

THE CORE COMPETENCIES ASSESSMENT

TEST-TAKERS' GUIDE



August 2022

INTRODUCTION

The questions that are in the assessment are designed to test different skills in what is termed 'Critical Thinking' (CT) and Communication.

The assessed CT skills are:

- Analysis
- Evaluation
- Interpretation
- Creative thinking
- Reasoning
- Problem-solving (given that it uses the skills of CT).

Communication questions will focus on the following:

- the ability to summarise a passage (so understanding its general theme);
- understanding the purpose of references made by the author;
- the ability to place the passage in a wider context or theme;
- understanding how the passage is relevant to given questions;
- the ability to complete a passage with a further sentence.

CRITICAL THINKING QUESTIONS

The items in this part of the assessment will typically use a short passage (of no more than 125 words) followed by at least one question on it. Each question will have five options to choose from. (However, in this short guide, most examples, being only illustrative, will not.) The content of the passages will vary but they will be based on contemporary social, economic, and scientific issues, using real-world material.

Some of the items will have a question given in a negative form, such as 'Which one of the following is NOT...?' You will see that 'NOT' is given in upper case in order to emphasise it. Though, in doing these negative-question items, the task is essentially the same (identifying the correct answer), you should ensure that you focus carefully on what is NOT done in the passage. (This could be usefully achieved by working out what is done, leaving the answer as the one that isn't.)

ANALYSIS

A central feature of CT is that it involves examining claims and how these are used to produce what are called 'arguments'. By 'arguments' we mean 'reasoned cases' in which someone argues for (or against) something by giving at least one reason for this. What is being argued for is termed a 'conclusion'. (It is important to note that this term does not have to refer to the last thing that's given. It's used to refer to what the author is arguing for (against) based on the reason(s) that have been given.)

Here is an example of an argument.

The problem of plastic pollution in the seas and oceans is getting worse, with microplastics found even in the deepest parts of the oceans. Research into finding marine micro-organisms that can digest plastics should be a top priority for marine biologists.

As can be seen, the author is here arguing for research into finding plastic-eating marine micro-organisms being a top priority. The first sentence provides a reason in support of this position. But the argument would work perfectly well if the order was reversed.

Research into finding marine micro-organisms that can digest plastics should be a top priority for marine biologists. The problem of plastic pollution in the seas and oceans is getting worse, with microplastics found even in the deepest parts of the oceans.

In *analysis*, we are looking at the components of arguments (especially their reasons and conclusions).

Finding the conclusion

Here is an example of a question that asks you to find the conclusion of an argument.

It is often claimed that the increased use of automation will lead to higher rates of unemployment. However, the evidence does not support this position. For example, in 2019, both Japan and South Korea had among the highest rates of robot use and had the lowest rates of unemployment. Furthermore, the rich world has a significant shortage of workers (with an estimated 30m unfilled vacancies). There is little evidence that 'routine' jobs (which are thought to be the easiest to automate) are declining relative to other jobs. Automation could allow firms to develop new types of work and even become more profitable, so allowing them to expand, leading to increased employment.

Which one of the following is the best statement of the conclusion drawn in the above argument?

- (A) Automation could allow firms to develop new types of work and even become more profitable.
- (B) Firms that use automation could expand, leading to increased employment.
- (C) Evidence on automation does not support the claim that more of it will lead to higher unemployment.
- (D) There is little evidence that jobs that are easiest to automate are declining.
- (E) Increased use of automation cannot lead to high rates of unemployment.

(C) is correct. It can be seen that the second sentence of the passage provides the conclusion. The sentences that follow it provide reasons why 'the evidence does not support' the position given in the first sentence. (The word 'however' might be seen as a problem, but it is there only to mark the difference between what's 'often claimed' and the author's argued-for position.)

(A) is incorrect. This is one of the reasons used to draw the conclusion.

(B) is incorrect. This is a continuation of (A), thereby providing a further reason for the conclusion.

(D) is incorrect. This is one of the reasons used to support the conclusion.

(E) is incorrect. This is an over-strong version of the conclusion given in the second sentence (with the word 'cannot' being stronger than the given version that 'the evidence does not support the position that it 'will').

Finding reasons in an argument

If you were asked to identify a reason in an argument, then you can see that you would select any statement that supported the conclusion. (So, in any questions that ask you to identify a reason, you should find the conclusion first.) In this example, everything that follows the conclusion sentence is a reason for it.

Finding a counter-argument

Some questions will ask you to identify a statement (or argument) that is the ‘counter’ to (meaning against) the author’s own argument. This will be therefore a statement (a position) or argument that the author has argued against. For example, in the above passage, the first sentence is counter to the author’s argument, given that this rejects it. If it was given as a counter-argument, then it would be something like:

It is often claimed that, because of the decline of some jobs (such as checkout staff in supermarkets), the increased use of automation will lead to higher rates of unemployment. However...

(In the section on reasoning below, you will see that you could be asked to select what would count as a counter-argument to an argument in a given passage.)

Finding assumptions

In arguing for or against something, authors are very likely to believe something to be true even if they haven’t stated it. We would refer to this as an author *assuming* something. One category of question will ask you to select what you think a given argument must assume for the conclusion to be drawn.

Here’s an example.

The issue of the link between the use of robots (and other forms of automation) and employment continues to be a big one. It has become clear that increased automation leads to higher levels of unemployment. A study of 2013 supports this position, given that it predicted that 47% of US jobs were at risk of automation. In addition, the pandemic has highlighted the significance of the fact that, unlike employees, robots don’t get ill (or, of course, need breaks and time off).

The author of this argument must assume (take it to be true, though it is not stated) that ‘a study of 2013 is still relevant to the present’. You can see that, if the author doesn’t assume this, then their argument doesn’t work. (Just think of the opposite statement: ‘a study of 2013 is not relevant to the present’.

Finding a further conclusion

Another type of question in the analysis section is to identify what could be further concluded from an argument (that already has a drawn conclusion).

You looked earlier at this short argument.

The problem of plastic pollution in the seas and oceans is getting worse, with microplastics found even in the deepest parts of the oceans. Research into finding marine micro-organisms that can digest plastics should be a top priority for marine biologists.

What could be further concluded from it? In this question-type we’re looking for what could follow the existing conclusion as a further conclusion. Here’s an example:

Funding should be provided for marine biologists to do this work.

It can be seen that this usefully follows, given that it builds on what has already been concluded by taking the argument further.

What about this one?

The problem of marine plastic pollution can be solved.

This is incorrect, since it does not fit as a further conclusion drawn from the existing one. It might indeed be hoped that the problem can be solved but making research into it a top priority does not mean that it can be. (It's better seen as an assumption, since one could say that, unless it can be solved, there is little or no point making research into the problem a top priority.)

Focusing on structure of the argument

A further category of question in the analysis section is to find an argument that has the same structure as a given one. Here you need to look very closely at the sequence of the reasoning: how are the reasons developed in support of the conclusion?

Here's an example.

The selection of astronauts for the early space programmes was focused on finding physically strong individuals. But, if astronauts are going to travel to Mars, then they will have to be prepared to live closely together for at least 30 months (18 months travelling there and back, and 12 months living on the planet). Given that Mars astronauts will have to spend so much time together, the selection of who will be suitable will need to take account of not just their physical fitness but also of their personalities. It's clear that, if we send astronauts to Mars, this will involve them being selected for both physical and mental qualities.

What is the structure of this argument? You'll see that this has an if...then (hypothetical) structure. The first sentence provides some information that is used in the argument, but does not play a part in the structure itself. As you can see, this is

If A (travel to Mars), then B (need to live closely together). B, then C (selection needs to include both personality and physical fitness). Therefore, if A, then C.

Your task will be to select another argument which has the same structure. Here are two: which has the same structure?

(A) The high level of usage of antibiotics to treat infectious diseases has led to many dangerous organisms becoming immune to them. If the number of infections that are resistant to antibiotics continues to rise, the deaths from infectious diseases will increase. If the number of deaths from infectious diseases is to decline, then the use of antibiotics will have to be limited. If we have to reduce the use of antibiotics, then the treatment of infectious diseases will need to be changed.

(B) If successful companies have a high level of automation, then they are very likely to become even more successful. If they become more successful, then those companies that don't have a high level of automation will be less likely to survive. Given that successful companies do have high rates of automation, the chances of survival for those that don't are reduced.

The structure of (A) is *if A, then B. If not-B, then C. Therefore if C, then D*. So the structure does not correspond to that in the first passage.

The structure of (B) is *if A, then B. If B, then C. A, therefore C*. This has the same structure as that in the first passage.

EVALUATION

In analysis, the questions are focused on looking for the structure of arguments (including the hidden parts). In evaluation, the main focus is on judging the strength or weakness of arguments: in other words, is this argument a good one or not? Does the conclusion follow from the reason(s) given?

Here is an example.

A study of Japanese manufacturers between 1978 and 2017 showed that when there was an increase of one robot unit per 1000 workers, a firm's employment went up by 2.2%. It is clear that firms buying more robots is going to be a way of increasing the number of jobs. So they should be strongly recommended to do this.

Is this a good argument (in the sense that the conclusion is well-supported)?

You can see that the conclusion is drawn from the evidence that links the number of robot units to the level of employment. Your task would be to make an assessment of the strength of this evidence. To put it simply, is it both relevant and adequate for this conclusion to be drawn?

The argument can be evaluated in three ways.

- The link between buying robots and an increase in employment is given in a way that the first causes the second. (This is clear in the second sentence.) Technically, we can say that the author assumes that buying robots causes an increase in employment. But is this the only way of seeing it?
The link between buying robots and an increase in employment could be interpreted the other way round: firms that are hiring staff buy more robots as a result. In this way, the causal link is turned round the other way.
- Of course, another way of looking at the correlation between robot-buying and employment is to see this as coincidental. For example, perhaps firms that buy robots are in industries which need more staff, so they are causally connected to a third factor such as technological development.
- Another way to evaluate the argument is to look at the issue of *generalisation*. In other words, the conclusion relies on only one study. In addition, it is one study from only one country (Japan). You could ask as to whether such evidence is enough to draw a general conclusion about all firms.

The two areas of causation/correlation and generalisation will appear in some of the passages in the questions on evaluation.

Another question type will be to look at *analogies* in arguments. These involve looking at the significance of one thing by comparing it with another which is seen as very similar. Your task will be to evaluate how well an analogy works.

Here's an example.

There are plans to send spacecraft to asteroids in order to mine their valuable minerals and metals. This would be very profitable. For example, a single asteroid could contain platinum worth \$50 billion, with the cost of a spacecraft to mine this being no more than \$3 billion. However, such use of resources in space should not be allowed in international law. It will be only rich countries (or private companies) that will be able to afford to do such space-mining, whereas space belongs to everybody (or nobody).

Which one of the following is an analogy that would best support the above argument?

- (A) Cutting down trees in a local public park for building your house is not allowed.
- (B) Fishing in mid-ocean is allowed for everybody.
- (C) Extracting coal, oil, and other materials has been allowed for centuries.
- (D) Exploration of the deep ocean is not regulated.

We're looking for an analogy that has a strong similarity with the position in the argument: space-mining should not be allowed because space belongs to everybody (or nobody).

(A) is correct. It describes a similar situation, given that the public park belongs to everybody, such that an individual is not allowed to make use of its resources for their own benefit.

(B) is incorrect. This is an analogy that supports the opposing position, given that it justifies extracting resources which technically belong to nobody (until they're extracted).

(C) is incorrect. Though it deals with the same issue of mining, it does not link with that of ownership of resources.

(D) is incorrect. This would support the opposing argument, since it supports the lack of regulation in using what does not belong to anybody.

CREATIVITY

In this category, we are looking at how we can, in different ways, look beyond what's given to consider further possibilities.

As a result, the questions will include

- looking for possible explanations for given evidence;
- identifying a hypothesis that would be relevant to a given scenario;
- identifying a possible consequence from a given hypothesis;
- looking for ways in which given evidence could be connected;
- judging how given evidence could affect an argument by either strengthening or weakening it.

Here's an example of a question on looking for a consequence of a given hypothesis.

Soil collected from the moon has been used in various experiments. This soil is rich in iron and titanium and was used as a catalyst (a substance that increases the rate of a chemical reaction). In one experiment, the soil accelerated a process in which solar-generated electricity was used to split water (which is found on the moon) into oxygen and hydrogen. In another, CO₂ was combined with hydrogen and, using the soil as a catalyst, methane was produced. If oxygen can be used by astronauts to breathe and as a fuel, and methane can also be used as a fuel, these experiments show that the activity in the moon soil (as yet unknown) could be exploited to enable significant lunar exploration.

Which one of the following fits best as a possible consequence from the hypothesis given in the above passage?

- (A) Soil on Earth could be used to produce various beneficial chemicals.
 - (B) Manned exploration of other planets (especially Mars) could be made more possible by using the soil on them.
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(C) More experiments using moon soil as a catalyst on the moon itself could produce even more useful chemical products.

The obvious thing to do first is to find the hypothesis in the passage. In this example, it is the last sentence. A typical hypothesis will be given in the if...then form, though here the 'then' is not used explicitly but is implicit.

Which answer is correct?

(C) is correct. The possibility of the production of useful chemical products (beyond those mentioned in the passage) by doing the experiments on the moon itself fits as a possible consequence of the hypothesis given the success of those referred to. (In part, this could be because one would be able to use more soil.)

(A) is incorrect. This is highly likely to be true, but there is nothing in the passage to support the idea that soil on Earth has the same properties as that on the moon.

(B) is incorrect. Though the evidence on lunar soil shows that extensive lunar exploration could be made more possible (via the generation of oxygen, hydrogen, and methane), this evidence cannot necessarily be applied to the soil on other planets.

The next example is one that illustrates the category of looking for a possible explanation for given evidence.

In a recent very large survey of why people leave their jobs, it was found that innovative companies (including not just technology-intensive companies such as Tesla and Netflix but also companies such as Red Bull) have a notably high rate of staff choosing to leave. Indeed, the more positively employees talked about innovation at their company, the more they were likely to quit.

Which one of the following provides a possible explanation for the evidence on staff in innovative companies?

(A) There can be a problem in work-life balance for staff in innovative companies.

(B) Some companies that are not classed as 'innovative' also lose staff.

(C) Not everyone who joins an innovative company does so because they value innovation itself.

(A) is correct. Though people who are employed by innovative companies might talk positively about innovation, it could be that such companies, by their very nature, expect staff to put in long hours, and work at a fast pace (and be prepared to endure high levels of stress). These expectations could impact negatively on work-life balance.

(B) is incorrect. Though this might look as if it would provide an explanation along the lines of 'all companies lose some staff', it does not explain the 'notably high rate of staff choosing to leave' innovative companies. This evidence is pointing to a difference between innovative and non-innovative companies.

(C) is incorrect. This might be seen as an explanation since it could be that the feature of innovation is not in itself a factor in attracting (and so losing?) staff. But since it does not address the significance of the last sentence, it cannot be a useful explanation for the evidence presented.

Here's an example of a question that focuses on the identification of ways in which given evidence could be connected.

By the year 2099, increasing global temperatures are likely to erode 50 to 58 hours of sleep per person per year. This is because warmer than average temperatures affect when people both go to sleep (later) and wake up (earlier). It's long been known that hot days increase deaths and hospitalisations and worsen human performance. Our bodies are highly adapted to maintain a stable core temperature, such that good sleeping needs temperatures that are neither too hot nor too cold.

Which one of the following shows a way in which the evidence in the passage could be connected?

(A) Physical and mental functioning is more predictable when the temperature is low than when it is hot.

(B) The need for sleep is less in cold weather.

(C) Changes in the rates of physical and mental functioning can be expected over many decades.

(C) is correct. This connects the evidence on 'human performance' with the prediction for 'increasing global temperatures' by 2099. 'Human performance' can be unpacked into 'physical and mental functioning'.

(A) is incorrect. There is nothing in the passage that would enable this connection to be made. 'Physical and mental functioning' will be worse on hot days, but this does not mean that human performance will be more predictable when the temperature is low.

(B) is incorrect. Though temperature affects sleep, such that hot weather reduces the amount that we get, this does not mean that the need for sleep is less in cold weather (only that we tend to get more when it is cold).

INTERPRETATION

The questions in this category can include the following:

- an assessment of an author's use of a term;
- identifying the significance that an author gives to some evidence;
- identifying an alternative possible significance of evidence used in a passage.

In the previous section, the last question focused on some evidence about innovative companies. However, there was no attempt to consider what we mean by 'innovative' beyond reference to 'technology-intensive companies such as Tesla and Netflix' and 'also companies such as Red Bull'. Here we have an issue of interpretation such that there could be different ways of classifying what 'innovative' companies are. Are they companies that operate in ways that are literally new (given the meaning of 'innovative') or do they develop new products, or are they both of these? (Or are they something else?)

Here is a question that focuses on this issue of definition.

The idea that life can be extended for many more years than we currently have is not a new one. For example, the 19th century philosopher Nikolai Fedorov thought that all living things could, one day, be resurrected using traces of them floating in the cosmos. But now the idea is being taken very seriously by some scientists and very wealthy investors. The central hypothesis is that,

if 20-30 years can be added to our active life-expectancy (apparently not difficult to do), then techniques will be developed to continuously build on this process. An alternative approach would be to forget the survival of the body and to focus on resurrecting (or preserving) the mind in a robot or in some form of digital alternative reality.

Which one of the following definitions of 'life' fits best with the content of the above passage?

- (A) survival without any change
- (B) the survival of the person
- (C) the state of 'not being dead'

(B) is correct. The author considers the possibility of adding many years to our life-expectancy, thus ensuring that people have more life (with the use of the word 'active' stressing that it would be a continuation of how life had been lived). But the author also considers the possibility of the continuation of 'the mind', thereby including the possibility that 'life' understood as the survival of the 'person' would continue.

(A) is incorrect. This goes too far, especially given the way in which there is reference to 'the mind' continuing 'in a robot or in some form of digital alternative reality'. In addition, the reference to Fedorov's idea of survival of living things via being 'resurrected using traces of them floating in the cosmos' is a further example of change.

(C) is incorrect. This is too vague, since it includes every possible condition (including being in a permanent coma) that being alive would have. The author's theme is much more that of continuing 'active' and self-conscious life (even if this includes the survival of 'the mind in a robot or in some form of digital alternative reality').

The next example focuses on the issue of an author's judgement of the significance of evidence they present. This example focuses on considering an alternative possible significance of the evidence. So, in answering this type of question, you need to be clear as to what significance the author has given the evidence and then think what else it might mean.

The original purpose of giving employees bonuses was to reward them for producing more of whatever they were producing. But in these days of teams working on tasks together, it can be difficult to judge who is helping (the most) and who is hindering. One recent approach by a big retail chain took things back to bonuses for individuals, but based on attendance at work rather than output. Apprentice employees were offered extra money or more vacation days if they came into work as planned each month. However, the absenteeism rate rose by 45%, an outcome that greatly surprised the company. Clearly, the apprentices thought that taking time off must have been really common (otherwise why would the company pay more to go into work?) so didn't feel guilty about being absent themselves.

Which one of the following is NOT an alternative possible significance to the evidence given?

- (A) The apprentices thought that they must be underpaid, so were less willing to work.
 - (B) The apprentices didn't value having extra vacation days or money.
 - (C) The apprentices thought that their work was seen by the company as unpleasant.
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It can be seen that the author sees the 45% rise in the absenteeism rate as being explained in terms of the apprentices seeing the bonus scheme as evidence of the absenteeism rate being high. In consequence, we're looking for an alternative possible explanation (or, in this example, given the negative nature of the question, two possible alternative explanations which leaves one that isn't).

(B) is correct. This might be the case, but it doesn't provide an explanation of why the absenteeism rate increased so much. If 'the apprentices didn't value having extra vacation days or money', the bonus scheme would have had no effect on the absenteeism rate either up or down.

(A) is incorrect. This provides an alternative explanation by linking the bonus scheme to a judgement that pay was low, with the consequence that work was seen as less attractive.

(C) is incorrect. This also provides an alternative explanation by linking the bonus scheme to a perception that the company was trying to compensate for the unpleasantness of the work by paying more to come in to do it.

PROBLEM-SOLVING

The questions in this category can include the following:

- identification or definition of a problem developed in a given passage;
- selection of information which would be relevant to solving a problem in a given passage;
- identification of a possible solution to a problem beyond that given;
- identification of data which could/would be relevant to a solution to a given problem;
- identification of a similar problem to that which is given.

In this section, the emphasis is on material in which problems can be identified and possibly solved. The items are not of the mathematical or diagrammatic type but, as with the content in the other questions, use material in which social, economic, and scientific problems and issues are used.

Here is an example of a question in the second category.

The shift towards the use of solar power is seen as contributing to a solution to the problem of global warming. However, by its very nature, the use of solar power brings its own problems. This is because solar energy production peaks around midday when demand for electricity is often low and falls when evening approaches, just when demand increases.

Which one of the following would NOT be relevant to a solution to the problem described in the passage?

(A) Nuclear power-plants have to keep running in order to be economically feasible.

(B) In California, where solar power is widely used, solar panels have to be switched off in the middle of the day.

(C) Hydroelectricity can be powered through the night by stored solar power.

(B) is correct. This does no more than present an example of the problem of supply and demand with solar power. Though it might be seen as a solution (by switching off the panels), it is not presented as one, with the words 'have to be switched off' showing this as a negative feature.

(A) is incorrect. This can be seen as part of the solution, given that nuclear power can be used to provide electricity during the times when solar power cannot. (It might be seen as a further negative

issue, with the words ‘have to keep running’ but, in this context, it can be seen as a positive by providing a solution.)

(C) is incorrect. This brings in two relevant points: solar power can be stored (so a solution) and it can be used to power other sources of electricity-generation.

It can be seen that, with questions like these, you need to think productively about how information can be interpreted in the context of the question. In this example, the two uses of the words ‘have to’ show how you need to be careful how you do this.

Here’s an example of a question in the fourth category.

A recent large survey shows that the rate of staff leaving their jobs is affected by many things. Though there are variations between industries in terms of staff turnover (with clothing retail having the highest level and airlines the lowest), there are significant features within industries that correlate with the levels of it. The most important of these is what is termed a ‘toxic culture’, a feature that is ten times more significant than the level of pay. Such a culture includes failure to promote diversity and inclusion, workers feeling disrespected, and unethical behaviour.

Which one of the following identifies what could be most relevant to solving the problem of a toxic culture in companies?

(A) how toxic culture varies from industry to industry

(B) the extent to which the level of pay can compensate for a toxic culture

(C) how employees of companies describe ‘unethical behaviour’

(C) is correct. Given that ‘unethical behaviour’ is one of the given features of a toxic culture, having this described would be relevant (indeed, essential) if the problem of a toxic culture is to be solved. (Otherwise how could it be solved?).

(A) is incorrect. The problem of a toxic culture is given as affecting all industries, being the ‘most important’ feature that correlates with the level of staff turnover. In this way, the content should be similar from industry to industry.

(B) is incorrect. The passage highlights that a toxic culture ‘is ten times more significant than the level of pay’ in terms of staff turnover. In consequence, it is very unlikely that pay could compensate for such a culture.

REASONING

The questions on reasoning are in these categories.

- Identifying what could be best concluded from a given passage
- Identifying missing words (including a missing sentence) in a given argument
- Identifying a possible counter-argument in response to a given argument

Here is an example of a question in the first category.

There is so much use of what are essentially vague words in business and other organisations. These include ‘sustainability’, ‘flexibility’, and ‘collaboration’. The first two are pretty meaningless and the third raises problems for staff. With collaboration, there will be times when too many staff are being consulted and so delaying decision-making. In addition, collaboration

can involve some staff having to do activities that are not relevant to being promoted, such as covering absences and doing mentoring.

Which one of the following is a conclusion that can justifiably be drawn from the above passage?

(A) Collaboration is acceptable only if its limitations are accepted and staff rewarded for doing it.

(B) Collaboration has no obvious benefits for the workplace.

(C) Collaboration needs to be defined carefully so that its meaning is clear.

(A) is correct. The two claims about collaboration in the third and fourth sentences support this conclusion by pointing to the problems that the conclusion takes into account.

(B) is incorrect. This is too strong a conclusion since the passage leaves it open that collaboration isn't always a negative process ('...there will be times...'; '...can involve...').

(C) is incorrect. The problem about lack of clear meaning is used by the author to refer to sustainability and flexibility, rather than collaboration.

This example shows that, in looking for what can justifiably be drawn from a passage, you need to look for claims that provide sufficient support for it.

The next example is one in which missing words or a sentence need(s) to be filled to create a completed argument.

Graphene is the thinnest known substance, consisting of a single layer of atoms bonded in a repeating hexagonal pattern. It is 200 times stronger than steel and is very lightweight. Though it was first isolated in 2004, it has not yet been produced in large quantities. ... It can be made from pollutants such as methane gas such as that emitted from landfill sites and oil production centres. It can be made from waste food, old tyres, and mixed plastic. It can also be added to concrete, making it 30% stronger, so needing less of it (which is significant given the high amount of CO₂ generated by the production of cement).

Which one of the following would best fit at ... to complete the argument?

(A) There are many reasons for this.

(B) This needs to change.

(C) It is largely unknown how significant this discovery was.

(B) is correct. This fits as a conclusion drawn from (supported by) the reasons that follow.

(A) is incorrect. Though this might be the case, and though, in one way, it fits with what comes just before, it doesn't fit with what follows (and does not turn the passage into an argument).

(C) is incorrect. Though this might be the case, and though what follows gives reasons why the discovery of graphene is significant, it doesn't work in producing an argument.

In the earlier section on analysis, you looked at the skill of finding a counter-argument presented in a given argument. The skill of identifying one that isn't already in a passage from given options is a little different, given that you have to consider what would fit as a counter-argument: here is the argument; here is one that goes against this specific argument.

COMMUNICATION QUESTIONS

As with the questions on critical thinking, there are five options to choose from, only one of which will be correct. Again, as with critical thinking items, the questions can be a negative form (with NOT being given in upper case to emphasise this).

The following gives you a sample passage, together with examples of questions that illustrate how the assessment works. Again, though in the test, items will have five options, these sample items do not (each having only three).

RECONNECTING DISCONNECTED CHAINS

The relationships between modern firms are not simple links connecting one producer with another, but a tangle of complex interactions. The breakdown of a seemingly insignificant link in the chain can disrupt firms that are on both the supply and demand side of it.

A recent paper on the oil shocks of the 1970s has shown that the linkages between firms and sectors meant that the overall economic effect was substantially larger than the direct impact on sectors that used oil. Another example was the earthquake that struck north-eastern Japan in 2011. Since the worst-hit areas accounted for less than a twentieth of GDP*, the disruption should not have had a significant national effect. But it did, such that the effect on supply chains accounted for more than half of the effect on Japanese growth.

Researchers have looked at the types of links and mechanisms that cause the shocks in one sector or area to have such a strong effect. The shutdown of a large (or significant) company is a clear way in which the economic impact can have a significant effect beyond it. Given this, it was not surprising that the CEO of Ford wanted lawmakers to bail out his competitors during the global financial crisis. If these failing carmakers went under, then so too might the auto sector's suppliers, with severe problems for Ford itself.

Another study of the effect of the Japanese earthquake shows how far the economic effect can go. It was not just Japanese companies that suffered, it was also American subsidiaries of Japanese firms, along with their suppliers.

But, in many ways, the effects of supply chain disruption can be made less serious, with the overall economy having a considerable ability to adjust. For example, in 2020, China banned the export of rare-earth metals to Japan. Because Japan is one of the world's biggest users of these, firms needed to find replacements, and did so quickly.

In addition, governments can play a significant role in helping firms to adjust to changes in the trading market. But they need to do this with care and consistency. A good example of how this can work is the change in the economy of India in the 1990s. The government reduced import tariffs, opened up markets, and reduced taxes all of which led to an increase in foreign investment and high economic growth. These changes were done gradually, and so enabled companies to adjust.

Furthermore, governments should take into account that businesses do not always do enough to ensure that their supply chains are strong enough. Evidence shows that companies might invest in dealing with this issue only if a good business case can be made to do so. But, even if they could be persuaded to make the necessary investment in protecting local supply chains, they might not worry enough about investing in protection against more international disruptions.

GDP is the Gross Domestic Product which is the value of all the finished goods and services produced within a country.

Which one of the following is the best summary of the passage?

(A) The complex interactions between companies highlight that supply chain issues have both negative and positive consequences.

(B) The issue of supply chain connections shows that not only can disruptions to them cause significant problems but that there are ways of minimising these disruptions.

(C) Supply chain disruptions can cause local, national, and international problems, all of which can be solved by government action.

(B) is correct. The passage describes problems caused by supply chain disruptions in the second, third, and fourth paragraphs, but also gives examples of solutions to these in the fifth and sixth paragraphs.

(A) is incorrect. The passage does not detail positive consequences from supply chain disruptions. (C) is incorrect. The two references to Japan do not fit with this.

Which one of the following best expresses the purpose of the reference to China in the fifth paragraph?

(A) to show that countries cannot successfully interrupt each other's supply chains

(B) to highlight that interruptions to supply chains are not always serious

(C) to show that companies and economies can adapt to disruptions in supply chains

(C) is correct. The reference to China is made in order to show both that 'the overall economy' can adjust to disruptions and that Japanese companies could solve the problem of disruptions. (A) is incorrect. This is too strong since there might be examples which the author does not consider. (B) is incorrect. China's action can be seen as very serious, though Japan dealt with it successfully.

Which one of the following would serve best as a final sentence to the passage?

(A) This is something that, in a globally connected world, governments should encourage them to look at seriously.

(B) International disruptions are likely to become more rather than less common.

(C) Companies that do not invest in protecting local supply chains will be more vulnerable to disruptions in international supply chains.

In answering this category of question, you need to look carefully at the content (including its sequence) so that you can see the direction of what's being given. In this example, (A) is correct. 'This' refers to what's in the last given sentence: 'investing in protection against more international disruptions'. Given that companies 'might not worry enough' about this issue, 'governments should encourage them to look at (it) seriously'.

(B) is incorrect. This might be seen as a good reason to do what is given in (A), but, as it stands, it doesn't flow from what has been given in the last given sentence.

(C) is incorrect. The last given sentence includes reference to companies being able to 'be persuaded to make the necessary investment in protecting local supply chains', so the direction of (C) is in a different direction.

Which one of the following is a wider theme that the passage is relevant to?

(A) the relationship between private companies and government policy

(B) the international nature of trade in and production of goods and services

(C) the way in which international crises can be managed

(B) is correct. Many of the sections of the passage are concerned with the general issue of how trade in and production of goods needs to be seen internationally. (This is especially so in the fourth, fifth, sixth, and seventh paragraphs). In addition, the significant way in which the Japanese economy was affected by the 2011 earthquake fits with the issue of international trade because of the important way in which Japan is involved with international trade.

(A) is incorrect. This is a much bigger theme than the focus on international supply chains can fit with. Though there are references to private companies (such as Ford) and to government policy (as with India), the focus is much narrower than (A).

(C) is incorrect. As with (A), this theme is too big since it goes beyond international trade into all international crises (including presumably political and military crises).

Which one of the following questions is the passage relevant to answering?

(A) How can the effects of disruptions in supply chains be managed?

(B) How will countries affected by the next big disruption to supply chains respond?

(C) How can companies respond to disruptions in supply chains caused by natural disasters?

(A) is correct. The sixth paragraph refers to the role of government having 'a significant role in helping firms to adjust to changes in the trading market' (and gives India as an example). In addition, the third paragraph gives information on how private companies could be protected from supply chain disruption by being given help from the government (in the Ford example).

(B) is incorrect. The passage gives information on how countries *could* manage the disruption, but not how they *will*.

(C) is incorrect. Though the earthquake in Japan in 2011 is given as an example of disruption to supply chains as a result of natural disasters, the passage doesn't give specific information on how companies can respond to such disasters.

Which one of the following is the best description of the function of paragraph 3?

(A) to highlight how the effects of an economic shutdown of companies in one sector are relevant to those in another

(B) to illustrate the way in which the economic impact of disruptions to supply chains can be greater than predicted

(C) to show how the economic impact of disruption to supply chains can have consequences that are not limited to individual companies

(C) is correct. The example of the CEO of Ford wanting government subsidies for his competitors illustrates how the effect of supply chain disruption can affect an industry rather than just one company in it. (A) is incorrect. The example of Ford is given in order to show the effect of disruption within a sector rather than across sectors. (B) is incorrect. Though there is reference to how significant an effect a shutdown of a large company can have, this does not mean that the effect can be greater than predicted.
