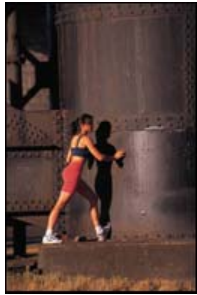


Solution Strategies and Explanations

[http://www.insightassessment.com/CT-Resources/node_1487/\(language\)/eng-US](http://www.insightassessment.com/CT-Resources/node_1487/(language)/eng-US)



Sample Test Items 1-3

Solution Strategy: Questions that come in sets, like these three, are common on analytical tests, like reading tests, the SAT, and on the entrance tests for many graduate professional programs, such as the GMAT. Success answering these kinds of questions begins with first making an accurate interpretation of the “set up.” In summary form, what is that opening paragraph telling us? In this case we are told about an empirical investigation of some kind which involves comparing two groups of people. One group is women who workout with teammates, the other is women who work out as individuals. And what does that paragraph tell us about the two groups? First it says

that both groups showed improvements on a variety of measures of good health. Second that it is highly unlikely that these improvements happened just by chance. And third that the women in the first group, with teammates, showed a higher average gain. With this picture in mind our next step strategically is to see exactly what each associated question is asking. And, if possible, to answer that question in our own mind before reading the options given. That way we can simply look through the options and select the one that expresses the answer we have already inferred.

Applying the Solution Strategy to Items 1, 2 and 3.

“Sample Item 1. If true, these research findings would tend to support which of the following assertions?” Before looking at the options, think for a moment about the question. What would these findings support? The answer will be something about a positive relationship between working out and scoring higher on the various measures of good health. Maybe the answer will include something about working out with a teammate in contrast to working out individually. With these ideas in mind, inspect the options to see which most closely expresses that idea.

“Option (A) = A college woman cannot achieve optimal health functioning without a teammate.” This option emphasizes working out with a teammate, but the findings reported in the paragraph showed that both groups gained significantly. And it would overstate the findings to suggest that there is no other way to achieve optimal health. This options is probably not the one we are looking for.

“Option (B) = Universities should require all students living in campus residence halls to participate in a health regime of smart eating and regular vigorous exercise.” No, this is a policy recommendation which goes beyond the scientific study described. Maybe this is a good idea, maybe not. Either way, empirical findings as such support factual generalizations. People may use those generalizations to support their policy ideas, but that’s a different purpose altogether.

“Option (C) = A healthy diet will cause one to have better mental health and physical strength.” No, the study was about the combination of diet and exercise. Not the diet part only. And the findings suggest a correlation of some kind, but they do not provide a causal explanation.

“Option (D) = This research study was funded by a corporation that makes exercise apparel.” Maybe, but so what? The findings may have commercial value, but, like the policy recommendation above, that is not the point of the empirical research.

“Option (E) = A regimen of smart eating and regular exercise is related to better health.” Okay, here’s what we have been looking for. This option expresses the idea that there is a relationship between diet and exercise, a regimen both groups of women followed, and the improved scores on measures of good health.

Answer - Item #1: Option (E).



Insight Assessment

Measuring Critical Thinking Worldwide

“Sample Item 2. If the information given in the case above were true, which of the following hypotheses would **not** need to be ruled out in order to confidently claim that for the majority of young adults a regimen of smart eating and regular vigorous exercise will result in significant improvements in one's overall health.” Analyzing this question we can see that it is asking about factors which could threaten the validity of the scientific findings. And since it asks which choice would NOT have to be ruled out, we can anticipate that most of the options will identify problems that might have affected the scientific methods that were followed or the conditions under which the experiments were conducted. One or another of the options should jump out as not being about the actual scientific work at all, but some other topic. So if an option is about the science per se, it is probably not the right choice. With this analysis in mind, we can now consider each option.

“Option (A) = This study was about women, the findings cannot be generalized to include men.” This is about the experiment. Maybe it would have turned out differently if men had been used as the subjects studied. Having not studied men, we should not generalize to “all adults.” This is not the right answer choice for this question.

“Option (B) = Since the study began to solicit willing participants before the Research Ethics Review Committee of the college gave the research project its formal approval to gather data, the findings are invalid.” Maybe so. But so what. This is not about the scientific research; it is about the scientists following the rules and regulations which govern their behavior. This is probably the right answer, since it does not affect the scientific findings. We should check the remaining three options, just to be sure. But we could stop here because we have found a hypothesis that does not have to be ruled out in order to confidently make the claim that this question asks about.

“Option (C) = Some women in the study over-reported their compliance with the eating and exercise regimen, which led the researchers to underestimate the full impact of the regimen.” Perhaps they did. The scientists will need to check this out. This is not the right answer to this question.

“Option (D) = Since many of those studied described themselves as overweight or out of shape when the study began, a similar regimen will not benefit people who are healthier to start with.” Maybe so. Again the scientists will have to check this hypothesis too. This is not the right answer.

“Option (E) = The measures of health and well-being used to evaluate the women students may not be appropriate for evaluating the health and well-being of male students.” Probably not true. Those measures are probably fine. But, again, this is something the scientists will have to verify. So this is not the right answer either.

Answer - Item #2: Option (B).

“Sample Item 3. Consider the claim, “Working with a teammate or partners on a health regimen is better than working individually.” Which of the following additional pieces of information would **not** weaken that claim?” As with the previous sample item (#2) we are being asked which of several options does NOT apply. In this case we should be looking for a factor that would NOT be scientifically relevant to the comparison between the health measure scores of women in the first group (with teammates) and scores of the women in the group that worked out as individuals. With this analysis of the question in mind, let’s look at our options.

Options (A) and (B): Both of these suggest that some of the women did not comply with the scientists’ instructions and ended up working with teammates or individually even though they were not supposed to. Yes, these would be something that the scientists would have to check. If true, then the findings would be weakened. So neither option A nor option B is the correct answer to this question.

Option (C) : Although vague, if there was something relevant that the scientists overlooked, then, yes, this would weaken the findings. The scientists will have to check their work. This is not the right answer to this sample item. Same with

Option (E). Although it is hard to believe that over a span of 50 days there were no exams or major projects due, stress is a factor that needs to be considered. Perhaps on further investigation the scientists will learn that under sufficiently stressful conditions it is less important whether a person works out with a teammate or individually. Maybe not. Either way, we can eliminate this option.

Using the classic multiple-choice test taking strategy of eliminating wrong answer we appear to be left with only one choice, **Option (D)**. **But a strong critical thinker will not select that option only after first thinking it through. It is probably the right answer, but it just might not be.**

“Option (D) = Men are more likely to work alone, so any recommendation that men find a teammate or partner to support them in sticking with the regimen will be ignored.” This option is interesting because it talks about what men are likely to do. It says they may ignore the advice that working out with a teammate is a better approach. And, in fact, they might. But that would not weaken the scientific claim that working out with a teammate is the better idea. Yes, by analyzing this option we can infer that it is the best answer to the sample question #3.

Answer - Item #3: Option (D).

Solution Strategy - Item #4: Multiple-choice test questions are typically thought of as sets of true-false items where a person works down the list from A through E eliminating wrong choices until a right choice appears. Then the person checks their work by being sure that the remaining choices in the list, if any, are also wrong. But what is to be done if more than one choice is possibly true? This question offers that situation. It invites us to draw inferences from what is not said, just as much as from what is given in the question. A mistake would be to read too much into the question by projecting our own or other peoples' possible feelings on the characters being described.



Applying the Strategy - Item #4: We begin by seeing rather easily that the first two options are wrong. But options "C," "D," and "E," are all possible. **Option (A):** No. Had their work been comparable to Anna's, they would most probably have received the same recognition. **Option (B):** No. The information provided suggests that Carol and Barbara probably produced work of similar quality.

Consider Option (C). Perhaps it is true that Barbara feels some envy or jealousy about her friend's success, after all they did collaborate on the group assignments. On the other hand, Barbara might not feel that way at all. In fact, she might be very happy for her friend; and she might know that, all things considered, Anna did deserve the honor and she, Barbara, did not. Nothing in the information provided suggests that Barbara felt this way.

Consider Option (D). Yes. Given that Deirdre was advised to withdraw due to poor work, but Carol was successful, we can infer that Deirdre's work most probably was not as good as Carol's. Of course, we can speculate that maybe the faculty's decision to advise Deirdre to leave the program was because of her criticisms of the program. And maybe, to amplify the scenario, we might suppose that the faculty liked Carol and maybe that inclined the faculty to be more tolerant toward whatever shortcomings may have been evident in her work. Maybe? But, this is reading a lot into the question; more than would be prudent even without the word "only" in the last line of the question as a warning.

Consider Option (E). Who knows what Anna will now decide? Yes, it is possible that her experience of academic success will lead her to consider going for another advanced degree. And maybe her faculty advisor will suggest that she has the potential to be very successful doing so. But, again, while this is plausible, we would be reading too much into the question to select "E" as the best choice from among those provided.

Answer - Item #4: Option (D).

Note on "probably": In reviewing all five options notice how often the words "probably," "perhaps," and "maybe" are used. There is no certainty here, even though the question may appear to be similar to a mathematics item that might begin, "There are four numbers, X is greater than Y and Z, Y and Z are equal..." And yet, the superiority of **Option (D)** among the five choices given is substantial. In terms of good critical thinking, selecting **Option (D)** is not a random or coin-toss kind of probability. It may not be absolutely certain, but it is highly probable as compared to the other four options provided.

Solution Strategy - Item #5: The reasoning task here is to evaluate how well the speaker makes the case for not reducing reliance on petroleum vehicle fuels. That evaluation requires determining how fair-minded the speaker was in presenting and critiquing the major arguments for the opposite point of view, and determining how strong the reasons are which the speaker presented for the view he is defending. To address these questions well one must momentarily set aside one's own opinions on the issue at hand so as not to be distracted from evaluating the speaker.



Applying the Strategy - Item #5: The speaker identifies three arguments in favor of reducing reliance on petroleum fuels. One is the influence of foreign leaders on our nation's economy. The second is the environment. And the third is the potential to exhaust that resource. The speaker's strategy is not so much to make the case in favor of continuing to rely on petroleum fuels, but rather to attack the arguments for the opposite view. The speaker's reasoning is roughly like this: "There are three reasons not to rob banks, two of which are not very good in my estimation; so it is fine to rob banks." This is an "I'm right because you're wrong" approach. It ignores the possibility that both are wrong. Thus reasoning to the best answer choice from among those provided requires taking each option in turn to see which choice comes the closest to expressing the judgment that the speaker has failed to give due consideration to the full range of the opposition's point of view, or, failing to find that choice among those given, finding instead a choice that says that the speaker has not presented good and sufficient reasons for the view espoused.

Option (A) is not acceptable first because it evaluates the speaker's reasoning as "solid," which it is not; and second because it asserts that the speaker showed the weaknesses of the arguments for reducing reliance, which is a task the speaker did not complete.

Option (B) again puts the speaker's reasoning in the "solid" category, an error in the overall evaluation of the speaker. This option also presents considerations which are secondary, but not primary in evaluating reasoning. The speaker may be delivering his or her opinion in a clear and forceful way, and may be forthright in declaring reasons, but clarity (like forcefulness or self-confidence) by itself does not make the opinion correct or the reasons cogent.

Option (C) puts us on the right track for it correctly evaluates the reasoning as "weak". Unfortunately the reason given in this option is simply an unsupported ad hominem attack on the speaker. Whatever the speaker's financial interests may be, and however much those may or may not have moved the speaker in one direction or another on this issue, we can evaluate the speaker's arguments independent of those interests.

Option (D) is correct in its evaluation of the reasoning as "weak." And it rightly notes that the speaker failed to address one of the three important arguments for the opposite point of view.

Answer - Item #5: Option (D) is the best among the choices provided.

Note - Item #5: If other options had been provided, we might not have selected Option (D). For example we were not given an "Option (E)" which might have said "weak: The speaker's optimism about future technology is unfounded, the

speaker's cynicism about the political influence of big oil companies on energy policies does make us wonder about how much control foreign interests will have, and waging war for oil is not a sensible foreign policy." Nor were we given a question prompt that had the speaker making a stronger case for his or her view with statements like: "For the foreseeable future our best hybrid technology only reduces, but does not eliminate our reliance on petroleum vehicle fuels," or "There will be tremendous costs associated with building the infrastructure to produce, distribute, and use alternative vehicle fuels." This brings to mind the point that on a test like this one must focus on the question and the choices as they are given.

Solution Strategy - Item #6: Interpreting "in the firm's best interest" as in its best financial interest, the best answer from among those given will be the option which costs the firm the least.



Applying the strategy - Item #6: Interpreting "in the firm's best interest" - Interpreting the firm's best interest as meaning in its financial interest is based on two contextual elements: First that the question is set in the context of business transactions rather than other possible kinds of personal or social issues which might emerge in the workplace; and, second, that the details provided in the body of the question and its four answer choices are about time and money. Financial interests are not the only potential concerns Sylvia's firm might have. Good critical thinking not only enables one to recognize the multiplicity of possible interpretations, it also enables one to make a prudent choice among them. In this case, given all that is said and not said about Sylvia, her productivity, her work habits, and her job satisfaction, it would be unreasonable to interpret "in the best interest of Sylvia's firm" as meaning something other than in its financial interest.

Focusing on costs, therefore, the reasoning tasks become analyzing each of the four options and drawing correct inferences about their respective financial impacts. The final critical thinking tasks are to compare the projected costs of each option and to select the one which would be the least costly to the firm. Along the way the person with strong critical thinking skills would be monitoring his or her own reasoning, vigilant for possible errors in calculating the costs or errors in properly analyzing the details of each of the four choices. The person might reason as follows:

Option (A) would cost \$700. The \$500 paid to Ed's Phone Repair Shop and the \$200 of lost profits Sylvia would otherwise have been expected to generate in the 30 minutes between 10:00 a.m. when the phone broke down and 10:30 a.m. when the replacement phone is in place.

Option (B) will cost nothing for the phone, since the instrument is already in inventory. But it will cost the firm six hours of net revenue, which is \$2400, because Sylvia will not be able to make calls until tomorrow.

Option (C) would cost \$875 or a bit more. That figure comes from the two hours of lost time between 10:00 am and Noon, plus the \$75 to reimburse Sylvia for the cost of the new phone, plus perhaps whatever little bit of additional profits would be lost in the few minutes it would take Sylvia to install that new phone herself.

Option (D) requires that Sylvia not have a working phone for a total duration of four hours. But one of those four hours is the noon hour, which she spends at lunch. Thus it would cost the firm \$1200 for the other three hours when she would ordinarily be working on the phone; or maybe more, depending on how soon after 2:00 PM she actually completes the repair.

Answer -- Item #6: Option A, for it costs the firm the least financially.