - (B) Some people send flowers for a reason other than the desire to please.
  - (C) Someone who does not know Drew well would be unlikely to send Drew flowers.
  - (D) The florist has never delivered the wrong flowers to Drew before.
  - (E) Some people who know Drew well have sent Drew cards along with flowers.
4. Standard archeological techniques make it possible to determine the age of anything containing vegetable matter, but only if the object is free of minerals containing carbon. Prehistoric artists painted on limestone with pigments composed of vegetable matter, but it is impossible to collect samples of this prehistoric paint without removing limestone, a mineral containing carbon, with the paint. Therefore, it is not possible to determine the age of prehistoric paintings on limestone using standard archaeological techniques.

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

- (A) There exist several different techniques for collecting samples of prehistoric pigments on limestone.
  - (B) Laboratory procedures exist that can remove all the limestone from a sample of prehistoric paint on limestone.
  - (C) The age of the limestone itself can be determined from samples that contain no vegetable-based paint.
  - (D) Prehistoric artists did not use anything other than vegetable matter to make their paints.
  - (E) The proportion of carbon to other elements in limestone is the same in all samples of limestone.
5. Carla: Professors at public universities should receive paid leaves of absence to allow them to engage in research. Research not only advances human knowledge, but also improves professors' teaching by keeping them abreast of the latest information in their fields.

David: But even if you are right about the beneficial effects of research, why should our limited resources be devoted to supporting professors taking time off from teaching?

David's response to Carla is most vulnerable to criticism on the grounds that it

- (A) ignores the part of Carla's remarks that could provide an answer to David's question.
- (B) takes for granted that the only function of a university professor is teaching.

- (C) incorrectly takes Carla's remarks as claiming that all funding for professors comes from tax money.
  - (D) takes for granted that providing the opportunity for research is the only function of paid leaves of absence.
  - (E) presumes, without providing justification, that professors do not need vacations.
6. In comparing our country with two other countries of roughly the same population size, I found that even though we face the same dietary bacterial, and stress-related causes of ulcers as they do, prescriptions for ulcer medicines in all socioeconomic strata are much rarer here than in those two countries. It's clear that we suffer significantly fewer ulcers, per capita, than they do.

Which one of the following, if true, most strengthens the physician's argument?

- (A) The two countries that were compared with the physician's country had approximately the same ulcer rates as each other.
  - (B) The people of the physician's country have a cultural tradition of stoicism that encourages them to ignore physical ailments rather than to seek remedies for them.
  - (C) Several other countries not covered in the physician's comparisons have more prescriptions for ulcer medication than does the physician's country.
  - (D) A person in the physician's country who is suffering from ulcers is just as likely to obtain a prescription for the ailment as is a person suffering from ulcers in one of the other two countries.
  - (E) The physician's country has a much better system for reporting the number of prescriptions of a given type that are obtained each year than is present in either of the other two countries.
7. Archaeologist: After the last ice age, groups of paleo-humans left Siberia and crossed the Bering land bridge, which no longer exists, into North America. Archeologists have discovered in Siberia a cache of Clovis points – the distinctive stone spear points made by paleohumans. This shows that, in contrary to previous belief, the Clovis point was not invented in North America.

Which one of the following, if true, would most strengthen the archaeologist's argument?

- (A) The Clovis points found in Siberia are older than any of those that have been found in North America.
- (B) The Bering land bridge disappeared before any of the Clovis points found to date were made.
- (C) Clovis points were more effective hunting weapons than earlier spear points had been.
- (D) Archaeologists have discovered in Siberia artifacts that date from after the time paleohumans left Siberia.
- (E) Some paleohuman groups that migrated from Siberia to North America via the Bering land bridge eventually returned to Siberia.