**LOGICAL REASONING: ARGUMENTS**

Logical reasoning questions (arguments) evaluate your ability to understand, analyze and criticize a presentation of facts and opinions to support a position. Some are presented as heated debates between two people, while others are formal presentations of positions. The arguments come from disparate sources, including formal journal articles in sociology, philosophy, science and the humanities. Many are taken from political speeches and the editorial page of newspapers, which are rife with strong opinions on nearly all world events and popular culture. The argument section is difficult for most students, as many arguments are fallacious and the correct answers are false. The arguments are intended to test your ability to think logically, not to determine the truth. Your job is to identify the premise of the argument and to sift through the many obfuscation techniques of the test writers. The correct answer is right in front of you: you just need to sift through the distractions to correctly identify it.

**The questions test a variety of logical skills, including**:

a) recognizing the point of an argument

b) detecting an argument's assumptions

c) drawing conclusions from evidence

d) identifying and applying principles to similar situations

e) detecting errors in reasoning

f) determining how additional evidence affects an argument or conclusion

g) making inferences from evidence

h) identify strengths and weaknesses in arguments

i) evaluating evidence

j) recognizing parallel reasoning

The arguments section of the test is highly timed and requires an exhaustive amount of reading. Few students will have the luxury of reading the question stem before reading the argument. Not only is this exhausting, it uses precious time and taxes your concentration. A better approach is to fully understand the construction of arguments and how answer-choices are constructed to obscure the correct answer. We will classify the major types of reasoning used in arguments and their associated fallacies. We will also explore the foundations of logic, which will help you answer the questions.

**Logistics of the Arguments Section**

The arguments comprise one-third of the Verbal section of the GMAT, mixed in with Reading Comprehension and Sentence Correction questions. The arguments vary in length and difficulty, meaning that some will take more time than others. We recommend that you determine quickly whether a question is easy or hard. Save the difficult ones for last, after you have racked up all the easy points in the section.

Here are the exact instructions for the arguments section. Become familiar with them now, so that you don't waste valuable time reading them on the actual test day:

Directions: The questions in the section are based on the reasoning contained in the 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.

**Basic Principles of Arguments**

An argument will be any piece of text where the author presents a set of ideas or a point of view and then attempts to support it. Every argument on the test includes two parts:

a) a conclusion (the point the author wants to make) b) the evidence (the support he offers for the conclusion)

Your job is to identify these parts of the argument correctly, despite the many obfuscation techniques used by the test writers. For each argument, you must:

a) understand the author's point

b) understand the question stem and what it asks

c) judge the argument's persuasiveness and flaws

d) correctly assess the scope of the argument

Your ability to quickly and accurately assess these factors will determine your success on the test. Nearly every question you face will relate back to the author's main point, conclusion, the strength/weakness of his argument and its scope.

**Typical Questions**

Despite the wide variety of arguments used on the test, there are essentially only eight types of questions that are asked. The following list provides a general description of each type. The remainder of this section provides a comprehensive method of attack for each.

**1) Assumption Questions**

An assumption bridges the gap between an argument's evidence and conclusion. The support may not be explicitly stated, but is required for the conclusion to remain valid. When a question asks you to find an author's assumption, it's asking you to find the statement without which the argument falls apart. To determine if something is assumed by an author, use the denial technique. Simply deny or negate the statement and see if the argument falls apart. If it does, that choice is the correct assumption. If, on the other hand, the argument is unaffected, the choice is wrong.

Example: Amy plays the clarinet for the Kennedy High School band. Therefore, Amy must be an excellent student.

The second sentence is the conclusion, and the first sentence is the evidence that supports it. But the argument is incomplete. The missing piece is the assumption, the unstated link between the evidence and the conclusion. In this case, the assumption is that all band members at Kennedy High School are excellent students.

To test whether this really is an assumption necessary to the argument, we'll apply the denial technique. What if it's not true that all band members at Kennedy High School are excellent students? Can we still logically conclude that Amy must be an excellent student? No. It's possible that she is, but equally possible that she's not. By denying the statement, the argument falls apart, which is our conclusive proof that the statement above is a necessary assumption of this argument.

**Here are some of the ways in which assumption questions are worded:**

Which one of the following is assumed by the author?

Upon which one of the following assumptions does the author rely?

The argument depends on the assumption that. ..

Which one of the following, if added to the passage, will make the conclusion logical?

The validity of the argument depends on which one of the following?

The argument presupposes which one of the following?

**2) Strengthen and Weaken Questions**

You must use the argument's assumption to answer another common question type: strengthen-the-argument and weaken-the-argument questions.

An argument can be weakened by destroying a central piece of evidence or by attacking the validity of the author's assumptions. In contrast, an argument can be strengthened by providing additional support, by affirming the truth of an assumption or by presenting additional persuasive evidence.

**Here are some of the ways in which strengthen/weaken the argument questions are worded:**

Which one of the following, if true, would most weaken the argument?

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

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

Which one of the following, if true, casts the most doubt on the argument above?

Which one of the following, if true, is the most serious criticism of the argument above?

Which one of the following, if true, would provide the most support for the conclusion in the argument above?

The argument above would be more persuasive if which one of the following were found to be true?

**3) Inference Questions**

Inference questions require you to consider the statements as evidence and then draw a conclusion from them. A valid inference is something that must be true if the statements in the passage are true. It is an *extension* of the argument rather than a necessary part of it.

Example: Amy plays the clarinet for the Kennedy High School Band, despite the rule against participation by nonstudents.

Inference: Amy is not a student at Kennedy High School.

Unlike an assumption, an inference doesn't have to relate to the author's conclusion. An inference may simply be a piece of information derived from one or more pieces of evidence. The denial test works for inferences as well as for assumptions, as a valid inference always makes more sense than its opposite. If you deny or negate an answer choice, and it has little or no effect on the argument, chances are that choice is not inferable from the passage. Inference questions probably have the most varied wording of all the Logical Reasoning question stems. Some are obvious, others are subtle, and still others may resemble other question types. Here's a quick rundown of the various forms that inference questions are likely to take on your test:

Which one of the following can be inferred from the argument above?

The author suggests that. ..

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

The author of the passage would most likely agree with which one of the following?

The passage provides the most support for which one of the following?

Which one of the following is probably the conclusion toward which the author is moving?

In working with inference questions, remember that a good inference stays in line with the gist of the passage, the author's tone and with the scope of the argument.

**4) Flaw Questions**

This question asks you to recognize what's wrong with an argument. Most critique the reasoning by pointing out a fallacy. Other flaw questions are more specific and attack the argument's reasoning.

**Here are typical flaw questions:**

Which one of the following contains a flaw that most closely parallels the flaw contained in the passage?

The speakers will not be able to settle their argument unless they

The conclusion above is unsound because

Which one of the following best identifies the flaw in the above argument?

In presenting her position the author does which one of the following?

**5) Method of Argument Questions**

Method-of-argument questions ask you to pick the choice that describes how the author presents her case. To tackle these, you must be able to analyze the structure of an argument. If you can't identify the evidence and conclusion, you'll have difficulty describing how an argument works.

Most questions involve classic argumentative structures, such as "arguing from a small sample to a larger group," or "inferring a causal relationship from a correlation." The other type of method-of-argument question gives a description of the argument in much more specific terms. An

example of this might read, "The author presents his case in order to show that......"

**6) Similar-Reasoning Questions**

Similar-reasoning questions require you to identify the answer that contains the reasoning most similar to that in the stimulus. The key is to summarize the argument's overall form and match it to that of the correct choice. A good approach to these questions is to see if the argument can be symbolized algebraically, using Xs and Ys.

Example: All fish swim. This creature swims. Therefore, it must be a fish.

This (flawed) argument can be symbolized in the following way: All X do Y. This does Y. Therefore, this must be an X.

If the stimulus can be symbolized this way, your job will be to search for the choice that can be symbolized in the same way. Your answer might look something like this:

Every mother (all X) loves singing (does Y). Jenny is singing (this does Y). So she must be a mother. (Therefore, this must be an X).

**7) Paradox Questions**

When an argument contains two or more seemingly inconsistent statements, it presents a paradox. Most paradoxical arguments end with a contradiction. Another type of paradox has the argument build to a certain point, then change to the exact opposite of what you expect.

In a typical paradox question, you'll be asked either to find the choice that "explains the paradoxical result", "explains the inconsistent findings", or "resolves the apparent discrepancy." This will be the choice that reconciles the seemingly inconsistent statements in the argument while allowing them all to still be true.

**8) Principle Questions**

Principle questions ask you to apply a specific situation into a global generality (or vice versa). You may be given an argument and asked to find the principle that justifies the author's reasoning.

**Possible question stems:**

The author's position most closely conforms to which one of the following principles?

What principle best accounts for or justifies the author's position?

Which one of the following principles would justify Al's refusal to follow the author's recommendation?

The correct answer to principle questions expresses the key concepts and contains the key terms that the other choices omit. Avoid choices that are beyond the scope of the argument. Most of the wrong choices contain principles that sound formal and look reasonable, but they don't address the author's main concern.

**OBFUSCATION TECHNIQUES**

In most arguments, the writer has a vested interest in presenting his point clearly and simply. His goal is to convince you of the validity of his position. To obscure this underlying simplicity, the test writers cannot change the wording of the statement much because that would leave it vague and poorly written. Their preferred option is to camouflage the answer-choices.

Creating a good but incorrect answer-choice is much harder than developing the correct answer. In most cases, only two of the five answer-choices will have any real merit, while the others are simply distractions. Even if you don't fully understand an argument, you probably can still eliminate the three poor choices, increasing your odds of answering the question correctly.

Although argument questions are designed to be answered without any reference to formal logic, some knowledge of the fundamentals of logic will give you a definite advantage. Armed with this knowledge, you will notice that the arguments are fundamentally easy and that most of them fall into a few basic categories. Next, we will review the logical structure of arguments and present the most common obfuscation techniques that are used to confuse you.

**CONCLUSIONS TO ARGUMENTS**

The conclusion is the main idea of the argument, which the writer wants you to believe. Conclusions usually come at the end of the argument, after the writer presents his facts and opinions. Yet conclusions sometimes come at the beginning of an argument, or are occasionally unstated (for rhetorical effect).

Example:

The admissions committee members are the gatekeepers of the university. Women and minorities are the chief victims of the university's admission policies . A conflict of interest exists, therefore, between women and minorities and the admissions committee.

The first two sentences anticipate or set up the conclusion, which is underlined. By changing the grammar slightly, the conclusion can be placed at the beginning of the argument and still sound natural:

A conflict of interest exists between women and minorities and the admissions committee because the committee members are the gatekeepers of the university and minorities are the chief victims of the university's admission policies.

When determining the meaning of a conclusion, be careful not to read any more into it than what the author states. You must read arguments with more care than you would use in your everyday reading.

For example, many people will interpret the sentence "Every Democrat is not a liberal" to mean that some Democrats are not liberal. The test writers do not use grammar (logic) that loosely. On the test, the above sentence would mean what it literally states: that no Democrat is a liberal.

**Writers use key certain words to indicate that the conclusion is coming:**

hence therefore conclude that implies

as a result means that thus consequently

follows that shows that so accordingly

Occasionally, the conclusion appears in the form of a rhetorical question, which is designed to convince the reader that the position is correct. A conclusion in this form allows the reader to think that he concluded it on his own, rather than being told to believe it.

Example:

Naturopaths believe that they should not consume anything that is organically dissimilar to living human tissue. This assures that all organs and systems are protected from the ill effects of alien toxins and carcinogens. Our current nutritional status is so low that most Americans will contract either heart disease or cancer before age 50 due to poor nutritional choices. Do we have an obligation to future generations to prevent this result?

Here the author trusts that the power of her argument will persuade the reader to answer the question affirmatively. Taking this rhetorical technique one step further, the writer may build up to the conclusion but leave it unstated. This allows the reader to make up his own mind. If the build-up is done effectively, the reader will agree with the author, without feeling manipulated.

Example:

Only perfect people can judge others. Everyone on earth is a sinner.

The powerful unstated conclusion is that no one has the right to judge others.

Conclusions to arguments are carefully worded. You must define *precisely* the main point of the passage, looking for qualifiers and quantifiers. Quantifiers make a big difference in conclusions:

 All dogs live on farms. Some dogs live on farms.

The first statement is false, while the second is true.

When determining the **scope** of the conclusion, do not read any more or less into it than the author states. Test writers often create wrong answer-choices by slightly overstating or understating the author's claim. Certain words (quantifiers) limit the scope of a statement, creating subtle differences between answer choices. These are the most common **quantifiers** in test arguments:

all except likely probably must never always

some none most many alone everywhere

only could no never sometimes

Qualifiers play a role similar to quantifiers, but they are descriptive terms rather than numerical. They are therefore more difficult to identify. Consider the following:

All infant car seats manufactured by the Corporation since 1995 have been equipped with safety belts.

Here, the author clearly has three qualifiers: type of seat, manufacturer and date of production. His statement (and conclusion) does not refer to any other size seat, any other manufacturer or other production dates. You cannot apply his conclusion to any other conditions.

**PREMISES / EVIDENCE**

The premises of an argument provide evidence to support the conclusion**.**

**Writers use certain words to flag evidence, including the following most common:**

because for suppose inasmuch as

assume may be derived from as if

since is evidence that in that owing to

Most arguments depend on one or more **unstated premises** (assumptions). Sometimes this

indicates a weakness in the argument or an oversight by the writer. More likely, however, certain premises are intentionally left tacit, because:

a) they are too numerous

b) the author assumes that his audience is aware of the assumptions

c) the author wants the audience to determine the premise themselves and therefore more readily believe the conclusion.

Example:

Conclusion: I knew she was pregnant. Premise: Only a pregnant woman would avoid alcohol on New Year's Eve.

The suppressed premise is that the woman did, in fact, avoid alcohol on New Year's Eve. The speaker assumes that the audience is aware of this or at least willing to believe it, so to state it would be redundant. If the unstated premise were false (that is, she did not avoid alcohol), the argument would be deceptive.

Example:

Politician: A woman should not be elected Governor because this state has seen too many tax increases.

The argument has one obvious premise and a second subtle one. Clearly, the politician indicates his opponent is a woman. Furthermore, although he does not state it explicitly, the argument rests on the assumption that a female Governor is likely to raise taxes. He hopes the audience will fill in that premise, thereby tainting his opponent as a promoter of tax increases.

A common test question asks you to find the suppressed premise of an argument, which can be quite difficult. Yet the correct answer will be listed as one of the answer choices. To determine if an answer-choice is a suppressed premise, see if it makes the argument more plausible. If so, then it is probably a suppressed premise.

Example:

Canadian attitudes are often insular, but there is much they can learn from other countries. In Peru, for example, clerks set aside some time each day to pray, and many corporations provide elaborate worship facilities for their employees. Few Canadian corporations have such organized prayer programs. Studies show that the Peruvian worker is more productive than the Canadian worker. Thus it must be concluded that the productivity of Canadian workers will lag behind their Peruvian counterparts, until mandatory prayer programs are introduced.

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

(A) Even if prayer programs do not increase productivity, they will improve the Canadian worker's health.

(B) The productivity of all workers can be increased by prayer.

(C) Prayer is an essential factor in the Peruvian worker's superior productivity.

(D) Canadian workers can adapt to the longer Peruvian work week.

(E) Canadian corporations don't have the funds to build elaborate worship facilities.

The unstated essence of the argument is that prayer is an integral part of productivity and that Peruvian workers are more productive than Canadian workers because they pray more. The answer is (C).

**COUNTER-PREMISES**

While an author always wants to present a strong case, he may concede minor points that weaken his argument to show that he is open-minded and that his ideas are well-considered. This technique also disarms potential arguments against his position. For instance, in arguing for a strong, Pro-Choice policy, an author may concede that in the past the Pro-Choice groups have lobbied too militantly. Of course, he then needs to state more convincing reasons to support his position.

Example:

We should support Candidate Gary. Admittedly, he doesn't support our views on garbage pickup. But he does promote our main grievance of tax increases. Furthermore, an independent study verifies that a change in garbage pickup could leave the city unable to meet its annual budget without layoffs.

The conclusion (that the audience should support Candidate Gary), is stated in the first sentence. The word "admittedly" alerts us to a concession that the candidate disagrees with the audience's concerns regarding garbage pickup. This weakens the speaker's case, but addresses a potential criticism before it can be made. The final sentences present more compelling reasons to support Candidate Gary.

**Following are some of the most common key words that indicate a** **counter-premise**:

but despite however although nevertheless

admittedly except in spite of the fact that even though nonetheless

Be careful. Test writers sometimes use counter-premises to bait wrong answer-choices. Choices that refer to counter-premises are tempting because they refer directly to the passage and they are partially true. Before choosing one, determine if it the choice is:

a) the main point that the author is trying to make b) a minor concession.

**If-Then Statements**

Most arguments are based on some variation of an if-then statement, which may be either directly stated or embedded. Understanding the if-then premise reveals the underlying simplicity of

arguments.

If the premise of an if-then statement is true, then the conclusion must be true as well.

 **If A, then B**

While three possible statements can be derived from the implication "if A, then B", only one is valid.

The statement that IS logically equivalent to "if A, then B" is called the **contra positive**. It is stated as:

 **If not B, then not A**

Let's explore why this is true.

 "If there is a hurricane, then Samantha will cry"

There are four different hypothetical possibilities to consider when making deductions based on this statement:

1) A hurricane occurs

2) A hurricane does not occur

3) Samantha cries

4) Samantha does not cry

Let's consider each individually:

1. *If a hurricane occurs*.

You know that if this is true, the result will be that Samantha will cry.

2. *If a hurricane does not occur*.

If a hurricane does not occur, you can deduce nothing about Samantha. In particular, you cannot deduce that she does not cry. There are many other reasons why Samantha could cry, besides a hurricane (fight with her mom, she sees a sad movie, she gets sick).

3. *If Samantha cries*.

Again, you can't deduce anything about the occurrence of a hurricane if Samantha cries. The if-then statement doesn't assert that Samantha cries only if a hurricane occurs, just that if it does, Samantha will cry. Samantha can cry even on clear, sunny days.

4. *If Samantha does not cry*.

If Samantha does not cry, you can deduce that a hurricane did not occur. Why? If it had occurred, then Samantha would definitely have cried. Yet she didn't. So, we know that, given Samantha's disposition, a hurricane did not occur.

To review, any time you see a statement in the form of "If A, then B", contra pose the statement into "If not B, then not A". You know only two things:

a) what will happen if X occurs b) what will happen if Y does not occur.

Those are the *only* valid deductions that you can make based on that original statement.

You can only assume two things about the implication "if A, then B":

 **1) If A is true, then B must be true. 2) If B is false, then A must be false.**

**Embedded If-Then Statements**

If-then statements are frequently embedded in other structures, making their detection more difficult.

Example: (Embedded If-then)

 Jamie and Kyle cannot both go to the mall.

At first glance, this sentence does not appear to contain an if-then statement. But

it essentially says:

 "if Jamie goes to the mall, then Kyle does not."

The contra positive ("if Kyle goes to the mall, then Jamie does not") correctly expresses the

same thing.

Example: (Embedded If-then)

 Heather will go to Europe only if she gets a raise at work.

Given this statement, we know that if Heather goes to Europe, she must have gotten a raise at work.

Students often wrongly interpret this statement to mean:

 "If Heather gets a raise at work, then she will go to Europe."

We have no guarantee of this. The only guarantee is that if Heather doesn't get the raise, she will not go to Europe.

 **"A only if B" is logically equivalent to "if A, then B"**

**Classification of Arguments**

Deductive arguments are those in which the conclusion necessarily follows from the premises/evidence. Most arguments on the test are *inductive*, where the author presents the evidence as support for the conclusion. The validity of the conclusion depends on the strength of the evidence. Unlike deductive arguments, the conclusion of an inductive argument is always uncertain. You must be prepared to handle both reasonable arguments (when the conclusion is likely) and false arguments (when the conclusion is improbable). Each classification of inductive reasoning carries its own associated fallacies.

**a) Generalization**

In everyday conversation, the phrase "to generalize" usually carries a negative connotation. Yet generalization, or "inductive reasoning", is the main tool by which we gain knowledge and analyze data. Arguing by generalization can be either good or bad, depending on the context of the argument and the likelihood that its conclusion is true. Polling organizations make predictions by generalizing information from a small sample to a large one. The soundness of their predictions (arguments) depends on the size of the sample and how representative it is of the whole. Less comprehensive conclusions are more likely to be true.

Example:

During the late eighties when mutual fund companies were rapidly expanding their share of the financial service industry, Kidder-Peabody Brokerage surveyed owners of stocks and asked them whether they would be more willing to buy individual securities or mutual fund. Seventy percent of those who responded said that they would prefer individual stocks. On the basis of this survey, Kidder-Peabody decided to continue brokering only individual stocks. Yet during the '90s, Kidder-Peabody lost even more of the market to the mutual fund companies.

Which one of the following, if it were determined to be true, would best explain this discrepancy?

(A) Only 10 percent of those who were polled replied.

(B) Cabot Brokerage which conducted a similar survey with similar results continued to broker only individual stocks and also lost more of their market to mutual fund companies.

(C) The surveyed clients who preferred individual stocks also preferred big homes.

(D) Kidder-Peabody determined that it would be more profitable to broker individual stocks.

(E) Eighty percent of the clients who wanted individual stocks and only 40 percent of the clients who wanted mutual funds replied to the survey.

The argument generalizes from the survey to the general population, so the reliability of the projection depends on how representative the sample is. Choice A initially seems promising, yet the 10% figure is actually high for a national poll (many only get a 0.001 response). Choice E is better, as it points out that part of the survey did not represent the entire public.

**b) Analogy**

To argue by analogy is to claim that because two things are similar in some respect, they will be similar in others. Here is a typical argument:

The metabolism of mice is similar to that of humans, and high doses of aspartame cause cancer in mice. Therefore, high doses of aspartame probably cause cancer in humans.

The greater the similarity between the two items being compared, the stronger the argument will be. Also, the less ambitious the conclusion, the stronger the argument will be. The argument above would be strengthened by changing "probably" to "may." It can be weakened by pointing out the dissimilarities between mice and humans.

**The following words usually indicate that an analogy is being drawn:**

like likewise too compared to

similar also as with just as...so too

**c) One Caused the Other**

False causation is the weakest type of inductive reasoning, yet it is a common method of thought. To argue by causation is to claim that one thing causes another. A causal argument can be either weak or strong depending on the context. For example, to claim that you won the lottery because you wore your lucky socks the night before is pure whimsy. Yet most people believe that alcohol abuse causes liver disease because hepatic failure often strikes those with a history of alcoholism. Although the connection between alcohol and liver disease is strong, it can never be 100 percent certain. Liquor companies claim there may be a genetic predisposition in some people to both develop liver disease and to crave alcohol. Although this claim is highly unlikely, it is possible.

There are two common fallacies associated with causal reasoning:

a) Confusing Correlation with Causation: A caused B because A occurred right before B.

Their dual occurrence may be coincidental, or another factor may be responsible. For example, suppose nausea and hives occur together. We can't assume that one necessarily causes the other. Both may be symptoms of another underlying condition.

b) Confusing Necessary Conditions with Sufficient Conditions.

A is necessary for B means "B cannot occur without A."

A is sufficient for B means "A causes B to occur, but B can still occur without A."

For example, decreased tourism is sufficient to cause hotels to close, but poor financial management can cause a hotel's failure even during a tourism boom. A common fallacy is to assume that a necessary condition is sufficient to cause a situation. For example, to get a high-tech job it is necessary to have modem, high-tech equipment, but it is not sufficient, as many dot-com companies discovered in 2001.

**d) Assuming All Other Things Are Equal**

This category is the source of many arguments on the test. The question reveals two situations that appear similar in all aspects. From these two apparently similar situations, an author will draw a conclusion that may be surprising or contradictory. Your task is to show or speculate that there is a critical dissimilarity between the two situations (all things are equal).

Example:

The Hospital Chief of Staff claims that his chief surgeon, Dr. Right, is the best surgeon in the county. Inexplicably, a much lower percentage of the Dr. Right's surgical patients survive and leave the hospital.

Which one of the following selections goes farthest in crediting both the Chief of Staff's confidence in Dr. Right and Dr. Right's low survival rate?

(A) Since the Hospital Chief of Staff appointed Dr. Right as his chief surgeon, his judgment would be questioned if he didn't claim that Dr. Right is the best.

(B) The Chief of Staff followed established procedure in promoting Dr. Right to chief surgeon from among the ranks of staff physicians.

(C) Several years ago, Dr. Right was involved in training doctors new to the hospital, and she trained a number of the physicians currently on the staff.

(D) In the Chief of Staff's office, the weakest, most difficult cases are usually assigned to Dr. Right.

(E) Dr. Right's survival stats are much better than the survival statistics of the previous chief surgeon.

Here, we are asked to pick an explanation for why not all things are equal. For only if things are *not* equal can two contradictory statements in the passage be supported. If cases are randomly assigned in the Chief of Staff's office, then Dr. Right's low patient survival rate discredits the Chief of Staff's claim. However, if Dr. Right is assigned the most difficult cases, then it is reasonable that her patients' survival rate will be lower than the survival rates of other surgeons at the hospital. Perhaps a less skillful surgeon would have an even lower survival rate if given the weakest cases to take to the OR. Choice D is the correct answer.

**Common Fallacies in Arguments**

Many questions will ask you to determine what is wrong with an argument, either a classic fallacy or flaw or some sort of faulty reasoning. Most flawed arguments fall into one of the following seven categories:

**1) Contradiction**

Contradiction occurs when a writer asserts two opposing statements simultaneously. For example, saying "it is wet and it is dry" is a contradiction. Typical arguments on the test obscure the contradiction to the point that the argument can be quite compelling. Here's a great example:

 We cannot know anyone, because we intuitively realize that people are unreliable.

At first glance this argument sounds reasonable, but "intuitively realize" means "to know." Thus the author is actually saying that we know that we don't know anyone. This is classic contradiction.

Example:

In baseball, hitting a grand slam is a skill that only those with great batting averages can achieve. Wade Boggs was a great player, so even though he did not have a great batting average he would have excelled at hitting grand slam home runs.

Which one of the following contains a flaw that most closely parallels the flaw contained in the passage?

(A) Eighty percent of the freshmen at Yale go on to get a bachelor's degree. Kyle is a freshman at Yale, so he will probably complete his studies and receive a bachelor's degree.

(B) If the police don't act immediately to quell the disturbance, it will escalate into a riot. However, since the police are understaffed, there will be a riot.

(C) The meek shall inherit the earth. Sara received an inheritance from her father, so she must be meek.

(D) During the Korean War, the powerful had to serve along with the poor. However, Rick's father was a State Senator, so Rick was able to get a draft deferment.

(E) All parrots are birds and all birds excrete nitric oxide. Therefore, all birds that excrete nitric oxide are parrots.

The argument clearly contradicts itself, so the correct answer choice will contradicts itself in like manner. Choice D is the correct answer. It begins by stating that both the powerful and the poor had to serve in Korea and ends by stating that some powerful people (Rick) did not have to serve.

**2) Ambiguous Word Use**

Some writers intentionally use a word in more than one sense during an argument.

Example:

Jake: Historically, Democratic administrations have supported abortion rights. But the President must veto the Pro-Choice bill because it will lead to wholesale exploitation of poor Black women who will be forced to abort children they can't afford to raise.

Tess: I disagree. Exploitation of women is the essence of any reproductive decision, just as the child support system exploits men.

Jake and Tess will not be able to settle their argument unless they

(A) explain their opinions in more detail

(B) ask an expert on reproductive freedom to decide who is correct

(C) decide whose conclusion is true but irrelevant

(D) decide whose conclusion is based on a questionable premise

(E) define a critical word

Choice E is correct, as Jake and Tess are working with different definitions of the word exploitation. Jake defines it as abuse, while Tess's meaning is unclear. Her definition must have a positive (or neutral) connotation, or she would not defend it. This argument will be pointless until they agree on a definition for exploitation.

**3) Circular Reasoning**

Circular reasoning assumes as a premise that which the writer is trying to prove. If stated eloquently, arguments with circular reasoning can trap even smart students. In clever arguments, the conclusion is worded differently and appears to state something additional. Other times, the argument is so long that the reader forgets that the conclusion was already stated as a premise.

Example:

Full scholarships are appropriate for disadvantaged scholars because it is right to offer a top-notch education to those most capable.

This argument is circular because "right" means essentially the same thing as "appropriate." In effect, the author writer is saying that scholarships are appropriate because they are appropriate.

**4) Absence of Proof**

The author must provide evidence or support for her position. To imply that a position is true simply because no one has disproved it is to shift the burden of proof to others.

Example:

Since no one has been able to prove reincarnation, humans must only live one lifetime.

There are two major weaknesses in this argument. First, the fact that no one has yet proven reincarnation does not preclude any future proof of existence. Second, if reincarnation occurs, its existence is independent of any proof by man. Reasoning by the absence of proof is not always false or incorrect. Our legal system embodies the concept by assuming a defendant is innocent until proven guilty. This assumption shifts the onus of proof to the state.

**5) False or Unwarranted Assumptions**

An author makes an unwarranted assumption when the conclusion of his argument is based on a premise (implicit or explicit) that is false or unsupported. An assumption is unwarranted when it is:

a) false (these premises are usually suppressed or vaguely written)

b) true but does not apply in the given context (these premises are usually explicit).

Example:

Either restrictions must be placed on abortion rights or certain subversive elements in society will use it to destroy this country. Since to allow the latter to occur is unconscionable, we must restrict abortion rights.

The conclusion above is unsound because

(A) subversives do not in fact want to destroy the country

(B) the author places too much importance on abortion rights

(C) the author fails to consider an accommodation between the two alternatives

(D) the meaning of "abortion rights" has not been defined

(E) subversives are a true threat to our way of life

The arguer offers two options: either restrict abortion rights or lose the country. Yet there certainly may be other alternatives, including one that society can tolerate. The correct answer is C.

Example:

Of course Sara supports government sponsorship of the arts. She's an actress.

Which one of the following uses reasoning that is most similar to the above argument?

(A) Of course if a person steals from me, I will never trust that person again.

(B) Liberals in the past have prevented ratification of any nuclear arms limitation treaties with the Middle East, so they will prevent the ratification of the current treaty.

(C) Mr. Ryan is the police commissioner, so it stands to reason that he would support the NRA's position on gun control.

(D) Following his conscience, Elliott voted against the pro-life bill, knowing it would doom his chances for reelection.

(E) You're in no position to criticize me for avoiding paying my fair share of taxes. You don't even pay your employees a fair wage.

This argument is fallacious and unfair because it assumes that all artists support government sponsorship of the arts. Some artists, however, may have reasons for not supporting it. They may believe that government involvement stifles artistic expression, or they may reject it on purely philosophical grounds. The argument suggests a person's profession taints his opinion. Choice C is the correct answer, as it does the same thing.

**6) Irrelevant Inclusions**

An author using this tactic bases a conclusion on information that is true but not germane to the issue.

Example:

This antifungal cream can be bought over the counter or in a stronger form with a prescription. But according to this pamphlet, for the prescription strength product to be effective it must be used at the immediate onset of symptoms, it must be re-applied every four hours thereafter, and it cannot be used by smokers. So it actually doesn't matter whether you use the prescription strength or the over-the-counter strength product.

Which one of the following best identifies the flaw in the above argument?

(A) The fact that many people could not live a full life without the prescription strength product cannot be ignored.

(B) It cannot be concluded that just because the prescription strength product has certain guidelines and restrictions on its use that it is not more effective.

(C) It does not consider that complications may arise from the prescription strength product.

(D) It fails to consider that other products may be more effective in treating fungus.

(E) It is unreasonable to assume that the over-the-counter strength product does not have similar restrictions and guidelines for its use.

It is unreasonable to reject the effectiveness of a product merely because it has modest requirements for use. All medications have directions and restrictions.

The correct answer is B. While Choice A is a good rebuttal, it does not address the flaw in the argument.

**7) Citing an Authority**

Some authors cite an expert's opinion as support for their own. This is not necessarily false, as the validity of many arguments depends on the perceived expertise of the person being cited. Appealing to a lawyer's authority on a legal issue is usually reasonable, particularly if the "expert" practices in the specialty area being discussed. Yet if the issue is about taxes and the lawyer chases ambulances, the argument would be questionable.

Example:

Senators Gary Hart and Bob Kerry advocate the legalization of medicinal marijuana. These leaders would not propose a social policy that is likely to be harmful. So there is little risk in experimenting with a three-year legalization of medicinal marijuana.

In presenting her position the author does which one of the following?

(A) Argues from the specific to the general.

(B) Attacks the motives of her opponents.

(C) Uses the positions of noted commentators to support her position

(D) Argues in a circular manner.

(E) Claims that her position is correct because others cannot disprove it.

The author's only evidence is that respected people agree with her position. Choice C is correct, as she is appealing to the authority of others.

**Ten Arguments:** (with complete explanations)

1. ARIEL: If great looking guys ever visited Ross College, it would be because they wanted to meet intelligent girls. Since we have not been contacted by great looking guys, we may conclude that none have ever visited this campus.

AMBER: Or, perhaps, they did not think girls enrolled here are intelligent.

How is Amber's response related to Ariel's argument?

(A) She misses Ariel's point entirely.

(B) She attacks Ariel personally rather than her reasoning.

(C) She points out that Ariel made an unwarranted assumption.

(D) She ignores the detailed internal development of Ariel's logic.

(E) She introduces a false analogy.

2. The best way to solve our company's present financial crisis is to lower prices and increase advertising. I challenge anyone who disagrees with me to prove it will not work.

A flaw in the preceding argument is that it

(A) employs group classifications without regard to individuals

(B) introduces an analogy which is weak

(C) attempts to shift the burden of proof to those who would object to the plan

(D) fails to provide statistical evidence to show that the plan will actually succeed

(E) relies upon a discredited economic theory

3. If exams are the smallest subatomic particles in the universe, then xyclops are needed to hold exams together. Since xyclops are needed to hold exams together, it follows that exams are the smallest subatomic particles in the universe.

The logic of the above argument is most nearly paralleled by which of the following?

(A) If this library has a good mystery collection, it will contain a copy of *Blood*  by Robin Cook. The collection does contain a copy of *Blood*, therefore, the library has a good mystery collection.

(B) If there is a monster in the attic, the attic must contain hot food for him to eat. There is a monster in the attic, so the attic must contain hot food.

(C) Either oxygen or argon is the lightest element of the periodic table. Oxygen is not the lightest element of the periodic table, so argon must be the lightest element of the periodic table.

(D) If Sara is taller than Ben, and if Ben is taller than Elliott, then if Sara is taller than Ben, Sara is also taller than Elliott.

(E) Whenever it snows, the cars get wet. The cars are not wet. Therefore, it has not snowed.

4. In Colonial days, a party could have a magistrate hear his case only by paying a fee to the court, and then only if the case fit within one of the forms for which there existed a writ. At first the number of such formalized cases of action was very small, but magistrates invented new forms which brought more cases and greater revenues.

Which of the following conclusions is most strongly suggested by the paragraph above?

(A) Early magistrates often decided cases in an arbitrary and haphazard manner.

(B) In most early cases, the plaintiff rather than the defendant prevailed.

(C) The judiciary at first had greater power than either the legislature or the executive.

(D) One of the motivating forces for the early expansion in judicial power was economic considerations.

(E) The first common law decisions were inconsistent with one another and did not form a coherent body of law.

5. If Marsha suggests an improvement to Eden's plan, then Jess and Lara will both vote the same way. If Eden speaks against Lara's plan, Jess will defend anyone voting with her. Marsha will suggest an improvement to Eden’s' plan only if Eden speaks against Jess's position.

If the above statements are true, each of the following can be true EXCEPT

(A) If Eden speaks against Jess's position, Lara will not vote with Jess.

(B) If Marsha suggests an improvement to Eden's plan, then Eden has spoken against Jess's position.

(C) If Eden speaks against Jess's position, Marsha will not suggest an improvement to Eden's plan.

(D) If Marsha suggests an improvement to Eden's plan, then either Jess will not vote with Lara or Eden did not speak against Jess's position.

(E) If either Eden did not speak against Lara's position or Marsha did not suggests an improvement to Eden's plan, then either Jess did not defend Lara or Marsha spoke against Jess's position.

6. An author writing a book about left-handedness advertised in *USA Today* for people who were left-handed. One-hundred people consented to be interviewed and assessed for certain personality traits. As the writer suspected, the interview results and personality assessments showed that Southpaws were more emotional and accident-prone than random samples of the general public. These findings support the conclusion that people are affected by their natural handedness.

Which one of the following selections, if true, points out the most critical weakness in the method used by the author to investigate left-handed characteristics?

(A) Left-handed children are typically more emotional than their right-handed siblings.

(B) The interviews and assessments were performed by an outside firm, not by the author.

(C) People who saw the newspaper ad were not more likely to be left-handed than the number of Southpaws in the general population.

(D) The author's subsequent contact with people who were right-handed tended to reinforce his initial impression of the character traits of people who were not left-handed.

E) People who are not emotional and accident-prone were not as likely to respond to the author's newspaper ad nor were they as likely to agree to participate in the study.

7. Hurricanes in South Florida are usually preceded by tropical storm conditions in the Atlantic Ocean. When tropical winds develop in the Atlantic, the same storm typically produces dramatic rainfall in South Florida. Therefore, tropical storm conditions cause heavy storms to rebuild as they move from the Atlantic Ocean to the Florida mainland.

Which selection contains the same type flaw as that contained in the passage above?

(A) Professional bowlers tend to have heavy builds. Therefore, professional bowlers typically have poor eating habits.

(B) People tend to write larger when they use fountain pens than when they use pencils. Therefore, people write more neatly with fountain pens.

(C) Students who participate in drama in high school often end up as doctors. Therefore, participating in high school drama must somehow influence students to attend medical school.

(D) During the hottest part of the day, cats do not play. Therefore, cats must play before dawn.

(E) Soap operas can impact the fashion on high school girls. Therefore, if a popular vixen on a soap opera wears short leather skirts, then high school girls will also start wearing short leather skirts.

8. Twelve years after graduation, medical school students from Harvard were surveyed with regard to their individual participation on their school's Student Board. Some of the survey results were curious. Eighty percent of those responding reported that they had participated on the Student Board, when the actual number of students who had participated was only 35%.

Which one of the following provides the most helpful explanation for the apparent contradiction in these survey results?

(A) A very small number of those responding were incorrect in reporting that they had participated on the Student Board.

(B) A disproportionately high number of students who participated on the Board responded to the survey.

(C) Not all Student Board participants responded to the survey.

(D) Almost all Harvard medical students who served on the Student Board twelve years earlier responded to the survey.

(E) Not all good students served on the Student Board; some good students participated in other activities.

 9. Doctors at a medical symposium were asked to evaluate the event's schedule, location and topic selection to determine whether changes would increase attendance the following year. A majority of the evaluations recommended that the schedule be changed to hold the sessions over the weekend instead of on weekday evenings. Based upon the results of the evaluations, the sponsors of the seminar decided to change to a weekend schedule for next year's program.

Which of the following selections, if true, would most prove the sponsors right in their decision to change to an earlier schedule next year?

(A) Approximately 90% of the people who received evaluation forms completed their forms and handed them in.

(B) Other seminar sponsors have made changes in their programs based on comments they have received in evaluation forms.

(C) About the same percentage of people attending the seminar wanted the earlier schedule as those who returned their evaluation forms.

(D) A weekend seminar schedule would make commuting easier for the participants.

(E) A significantly larger percentage of people who preferred the weekend schedule returned their evaluation forms than people who preferred the weekday evening schedule.

10. The number of citations issued to drunk drivers has dramatically decreased in recent years. In 1995 a total of 4,444 citations were issued to individuals for this infraction. In 1999, however, only 2,777 citations were issued. These statistics prove that local enforcement agencies have seriously neglected their monitoring of drunk driving practices since 1995.

Which one of the following does the author assume in reaching his conclusion?

(A) Monitoring and enforcement of drunk driving violations became more lax due to a change in the political climate in Washington, D.C.

(B) The decrease in the number of citations was not due to a reduction in the number of drunk drivers on the road.

(C) Authorities focused more on enforcing the ban on liquor sales to minors than on monitoring drunk driving on the roads.

(D) Local enforcement agencies suffered from a reduction in personnel during the period 1990-1995.

(E) For several years prior to 1995, in excess of 1,850 citations per year were issued in connection with drunk driving.

**Answers and Explanations to Arguments:**

1. C is the correct answer, as it acknowledges Ariel's unwarranted assum

ption. Amber points out that Ariel assumes that any good looking guys visiting their campus, seeking intelligent girls, would regard those at Ross College to be intelligent and therefore contact them. Amber hints that this assumption may be unwarranted, and the girls at Ross might not be intelligent enough to interest them. Choice A is wrong, as Amber does not miss Ariel's point, she understands it and criticizes it. Choice B is wrong since Amber is not insulting Ariel's intelligence. Choice D is a vague choice, as there isn't much internal development to Ariel's argument. D also notes a suppressed assumption that is unsound. Choice D is incorrect because Amber does not offer an analogy.

2. Choice C is correct. This argument offers no proof and is therefore not an argument at all. Without evidence to support the position, no one can effectively discuss the point. This is an illegitimate attempt to shift the burden of proof. Choice A is incorrect because the author uses no group classifications, while Choice B is incorrect because the author does not introduce an analogy. Choice D is a weaker version of C, a legitimate objection to the paragraph, but not as good as C. Choice E cannot be supported or disproved by information in the passage.

3. Choice A is correct. The argument itself is incorrect and in the form "If A, then B. B, therefore A". Choice C is also an incorrect argument that has the same form. Choice B has the form: "If A, then B. A, therefore B”. This argument is valid and different from the original one. Choice C has the form: "A or B. Not A. Therefore, B". Choice D has the form: "If A, then B. If B, then C. Therefore, if A, then C." Finally, Choice E has the form: "If A, then B. Not B. Therefore, not A."

4. Choice D is correct. By expanding judicial power by increasing the number of causes of action, the judicial coffers filled. A natural conclusion is that the desire for economic gain fueled the expansion. Choices A, B, C and E are not supported by the text.

5. Choice D is correct, as it is the only answer than cannot be true. The argument has three clauses in the following form: If A, then B. If C, then D. If A, then E.

Choices A and B could be true, but omit essential information. Choice C could also be true, but does not include the final clause (If A, then E). Choice E introduces a new variable not included in the original argument.

6. Choice E is correct. The argument generalizes from a very small sample to the entire human population. If the group who responded are NOT typical of the general population, then the conclusion to the argument is weakened. Choice E captures this.

7. Choice C is correct, as it uses the same false correlation. Other weather conditions could lead to the heavy storms and hurricane in Florida. Likewise, doctors are inspired to attend medical school for reasons other than their high school drama class.

8. Choice B is correct as it best explains the apparent contradiction.

9. Choice C is correct because it strengthens the connection between the sample and the general population.

10. Choice B is correct, as it correctly states the assumption the author makes in this passage.

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