Join Fb and Telegram group for CAT

CAT Preparation - CAT-O-PEDIA Public Group

https://t.me/joinchat/C16iQ1gzKTiCaSwfFcT1Vw

AIMCAT 2021

VARC

DIRECTIONS for questions 1 to 5: The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

In a world where the majority of analysts are bi- if not multi-lingual, the question of how language affects both the analytic process and analytic product is an important one. Emotion, language processing and cognitive biases aside, the intriguing question remains: Would you make the same decision in English as you would in, say, Chinese? Most analysts would likely answer yes to this question, but recent research led by Boaz Keysar suggests otherwise.

The study concludes that “people are not as risk-averse in a foreign language as they are in their native tongue.” Being more willing to take on risk might sound like a dangerous characteristic to possess from an intelligence analyst’s perspective. In this case, however, being less risk-averse means that people more systematically assessed the problem and came to a more rational conclusion. At the root of this finding is the conclusion that “people rely more on systematic processes…when making decisions in a foreign language.” … The ability to make decisions driven more by rational thought and less by emotion is a capability to which every analyst likely aspires.

…Keysar showed that while participants made different decisions based on how the problem was framed (as more or less risky), they made the same decision for both risk conditions when using their foreign language. The three groups of participants had English as a first language and Japanese as a second, Korean as a first language and English as a second or English as a

first language and French as a second, indicating that this effect is replicable within and across language family boundaries.

So why, then, do we make more rational, less biased decisions in our second language than in our first? It largely has to do with the lack of “emotional resonance” that we derive from foreign language text… [P]eople perceive messages delivered in their second language as less emotional (and consequently less impactful) than messages delivered in their first language…

How we perceive emotion then ties directly to our internal cognitive processes. According to Daniel Kahneman, the most widely respected authority on these internal processes, we have two broad systems of thinking – System 1 and System 2. System 1 is automatic while System 2 is more deliberate and rational. Think of System 1 as the mechanism driving impulse buys and split-second decisions, whereas System 2 is more like making a grocery list in advance...

Cognitive biases originate in System 1 thinking along with our gut instincts, emotional reactions and a less credible substantiation for intelligence analysis, intuition. Consequently, it makes sense to pursue analysis derived from System 2 processes as it will likely be less biased, more rational and more systematically attained. The argument here is that conducting analysis within the domain of a second, third or fourth language will lead to an increased reliance on System 2 processes, thereby reducing bias and ultimately resulting in more systematically derived analysis.

[W]ith bilingualism now practically a pre-requisite for analysis work, the benefit of this argument to intelligence analysts is obvious. The traditional view is that an analyst is at an automatic disadvantage when operating in a non-native linguistic domain to conduct analysis, fearing the loss of meaning and context. The argument here, however, sheds new light on the quality of the analytic product obtained in a non-native language.

Q1. Which of the following agrees with the conclusion cited by Keysar’s study?

a) **people analyse more systematically in their native language than in a foreign language.**

b) **people are more rational when using their native language than when they are using a foreign language.**

c) **people cannot be trusted to make logical decisions in a foreign language.**

d) **people take a more logical and systematic method to make decisions in a foreign language.**

Number of words and Explanatory notes for RC:

Number of words: 550

The conclusion cited by Keysar's study can be understood from: 'The study concludes that "people are not as risk-averse in a foreign language as they are in their native tongue."' This is further explained by stating that being less risk-averse corresponds to more systematic thinking in the line: 'In this case, however, ***being less risk-averse means that people more systematically assessed the problem*** and came to a more rational conclusion'.

Option A: This contradicts the above sentences, as people analyse more systematically in a non-native language. Hence, Option A is not the answer.

Option B: Consider the sentences: 'Why do ***we make more rational, less biased decisions in our second language than in our first***? It largely has to do with the ***lack of "emotional resonance***" that we derive from foreign language text'. It is clear that people are less rational in their native language than they are in a non-native language. Hence, Option B contradicts the study.

Option C: People make more rational or logical choices in a non-native language because of the lack of emotional resonance. Hence, Option C contradicts the study.

Option D: This depicts the conclusion of the study aptly – that people are more systematic in decision-making in a non-native language and hence, are less risk-averse. Option D is the answer. Choice (D)

Q2. It can be inferred from the fourth para ('So why…in their first language') that:

a) we associate more emotion and impact with our second language.

b) rationality and emotion don't go hand in hand.

c) bias and emotion don't go hand in hand.

d) messages are conveyed emotionally only in the first language.

Number of words and Explanatory notes for RC:

Number of words: 550

Consider the sentences: 'So ***why, then, do we make more rational, less biased decisions in our second language than in our first***? It largely has to do with the lack of "emotional resonance" that we derive from foreign language text… [P]eople perceive ***messages delivered in their second language as less emotional*** (and consequently less impactful) than messages delivered in their first language…'
Option A: The above lines clearly mention that people perceive messages delivered in their second language as less emotional and hence, less impactful. So, Option A cannot be inferred as it contradicts the above information.
Option B: In the first underlined sentence the author states that we make 'rational, less biased' decisions in our second language and that has to do with the fact that messages in second language are perceived to be less emotional. So, there is a correlation between rationality, lack of bias, and lack of emotion. So, rationality and emotion don't go hand in hand. This can be inferred. Option B is, therefore, a good choice.
Option C: Bias and emotion are connected and go hand in hand, since less bias corelates to less emotional resonance. Hence, Option C is not the answer.
Option D: Whether messages with emotion are conveyed only in the first language has not been discussed in the passage. The para talks about messages being more emotional in the native language. Option D is not the answer. Choice (B)

Q3. Which of the following, if true, refutes the author's main point in the passage?

a) The quality of analytic product in the native tongue is below par.

b) Analysts are more rational when they are proficient in using a language, irrespective of whether it is their first or second language.

c) Analysts can't be competent unless they are bilingual.

d) The native language expertise is the most important parameter to recruit intelligence analysts.

Number of words and Explanatory notes for RC:

Number of words: 550

Consider the sentence: 'The argument here, however, sheds new light on the quality of the analytic product obtained in a non-native language.' The new light referred to here is the fact that the quality of analytic product in a non-native language could be high considering that the assessing is much more rational and systematic. Something that refutes the author's main point should assert either that thinking in native language is more systematic or thinking in non-native language is emotionally biased/unsystematic.

Option A: 'Below par' firstly is a vague expression as it doesn't clarify in tangible terms what it means. While quality of analytic product in native language is not as high as non-native language as inferred from the passage, we cannot be sure of the absolute quality and we cannot label it as 'below par'. Hence, Option A is not the answer.

Option B: The proficiency refers to the skill level. The passage conveys that there is more emotional resonance and hence, less rationality in analysis in one's native language, making analysis in the non-native language more systematic. This option tries to suggest that rationality is proportional to expertise with a language, ignoring the emotional resonance as the main parameter. This option refutes the conclusion of the passage.

Option C: Competency of the analysts and their language proficiency have not directly been analysed in the passage. Of course, it can be inferred that those with a second language proficiency will make for better analysts because second language analysis is more rational and less biased. In that case, Option C doesn't refute the main argument in the passage.

Option D: While this may affect the quality of the analytic product, given the inferences from the passage (and the importance of the second language) the selection of analysts is not relevant as far as the main arguments of the passage, leave alone refuting them. Option D is not the answer. Choice (B)

Q4. The author is likely to agree with all the following with respect to intelligence analysts EXCEPT:

a) cognitive biases correspond to System 1 thinking.

b) intuition, gut instincts and emotional reactions are not systematically derived.

c) System 2 processes result in more unbiased analysis.

d) analysis in native language relies more on System 2 thinking.

Number of words and Explanatory notes for RC:

Number of words: 550

Option A: From 'Cognitive biases originate in System 1 thinking' it can be clearly ascertained that the author will approve of the statement. Hence, Option A is not the answer.
Option B: From 'Cognitive biases originate in System 1 thinking along with our gut instincts, emotional reactions and a less credible substantiation for intelligence analysis, intuition' we can say that the author will agree with this option. Hence, Option B is not the answer.
Option C: Consider the sentence: 'it makes sense to pursue ***analysis derived from System 2 processes as it will likely be less biased***, more rational and more systematically attained'. It is clear that System 2 analysis is more rational and hence, less biased, taking place systematically. The author will agree with this statement. Option C is not the answer.
Option D: Consider the sentences: The argument here is that conducting analysis within the ***domain of a second, third or fourth language will lead to an increased reliance on System 2 processes***, thereby reducing bias and ultimately resulting in more systematically derived analysis. These sentences clearly refute the choice that native language analysis relies more on System 2 thinking (it may, a bit. But not predominantly on System 2). The author will not agree with the statement. Hence, Option D is the answer. Choice (D)

Q5. Which of the following best summarises the relationship between rationality and risk-taking appetite?

a) Rationality is affected by emotional connection to the language.

b) Greater willingness to take risk is an indicator of rationality.

c) Greater willingness to avoid risk is an indicator of rationality.

d) Risk-taking appetite influences how systematic one's thinking is.

Number of words and Explanatory notes for RC:

Number of words: 550

Consider the sentences: '***being less risk-averse means that people more systematically assessed the problem and came to a more rational conclusion***.
At the root of this finding is the conclusion that "people rely more on systematic processes…when making decisions in a foreign language."
Also consider: 'it makes sense to pursue analysis derived from System 2 processes as it will likely be less biased, ***more rational*** and more systematically attained.'
Being less risk-averse has been equated to more systematic thinking ***leading to rational conclusions***. Less risk aversion equates to higher risk appetite.
Option A: Rationality is affected by emotional connection to the language as mentioned in the passage. We understand that our decision-making is less rational and more biased in our native language because of the emotional resonance. However, this option doesn't connect rationality to risk-appetite. Hence, Option A is not the answer.
Option B: Greater willingness to take risk or a higher risk-appetite shows that an individual is thinking about it systematically and in a more rational way. Option B is apt.
Option C: Low risk-appetite or greater willingness to avoid risk isn't an indicator of a rational conclusion, as the reverse is clearly stated in the passage (Underlined above). Hence, Option C is not the answer.
Option D: It is the other way around. How systematic one is in thinking (System 2 process as opposed to System 1) determines how much risk-appetite one has. It is not risk-appetite that determines how a person thinks. Hence, Option D is not the answer.

Choice (B)

DIRECTIONS for questions 6 to 10: The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

Livers and alcohol do not get on well together. That is well known. But precisely how alcohol destroys the liver of someone who drinks too much has been a mystery. Though alcohol (technically, ethanol which has two carbon atoms) wreaks some damage directly, experiments suggest this is by no means the whole explanation. The serious and irreversible harm of cirrhosis seems to have another cause, hitherto unknown. Now, though, perhaps it has been unmasked. For a team of medical researchers led by Bernd Schnabl of the University of California, San Diego suggests that the culprit is alcohol's effect on the gut, and the bacteria therein.

Fortunately for those who like a pint or a dram, the liver is a regenerative marvel. New cells constantly take the places of old ones. Indeed, huge chunks can be cut from the organ, only to grow back within days. This is just as well, for one of the liver's tasks is to deal with the stream of toxic chemicals people ingest as part of their food and drink. Ethanol is one of these. Though large quantities may induce a build-up of hepatic fat known as steatosis, abstinence will often reverse this. But even the liver can stand only so much. ....

One curiosity is that certain antibiotics seem to ameliorate alcohol's effect on the liver. The livers of mice that were given antibiotics which clear their intestines of bacteria before they are dosed with

ethanol suffer far less damage than those of similar animals not dosed with antibiotics. Five years ago that knowledge prompted Dr Schnabl to start looking into the relationship between alcohol and gut bacteria. His latest findings have just been published in Cell Host and Microbe.

Over the course of his research, Dr Schnabl found that heavy consumption of alcohol hampers the intestine's antibacterial defence system. In particular, it suppresses production of two proteins called REG3B lectin and REG3G lectin. These keep the number of bacteria in the gut under control, so their sudden absence leads to a population explosion. And that, Dr Schnabl hypothesised, lets bacteria escape through the intestinal wall to the liver.

To test this idea he designed an experiment. For eight weeks, he and his colleagues fed ethanol both to ordinary mice and to mice genetically engineered to lack the two pertinent lectin molecules. They also engineered some of the rodents' gut bugs to make the bacteria in question fluoresce. This let them track these bugs, and see if any left the intestines.

They did. As the mice were exposed to more and more alcohol, the glow-in-the-dark bacteria underwent population explosions that let them escape the intestines. Once out, they migrated to the liver, where they triggered strong immune reactions. These drew large numbers of white blood cells into the liver, causing inflammation. The white cells themselves engulf and consume bacteria, but prolonged inflammation also damages host tissue. Both groups of mice were affected, but the effect was more intense in the lectin-deficient animals. In both their livers and their intestines, their bacterial populations were 50% larger than those of the control mice. As a consequence, they ended up with livers that were much more badly damaged.

The researchers then tried things in reverse. They ran the experiment with mice engineered to produce more lectins than normal, and found these animals could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.

All this suggests that tinkering with the gut bacteria of alcoholic people might help.

Q6. The passage outlines several hypotheses to arrive at the most convincing explanation that

a) suppressing the production of lectins is a key step in preventing hepatic cirrhosis.

b) antibiotics can exacerbate the effect of alcohol on the liver.

c) alcohol consumption causes the increased intestinal bacterial populations to escape to the liver, causing tissue damage.

d) alcohol consumption causes inflammation and tissue damage in the intestinal walls due to mass migration of bacteria from the liver.

Number of words and Explanatory notes for RC:

Number of words: 566

Option A: 'Heavy consumption of alcohol hampers the intestine's antibacterial defence system. In particular, it suppresses production of two proteins called REG3B lectin and REG3G lectin. These keep the number of bacteria in the gut under control, so their sudden absence leads to a population explosion. And that, Dr Schnabl hypothesised, lets bacteria escape through the intestinal wall to the liver', where they cause host tissue damage. So, choice A is distorted. From the penultimate para, we can infer that production of lectins prevents liver damage, when the animal is exposed to alcohol.
Option B: 'One curiosity is that certain antibiotics seem to **ameliorate** alcohol's effect on the liver. The livers of mice given antibiotics which clear their intestines of bacteria before they are dosed with ethanol suffer far less damage than those of similar animals not so dosed.' Note that exacerbate means to worsen and this is the opposite of ameliorate (to make better). So, choice B is contradicted in the passage.
Option C: 'The serious and irreversible harm of cirrhosis seems to have another cause, hitherto unknown. Now, though, perhaps it has been unmasked.' Researchers suggest that 'the culprit is alcohol's effect on the gut, and the bacteria therein'. .... 'As the mice were exposed to more and more alcohol, the glow-in-the-dark bacteria underwent population explosions that let them escape the intestines. Once out, they migrated to the liver, where they triggered strong immune reactions. These drew large numbers of white blood cells into the liver, causing inflammation.' Hence choice C is the correct answer.
Option D: Choice D is distorted. Alcohol consumption causes inflammation and tissue damage in the **liver** due to mass migration of bacteria from the **gut**. Choice (C)

Q7. What does the author imply when he says "But even the liver can stand only so much." (para 2)?

a) Abstinence from alcohol can enhance the regenerative quality of the liver.

b) Excessive alcohol consumption can lead to irreversible liver damage.

c) The liver functions normally in those individuals whose alcohol intake is limited to a pint or a dram.

d) Abstinence from alcohol can, to a small extent, reverse the process of infiltration of liver cells with fat but the liver eventually fails due to an overdose of antibiotics.

Number of words and Explanatory notes for RC:

Number of words: 566

The second para discusses the regenerative capabilities of the liver. However, the para ends with a caution, 'But even the liver can stand only so much.' This indicates that there is a limit to the regenerative capabilities of the liver.
Option A: 'Fortunately for those who like a pint or a dram, the liver is a regenerative marvel. New cells constantly take the places of old ones.' But choice A does not explain the contrast suggested by the contrast conjunction 'but' in the question statement. So choice A is not related to the sentence in the question.
Option B: 'The **serious and irreversible harm of cirrhosis** seems to have another cause, hitherto unknown. Now, though, perhaps it has been unmasked. For a team of medical researchers led by Bernd Schnabl of the University of California, San Diego suggest that the culprit is alcohol's effect on the gut, and the bacteria therein.' .... 'Though large quantities may induce a build-up of hepatic fat known as steatosis, abstinence will often reverse this. **But** even the liver can stand only so much.' .... Choice B is the correct explanation for the sentence given in quotes in the question.
Option C: 'Fortunately for those who like a pint or a dram, the liver is a regenerative marvel. New cells constantly take the places of old ones.' This option mentions the regenerative ability of the liver but the statement in the question is not a positive statement on the regenerative capabilities. Choice C does not explain the contrast suggested by the contrast conjunction 'but' in the question statement. Choice C runs tangent to the sentence in the question.
Option D: 'Though large quantities may induce a build-up of hepatic fat known as steatosis, abstinence will often reverse this. But even the liver can stand only so much.' .... (Steatosis refers to the infiltration of liver cells with fat, associated with disturbance of the metabolism by, for example, alcoholism, malnutrition, pregnancy, or drug therapy.) 'One curiosity is that certain antibiotics seem to ameliorate *(make better)* alcohol's effect on the liver.' Note that this sentence comes after the quoted sentence in the question. ("The liver eventually fails due to an overdose of antibiotics" is rendered incorrect.) Choice D can be eliminated. Choice (B)

Q8. Of the following, which would add the least depth to the author's argument?

a) A comparative analysis of the bacterial populations in the intestines of alcoholics and non-alcoholics.

b) Preliminary results of experiments indicating that the mentioned research findings from mice apply to humans as well.

c) Assessment of the reaction of the rodent's antibacterial defence system in its gut to alcohol exposure.

d) A study citing a new way to boost production of REG3B and REG3G lectins in alcoholic people.

Number of words and Explanatory notes for RC:

Number of words: 566

'Over the course of his research, Dr Schnabl found that heavy consumption of alcohol hampers the intestine's antibacterial defence system. In particular, it suppresses production of two proteins called REG3B lectin and REG3G lectin. These keep the number of bacteria in the gut under control, so their sudden absence leads to a population explosion (of bacteria). And that, Dr Schnabl hypothesised, lets bacteria escape through the intestinal wall to the liver.'

Option A: The passage begins by saying: 'The serious and irreversible harm of cirrhosis seems to have another cause. A team of medical researchers suggest that the culprit is alcohol's effect on the gut, and the bacteria therein.' The passage concludes by saying: 'All this suggests that tinkering with the gut bacteria of alcoholic people might help.' Choice A would further the understanding of alcohol's effect on the gut in alcoholic people, with the gut bacterial populations of non-alcoholics probably serving as a control. Hence, choice A will add more depth to the research findings mentioned in the passage. Choice A is not the answer.

Option B: The passage talks about the consequence of ethanol exposure both to ordinary mice and to mice genetically engineered to lack the two lectin molecules (REG3B lectin and REG3G lectin). It then explains the findings from the reverse experiment i.e. mice engineered to produce more lectins than normal, and control mice. Hence, studies which can replicate these findings in humans would definitely throw more light on how hepatic cirrhosis or liver damage is caused, chiefly by delineating the role of alcohol's effect on the gut, and the bacteria therein. Choice B will add more depth to the research findings mentioned in the passage. Choice B is not the answer.

Option C: Choice C has already been covered as part of the experimental procedure discussed in the passage. Refer to para 4 and the remaining paras. Choice C would add the least depth to the author's argument.

Option D: 'They ran the experiment in reverse, with mice engineered to produce more lectins than normal, and found these animals could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.' All this suggests that tinkering with the gut bacteria of alcoholic people might help. Hence, choice D will further the claim made by the author in the passage and is not the answer.

Choice (C)

Q9. Which of the following choices correctly summarizes the consequence(s) of alcohol exposure in lectin-augmented mice as has been depicted in the passage?

a) They showed signs of liver damage even though there were no large bacterial populations in their intestines.

b) They exhibited increased bacterial populations in their guts without any sign of liver damage.

c) Their livers had 50% greater bacterial populations and were more badly damaged than those of the control mice.

d) They could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.

Number of words and Explanatory notes for RC:

Number of words: 566

In the livers and the intestines of lectin-deficient animals, 'the bacterial populations were 50% larger than those of the control mice. As a consequence, they ended up with livers that were much more badly damaged.'
'Mice engineered to produce more lectins than normal… could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.'
Option A: They ran the experiment with mice engineered to produce more lectins than normal, and found these animals 'could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.' So choice A is incorrect.
Option B: 'The researchers then tried things in reverse. They ran the experiment with mice engineered to produce more lectins than normal, and found these animals could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.' Hence choice B is incorrect and is not the answer.
Option C: Refer to the antepenultimate para. Choice C speaks about the (intense) effect in the lectin-deficient animals (and not lectin-augmented mice). 'In both their livers and their intestines, their bacterial populations were 50% larger than those of the control mice. As a consequence, they ended up with livers that were much more badly damaged.' Choice C is not the answer.
Option D: 'The researchers then tried things in reverse. They ran the experiment with mice engineered to produce more lectins than normal, and found these animals could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.' Hence choice D is correct and is the answer.

Choice (D)

Q10. According to the passage, the awareness of which of the following formed the rationale for Dr Schnabl to begin his investigations into the relationship between alcohol and gut bacteria?

a) Livers and alcohol do not share a great relationship together.

b) The livers of mice that were given antibiotics before they are exposed to ethanol suffer far less damage than the livers of similar animals not dosed with antibiotics but exposed to ethanol.

c) Production of REG3B lectin and REG3G lectin falls with excessive alcohol consumption and this promotes an increase in the population of gut bacteria.

d) Tinkering with the gut bacteria of alcoholic people is possible.

Number of words and Explanatory notes for RC:

Number of words: 566

Option A: 'Livers and alcohol do not get on well together. That is well known. But precisely how alcohol destroys the liver of someone who drinks too much has been a mystery.' Choice A is not the reason for the question.
Option B: 'The livers of mice that were given antibiotics which clear their intestines of bacteria before they are dosed with ethanol suffer far less damage than those of similar animals not so dosed. Five years ago that knowledge prompted Dr Schnabl to start looking into the relationship between alcohol and gut bacteria.' Hence choice B is the correct answer.
Option C: Choice C is incorrect as can be understood from the fourth para. '**Over the course of his research,** Dr Schnabl found that heavy consumption of alcohol hampers the intestine's antibacterial defence system. In particular, it suppresses production of two proteins called REG3B lectin and REG3G lectin. These keep the number of bacteria in the gut under control, so their sudden absence leads to a population explosion. **And that, Dr Schnabl hypothesised**, lets bacteria escape through the intestinal wall to the liver.' But choice C was not the knowledge that led Dr Schnabl to begin his investigations into the relationship between alcohol and gut bacteria. Choice C was experimental evidence over the course of Dr Schnabl's research, it led to a hypothesis which was further tested by him.
Option D: 'All this (the evidence presented) suggests that tinkering with the gut bacteria of alcoholic people might help.' Choice D is a fallout of Dr Schnabl's investigations and not the rationale for Dr Schnabl to begin his investigations into the relationship between alcohol and gut bacteria. Choice D is not the answer.

Choice (B)

DIRECTIONS for questions 11 to 15: The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

…During the Cold War, the tensions that defined the world were ideological and geopolitical…And policymakers who could combine an understanding of both…ascended to the top of the heap... Once the Cold War ended, however, geopolitical and ideological issues faded in significance, overshadowed by the rapidly expanding global market as formerly socialist countries joined the Western free trade system. All of a sudden, the most valuable intellectual training and practical experience became economics, which was seen as the secret sauce that could make and unmake nations.

In the three decades since the end of the Cold War, economics has enjoyed a kind of intellectual hegemony... Economists have been much sought after by businesses, governments, and society at large, their insights seen as useful in every sphere of life.

That hegemony is now over. Things started to change during the 2008 global financial crisis, which had a far greater impact on the discipline of economics than is commonly understood. As Paul Krugman noted in a September 2009 essay in the New York Times Magazine, "Few economists saw our current crisis coming, but this predictive failure was the least of the field's problems. More

important was the profession's blindness to the very possibility of catastrophic failures in a market economy." … In October 2008, Greenspan, a lifelong libertarian, admitted that "the whole intellectual edifice … collapsed in the summer of last year."

For Krugman, the reason was clear: Economists had mistaken "beauty, clad in impressive-looking mathematics, for truth." In other words, they'd fallen in love with the supposed rigor that derives from the assumption that markets function perfectly. But the world had turned out to be more complex and unpredictable than the equations.

…Modern-day economics had been built on certain assumptions: that countries, companies, and people seek to maximize their income above all else, that human beings are rational actors, and that the system works efficiently. But over the last few decades, compelling new work by scholars such as Daniel Kahneman, Richard Thaler, and Robert Shiller has begun to show that human beings are not predictably rational; in fact, they're predictably irrational…

In the social sciences, it is generally understood that theoretical assumptions never mirror reality, but do provide a powerful way to understand and predict. What the behavioural economists showed is that the assumption of rationality actually produces misunderstandings and bad predictions. It is worth noting that one of the very few economists who predicted both the dot-com bubble that caused the crash of 2000 and the housing bubble that caused the crash of 2008 was Shiller, who won the Nobel Prize in 2013 for his work in behavioural economics.

… [I]n the heady days of post-Cold War globalization, when the world seemed to be dominated by markets and trade and wealth creation, it became the dominant discipline, the key to understanding modern life. That economics has since slipped from that pedestal is simply a testament to the fact that the world is messy. The social sciences differ from the hard sciences because "the subjects of our study think," said Herbert Simon, one of the few scholars who excelled in both. As we try to understand the world of the next three decades, we will desperately need economics but also political science, sociology, psychology, and perhaps even literature and philosophy.

Q11. The author's central argument is repudiated by which of the following counter-arguments?

a) In the long run, the markets always work efficiently.

b) The direction of the markets can always be predicted accurately over a long period.

c) Assumptions of human logic and rationality are misplaced in predicting markets.

d) Group decisions that affect the markets are usually rational and predictable.

Number of words and Explanatory notes for RC:

Number of words: 548

Option A: Consider the sentences: '*Modern-day economics had been built on certain assumptions: that countries, companies, and people **seek to maximize their income above all else**, that **human beings are rational actors**, and that **the system works efficiently**. But over the last few decades, compelling new work … has begun to show that human beings are not predictably rational; in fact, they're **predictably irrational**…*' Also consider the sentences: '*they'd (economists) fallen in love with the supposed rigor that **derives from the assumption that markets function perfectly**. But the world had turned out to be more complex and **unpredictable than the equations**.*'
From the underlined portions we can understand that the author's core argument is that human beings are predictably irrational and that the assumption that the markets function perfectly or efficiently is a myth. Hence, Option A repudiates the author's argument and could be the answer.
Option B: While this seems like a statement that opposes the author's message, it needs to be understood that the author's primary issue is not about whether the markets are predictable or unpredictable. This is evident from Krugman's quote, "this predictive failure was the least of the field's problems.' Rather, it is about the assumptions we make in order to predict the markets. Those predictions (the rationality of human decisions and the efficiency of the markets) are incorrect according to the author. This statement is in sync with what the author is trying to demonstrate – '*What the behavioural economists showed is that the assumption of rationality actually produces misunderstandings and bad predictions.*' Option B is not the answer.
Option C: This is in fact, one of the key arguments presented by the author in the passage and can be understood from '*human beings are not predictably rational; in fact, they're **predictably irrational***'. Hence, this option doesn't repudiate the author's main arguments. Option C is not the answer.
Option D: In the passage, the author doesn't discriminate between individual and group decisions or their efficacy. Hence, Option D is easy to eliminate.

Choice (A)

Q12. The phrase 'the whole intellectual edifice' is:

a) an argument presented to show that the hegemony of economists is now over.

b) an accurate description of the current importance given to economics.

c) an analogy to explain how the 2008 financial crisis exposed the shortcomings of economists' assumptions.

d) a metaphor to explain the assumptions of economics in a market economy.

Number of words and Explanatory notes for RC:

Number of words: 548

Consider the sentences: "*Few economists saw our current crisis coming, but this predictive failure was the least of the field's problems. More important was* ***the profession's blindness to the very possibility of catastrophic failures in a market economy****." … In October 2008, Greenspan, a lifelong libertarian,* ***admitted*** *that "the whole intellectual edifice … collapsed in the summer of last year."* From this and the subsequent para we can understand that the author is elucidating how it was finally understood that economists had been proven wrong in their assumptions.

Option A: While it is true that the para talks about the end of the hegemony of economists, the aforementioned line is not an argument (arguments present facts and opinions, this line is more of a concluding line, a remark from a noted personality). That the hegemony is over is already understood and this sentence doesn't have any bearing on that. In short, the expression 'the whole intellectual edifice' cannot be equated to an argument. Hence, Option A is not the answer.

Option B: Laden with figure of speeches (which are used by the author to explain something to readers in a different set of words/expressions), the statement can't be called accurate to start with. Secondly, an edifice cannot be equated to the 'importance' of economics. Edifice represents more the assumptions made by economists about human decisions and the decisions made by markets. Hence, Option B is not the answer.

Option C: An analogy aims to elucidate an idea by comparing it to something that is familiar. Metaphors and similes are tools used to draw an analogy. The analogy is more extensive and elaborate than either a simile or a metaphor. Here we are only looking at one phrase, while an analogy is more like a parallel reasoning comparison/example. Hence, Option C is not the answer.

Option D: The phrase 'the whole intellectual edifice' is a metaphor (a figure of speech in which a word or phrase is applied to an object or action to which it is not literally applicable) as it is a comparison. The assumptions of economics have been compared to an edifice, and that is now collapsing. Hence, Option D is the answer.

Choice (D)

Q13. Economists became very important in the post-Cold War era because:

a) it was an era defined by ideological and geopolitical tensions.

b) the well-being of nations seemingly depended on their comprehension of economics.

c) there were very few economists because of which they were sought after by businesses.

d) the theoretical assumptions of economics provide a powerful way to understand and predict market behaviour.

Number of words and Explanatory notes for RC:

Number of words: 548

The answer can probably be found in the sentences: '*Once the Cold War ended, however, **geopolitical and ideological issues faded** in significance, overshadowed by the **rapidly expanding global market** as formerly socialist countries joined the Western free trade system. All of a sudden, the most valuable intellectual training and practical experience became economics, which was seen as the **secret sauce that could make and unmake nations**. In the three decades since the end of the Cold War, economics has enjoyed a kind of intellectual hegemony... Economists have been **much sought after by businesses, governments, and society at large**, their insights seen as useful in every sphere of life.*'

Option A: From '*Once the Cold War ended, however, **geopolitical and ideological issues faded** in significance*', we can understand that this choice is factually incorrect. Hence, it is easy to eliminate.

Option B: This can be understood from: 'All of a sudden, the most valuable intellectual training and practical experience became economics, which ***was seen as the secret sauce that could make and unmake nations***.' So, it is safe to say that economists became instrumental for nations. Option B is the answer.

Option C: It is the importance of the field rather than the dearth of supply of economists that spiked up the demand for economists. Hence, Option C is not the answer.

Option D: This was indeed the misconception that was eventually exposed by the 2008 financial crisis. However, this misconception is not the origin point of what made the economists so sought after. These assumptions were indeed part of the field of economics. However, they became sought after because of the market growth and free trade. Hence, Option D is not the answer. Choice (B)

Q14. All the following indicate the flaw in modern-day economists mistaking 'beauty, clad in impressive-looking mathematics, for truth', EXCEPT:

a) they believed that the system works efficiently.

b) they believed that world events could be predicted with flawless economics.

c) they assumed that people are driven by rational motives.

d) they assumed that maximising income has to be the predominant goal in any system.

Number of words and Explanatory notes for RC:

Number of words: 548

The answer can be understood from the sentences: '*For Krugman, the reason was clear: Economists had mistaken "beauty, clad in impressive-looking mathematics, for truth." In other words, they'd fallen in love with the supposed rigor that derives from the assumption that markets function perfectly. But the world had turned out to be more complex and unpredictable than the equations.*'

Option A: Economists assumed that the system works efficiently and that free markets function perfectly. However, that wasn't true. Hence, this option does indicate a flaw, and is not the answer.

Option B: Indeed '*the world had turned out to be more complex and unpredictable than the equations*'. However, world events haven't been discussed and neither has their predictability or the absence of it thereof has been mentioned. Hence, Option B is the answer.

Option C: From '*compelling new work by scholars such as Daniel Kahneman, Richard Thaler, and Robert Shiller has begun to show* ***that human beings are not predictably rational; in fact, they're predictably irrational***', we can understand that one of the fallacious assumptions made by the economists was that people are predictably rational. Hence, Option C is not the answer.

Option D: From '*that countries, companies, and people seek to maximize their income above all else*', it can be understood that this was one of the fallacious assumptions made by the economists. Hence, Option D is not the answer. Choice (B)

Q15. According to Herbert Simon, the basic difference between hard sciences and social sciences is that:

a) social sciences involve subjects which help understand unpredictability.

b) hard sciences are a lot more rigorous with assumptions than social sciences.

c) social sciences are irrational whereas hard sciences are rational.

d) social sciences deal with unpredictable subjects unlike in case of hard sciences.

Number of words and Explanatory notes for RC:

Number of words: 548

The answer can be understood from the sentence: *The social sciences differ from the hard sciences because "**the subjects of our study think**," said Herbert Simon, one of the few scholars who excelled in both.* In other words, humans think and that is why the world is messy.
Option A: In this option, the term 'subjects' seems to refer to areas of study. We aren't discussing the composition of social sciences and the subjects it may include or exclude. The difference is more to do with the subjects (who we study) and not the subjects (as in topics). Besides we haven't discussed any subjects or topics that help understand predictability bettter. Hence, Option A is not the answer.
Option B: While the passage discussed the rigors of economics and its assumptions, the rigor of hard and social sciences hasn't been discussed. Hence, Option B is not the answer.
Option C: The rationality of the stream (social science or hard science) itself hasn't been discussed. It is the rationality of the subjects (about whom we are studying) that has been discussed. Hence, Option C is not the answer.
Option D: 'The subjects of our study think' has been mentioned to indicate that predicting outcomes is not as easy, and that the world is messy and knowledge of economics alone will not help. Hence, Option D is the answer. Choice (D)

DIRECTIONS for questions 16 to 19: The passage given below is accompanied by a set of four questions. Choose the best answer to each question.
A striking new study has raised eyebrows this week with its alarming conclusions about a possible consequence of future climate change. Under an extreme climate change scenario, the study found that huge tracts of stratocumulus clouds in the Earth's atmosphere — which help to reflect sunlight away from the planet and cool the climate — could disintegrate.

If that happens, global temperatures could skyrocket by 8 degrees Celsius, or more than 14 degrees Fahrenheit, the study suggests. And that's on top of the global warming that would have already occurred by that point...

Still, there are a few important caveats. First, the circumstances required to cause such an event are fairly extreme as far as climate scenarios go — although not impossible. The study finds that the cloud breakup would probably start to occur once atmospheric carbon dioxide levels reach about 1,200 parts per million, or triple their current levels.

But scientists generally suggest that under a business-as-usual climate scenario, in which no action is taken to curb global greenhouse gas emissions in the future, CO2 levels will probably be approaching 1,000 ppm around the end of the century.

…Scientists increasingly suggest that clouds may be among the most important — although also some of the most complex — regulators of the global climate. Depending on local conditions, clouds may enhance warming by trapping heat, or they may help cool the climate by reflecting sunlight back

into space…But clouds are notoriously difficult to model, even on a small scale. There are many factors that affect where and when they form and how big they grow — and it's especially hard to simulate their behaviour all over the globe.

It's even more difficult to project their responses to future climate change...So finding better ways to capture clouds in climate models is one of the fastest-growing priorities among climate scientists. The new study represents one approach to the problem, using a technique known as a "large-eddy simulation." It models the behaviour of tiny particles and other fine details that affect the formation of individual clouds, which regular climate models have difficulty capturing. The study conducted an eddy simulation, modelling the formation of clouds over one specific patch of the ocean, and then extrapolated those results up to a global scale.

Large-eddy simulations are currently one of the most useful ways to model the physics of individual clouds. But while they're improving, scientists can still only run the models at relatively small scales. They can't reproduce these fine physics in a global-scale model. So, scientists are working to develop even more cutting-edge approaches. And the use of artificial intelligence may be leading the way.

... Scientists from Columbia University, the University of California, Irvine, and the Ludwig Maximilian University of Munich are working on using deep learning — a kind of machine learning method — to try to better represent clouds in large-scale climate models. The "Cloud Brain," as they call their project, involves a neural network that learns to predict the outcomes of models that specifically simulate clouds. This technique can then be used to represent cloud behaviour in larger-scale models, the researchers say…

Q16. Which of the following studies is the author most likely to approve of in the immediate context of the arguments presented in the passage?

a) A study about the possible temperature spikes that could be caused by disintegration of clouds.

b) A study about the feasibility of large-eddy simulations to understand cloud behaviour.

c) A study about feasibility of deep learning methods to better represent clouds in large-scale climate models.

d) A study about how clouds would respond to climate change on a large scale.

Number of words and Explanatory notes for RC:

Number of words: 514

Option A: Consider the sentences: 'If that happens, global temperatures could skyrocket by 8 degrees Celsius, or more than 14 degrees Fahrenheit, the study suggests.' This clearly suggests we are already well-aware of how disintegration of clouds can affect the temperatures and the kind of spikes it will cause. Hence, this is not a study that is required.
Option B: This would be counter-productive as understood from the sentences: 'Large-eddy simulations are currently one of the ***most useful ways to model*** the physics of individual clouds. But while they're improving, ***scientists can still only run the models at relatively small scales***. They ***can't reproduce*** these fine physics in a global-scale model.' These show that the limitations of large-eddy simulations are well-understood. Hence, Option B is not the answer.
Option C: This is also underway as suggested by the lines: 'Scientists … ***are working on using deep learning***—a kind of machine learning method—to try ***to better represent clouds in large-scale climate models***. ***This technique can then be used to represent cloud behaviour*** in larger-scale models, the researchers say…' Hence, Option C is not the answer.
Option D: Consider the sentences: 'Scientists increasingly suggest that clouds may be among the most important—although also ***some of the most complex***—regulators of the global climate.' Later the author goes on to say: 'and ***it's especially hard to simulate their behaviour all over the globe***. It's ***even more difficult to project their responses to future climate change***... So finding better ways to capture clouds in climate models is one of the fastest-growing priorities among climate scientists.' So, while the passage talks about one part – finding better ways to capture clouds in climate models, the next step wold be to project the responses of clouds to future climate changes on a large/global scale, since at the moment we don't have anything that would offer such information. Hence, Option D is the answer. Choice (D)

Q17. The author calls clouds important regulators of climate because:

a) they lower and raise the temperature based on conditions.

b) they are notoriously difficult to simulate and study.

c) there isn't complete clarity over how they form or grow.

d) their behaviour across the globe isn't consistent.

Number of words and Explanatory notes for RC:

Number of words: 514

Consider the sentences: '…clouds may be among the most important—although also some of the most complex—regulators of the global climate. Depending on local conditions, ***clouds may enhance warming*** by trapping heat, or they ***may help cool the climate*** by reflecting sunlight back into space.'
Option A: The cloud-climate equation is complex because the effects of clouds are starkly opposite to each other depending upon the conditions. Sometimes they lower the temperatures and sometimes they raise it. That is also why they are important regulators. Hence, Option A is an apt choice.
Option B: While clouds are notoriously difficult to simulate and study, that doesn't explain why their regulation of climate is complex. Hence, Option B is not the right choice.
Option C: While this may be true, it doesn't talk about the effect of clouds on the climate and why that is considered to be complex. Hence, Option C is not the answer.
Option D: The behaviour of clouds across globe may or may not be consistent. Even if that were true, it doesn't quite shed light on the nature of the inconsistency – in this case that is about the climate regulation function that clouds perform. They may raise or lower the temperatures. Inconsistency is too vague a word. Secondly, the inconsistency is based on conditions and not on which part of the globe we are talking about. Hence, Option D is not the answer. Choice (A)

Q18. The main drawback of large-eddy simulation, according to the author, is that:

a) it is difficult to project cloud responses to future climate change.

b) the models for formation of clouds aren't accurate when extrapolated to a global scale.

c) cloud behaviour in global-scale models cannot be generated.

d) fine details that affect formation of individual clouds cannot be reproduced.

Number of words and Explanatory notes for RC:

Number of words: 514

This can be understood from the sentences: 'Large-eddy simulations are currently one of the most useful ways to model the physics of individual clouds. ***But while they're improving, scientists can still only run the models at relatively small scales***. They can't reproduce these fine physics in a ***global-scale model***.'
Option A: We are talking about difficulties in projecting the model on a global scale. That is more to do with the scale than with the timeline. Future climate change predictions are not the reason why large eddy simulations won't work. These simulations are more about understanding clouds. Hence, Option A is not the answer.
Option B: The reader needs to distinguish between 'reproducing on a global scale' and 'accuracy on a global scale.' We haven't reached the stage where we can discuss accuracy yet, since we cannot even project it at a global scale. Hence, Option B is not the answer.
Option C: Consider: 'They can't reproduce these fine physics in a ***global-scale model'***. We can clearly understand that this option is apt as it explains the drawbacks of large eddy simulations. While they work for a small-scale, they can't be made for global scale. Hence, Option C is the answer.
Option D: From '…a "large-eddy simulation." It ***models the behaviour of tiny particles and other fine details*** that affect the formation of individual clouds' – we can understand that the simulation does model fine details on a small scale. It is at a global scale that they can't be reproduced. Hence, Option D is not factually correct.

Choice (C)

Q19. Which of the following is a caveat mentioned in the third para?

a) The chances of global temperatures skyrocketing by 8 degrees Celsius are low.

b) Disintegration of stratocumulus clouds can only take place in extreme climate scenarios.

c) The damage caused by global warming will precede the cloud disintegration.

d) Atmospheric carbon dioxide levels can never reach 1200 parts per million.

Number of words and Explanatory notes for RC:

Number of words: 514

Consider the sentences: Still, there are a few important caveats. First, ***the circumstances required to cause such an event are fairly extreme*** as far as climate scenarios go—although not impossible. The study finds that ***the cloud breakup would probably start to occur once atmospheric carbon dioxide levels reach about 1,200 parts*** per million, or triple their current levels.

Option A: If the clouds disintegrate then the temperatures would rise by 8 degrees and not the other way around, from the sentence: If that happens, global temperatures could skyrocket by 8 degrees Celsius. Hence, Option A is not the answer.

Option B: This option reflects the underlined sentences above that refer to the major caveat associated with the theory that the clouds might disintegrate. The caveat is that they will disintegrate but only under extreme circumstances (which refer to unlikely climate scenarios). Hence, Option B is the answer.

Option C: The author doesn't compare the timelines of climate change and cloud disintegration ill-effects. From 'And that's on top of the global warming that would have already occurred by that point...' we can understand that the author is not talking about global warming effects preceding cloud disintegration effects. They are just two different issues. Hence, Option C is not the answer.

Option D: While cloud disintegration happens only in extreme conditions as understood from the passage, we cannot really ascertain that the carbon dioxide levels will never reach the 1200 ppm mark. The plausibility of that happening hasn't been touched upon in the passage. Hence, Option D is not the answer. Choice (B)

DIRECTIONS for questions 20 to 24: The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

There is a longstanding debate among social scientists about what ultimately drives human behaviour. Do ideals, symbols and beliefs lead people to act as they do? Or are the wellsprings of action and the drivers of history less ethereal: money, fear, the thirst for power, circumstance and opportunity, with culture as an afterthought?

Scholars in the first camp are culturalists; in the second, materialists. And the disagreement between them is not merely academic. It spills over into heated policy debates about crime, poverty, immigration, economic development and everything in between.

In "Rule Makers, Rule Breakers," the psychologist Michele Gelfand sides with the culturalists. ... [She aims to] draw attention to one aspect she believes has been ignored: the social norms — or the informal rules of conduct, the dos and don'ts, the sources of raised eyebrows — that emerge whenever people band together.

Gelfand's thesis is that mapping the tightness or looseness of the cultures of various groups — nations, regions, social classes, companies, friendship circles — helps explain things that might otherwise be puzzling.

Take authoritarianism: Why did Egyptians vote overwhelmingly for Abdel Fattah el-Sisi in that country's 2014 presidential election, choosing to be led by an autocrat just a few years after the democratic hopefulness of the Arab Spring?

Gelfand argues that whatever a country's baseline level of constraint (Egypt's religious conservatism would put it near the tight end of the spectrum), it can adjust in response to shifting conditions. Perceived threats, including social instability, produce tightening. So, it was in Egypt, she claims. The ouster of Hosni Mubarak and the political chaos that ensued sent Egypt's society into a tailspin, leaving voters yearning for a strongman who could assert control and bring back order.

Although Gelfand can occasionally come across as too much of a salesperson for her big idea, she's generally an engaging writer with real intellectual range. She sparkles most when diving into evolutionary anthropology to make sense of long-term patterns in cultural tightness and looseness. Humans have evolved to be strikingly sensitive to norms, which provide a major evolutionary advantage as a way of facilitating cooperation. The evidence Gelfand reviews suggests that tighter cultures tend to form in the face of ecological challenges, high population density and threats from other groups...

The problem is that — in spite of the context she provides for how norms developed in the first place — Gelfand routinely ignores materialist explanations for the various phenomena she considers. Sure, would-be strongmen can and do exploit voters' fears of instability and change. But another crucial element in explaining why Sisi, Egypt's former minister of defence, won 96 percent of the vote is that the military, determined to maintain its grip on the country and to keep billions of dollars in foreign aid flowing, banned the main opposition, the Muslim Brotherhood, after deposing Mohamed Morsi, the inept but democratically-elected Islamist president who followed Mubarak in office.

Other examples are even more glaring, as when Gelfand accounts for limited upward mobility in the United States by pointing to the ostensibly tight culture of the working class, incapable of the flexibility needed to find a place in the new economy. She writes as though the hoarding of resources and opportunities by the wealthy was not a huge part of the story…

Q20. Michele Gelfand's work suggests that the formation of tighter cultures is caused by:

a) economic challenges.

b) social classes.

c) population explosion.

d) foreign threats and environmental challenges.

Number of words and Explanatory notes for RC:

Number of words: 542

Consider the sentences: 'The evidence Gelfand reviews suggests that tighter cultures tend to form in the face of ***ecological challenges, high population density and threats from other groups.***..' The three parameters mentioned here explain what the evidence suggests as a cause for the formation of tighter cultures.
Option A: Economic challenges has not been directly mentioned by Gelfand as a cause behind tightness of cultures. Hence, Option A is not the answer.
Option B: The author does mention the social classes but more as an example of groups while discussing the tightness of groups in 'the tightness or looseness of the cultures of various groups — nations, regions, social classes, companies, friendship circles — helps explain things that might otherwise be puzzling'. However, social classes weren't mentioned as an influencing factor in tightness of cultures. Hence, Option B is not the answer.
Option C: High population density is mentioned as a factor. However, that is not the same as population explosion which is about the sudden increase in population density in a region. High population density is more about the absolute numbers in a given region. Hence, Option C is not the answer.
Option D: Ecological challenges (environmental threats) and threats from other groups (foreign threats) have both been mentioned as factors contributing to the tightness of cultures. Hence, Option D is the answer. Choice (D)

Q21. The difference between materialists and culturalists is that:

a) the former believe money, opportunity, and power are stronger driving forces of human behaviour than culture.

b) the former believe culture is a by-product of money and power.

c) the latter believe culture drives people towards money and power.

d) the latter believe culture is a consequence of money, fear and power.

Number of words and Explanatory notes for RC:

Number of words: 542

This can be understood from the sentences: 'Do ideals, symbols and beliefs lead people to act as they do? Or are the wellsprings of action and the drivers of history less ethereal: money, fear, the thirst for power, circumstance and opportunity, with culture as an afterthought? Scholars in the first camp are culturalists; in the second, materialists.'
Materialists believe money, fear, power, circumstance and opportunity drive the world, while culturalists believe ideals, symbols and beliefs drive the world.
Option A: This statement is true, given the materialists (former) believe money, opportunity and power are the drivers of human behaviour and not culture. That's what separates the materialists from the culturalists. Hence, Option A is apt.
Option B: Neither materialists nor culturalists believe in a relationship between the two factors – it is more about which influences actions more, culture or money/opportunity. Hence, Option B is not the answer.
Option C: Culture hasn't been shown to drive people towards money. In fact, in the passage, culture and opportunity have been shown to be opposing parameters leading to different consequences. Hence, Option C is not the answer.
Option D: This option is similar to the error in the previous option. Culture is neither a cause nor consequence of the other parameter (money or opportunity). The debate is only about which of the parameters is the driving force. Hence, Option D is not the answer. Choice (A)

Q22. According to the author, the chief drawback in Gelfand's observations is that:

a) she is a materialist who suspects culture to be the chief trouble-maker.

b) she is a culturalist who only considers phenomena untouched by materialism.

c) she is myopic as far as the effects of culture on human behaviour are concerned.

d) she pegs cultural reasons and not material ones as being pivotal behind puzzling phenomena

Number of words and Explanatory notes for RC:

Number of words: 542

Consider the sentence: 'The problem is that — in spite of the context she provides for how norms developed in the first place — Gelfand ***routinely ignores materialist explanations for the various phenomena she considers***.' The author's criticism is that Gelfand's perception ignores certain straight-forward materialist reasons that would weaken her argument that it is culture that is the driving force.

Option A: Consider the sentences: *In "Rule Makers, Rule Breakers," **the psychologist Michele Gelfand sides with the culturalists.** ... [She aims to] draw attention to one aspect she believes has been ignored: the social norms — or the informal rules of conduct, the dos and don'ts, the sources of raised eyebrows — that emerge whenever people band together.* It has been made sufficiently clear that Gelfand sides with the culturalists. So, this option can be eliminated.

Option B: This option seems to suggest that there is a flaw in the kind of examples Gelfand pics – those which don't have materialistic angles. However, that is not the author's contention. The author's contention is that Gelfand ignores the materialistic angle of her examples. So, it is not the selection, but the perspective ignored, which is the criticism. Hence, Option B is not the answer.

Option C: This option seems to suggest that Gelfand doesn't go to the complete depths when it comes to observing the effects of culture. Gelfand's myopia (short-sightedness) doesn't explain the criticism in the passage where the author doesn't have an issue with the way Gelfand explains phenomena using culture. Rather, the author has a problem with the way Gelfand uses ***ONLY*** culture and not materialistic reasons to explain certain phenomena.

Option D: From '***routinely ignores materialist explanations for the various phenomena she considers***' we can understand the author's primary concern against Gelfand's explanations. The author believes that ***Gelfand routinely leaves out the materialist angle for a phenomenon, arguing instead using the cultural aspect of it***. For example, 'Other examples are even more glaring, as when Gelfand accounts for limited upward mobility in the United States by pointing to the ostensibly tight culture of the working class, incapable of the flexibility needed to find a place in the new economy. She writes as though the hoarding of resources and opportunities by the wealthy was not a huge part of the story…'. In this para, the author believes that material-related reasons like 'non-availability of resources and opportunities' have been ignored by Gelfand. Instead, Gelfand explains it using the culture prevalent amongst the working-class people which stops them from moving upwards in the economy. Hence, Option D is the answer. Choice (D)

Q23. Which of the following has been mentioned by the author to substantiate his/her chief contention against Gelfand's interpretation of Egypt's reverting to autocracy?

a) Strongmen can exploit voters' fears of instability and change.

b) The military intervened in order to keep foreign aid flowing.

c) The democratically elected Islamist president was inept for the office he held.

d) Egypt's former minister of defence won a massive mandate.

Number of words and Explanatory notes for RC:

Number of words: 542

Consider the sentences: 'Sure, would-be strongmen can and do exploit voters' fears of instability and change. But another crucial element in explaining why Sisi, Egypt's former minister of defence, won 96 percent of the vote is that ***the military, determined to maintain its grip on the country and to keep billions of dollars in foreign aid flowing, banned the main opposition, the Muslim Brotherhood***, after deposing Mohamed Morsi, the inept but democratically-elected Islamist president who followed Mubarak in office.'

The author's disagreement lies in the perspective that it is not just the culture of the Egyptians that pushed them back to a strongman (Gelfand's viewpoint) but also the materialism, in how fear/power/opportunity kept the Muslim Brotherhood out, thus helping the strongman Sisi win.

Option A: This is not the author's primary contention since it leans towards how the strongman may get the votes directly. The author's contention was about how the opponents didn't get to contest as they were banned. Hence, Option A is not the answer.

Option B: This explains the argument the author proposed for Sisi's victory, and the argument which Gelfand ignored in trying to use the culture of Egyptian society to explain the victory. According to the author it is more a materialistic reason than a cultural one. And that was the military trying to keep the funds flowing. Hence, Option B is the answer.

Option C: Once again, this tries to explain the results using administration of the incumbent, rather than look at other material reasons(military intervention to keep foreign aid flowing) which were also ignored by Gelfand. Hence, Option C is not the answer.

Option D: The question/contention/argument is about how Sisi won the elections or got a mandate. This option merely states the obvious without explaining what the content of the author is. Hence, Option D is not the answer. Choice (B)

Q24. Gelfand will approve of all the following explanations of everyday social activities EXCEPT:

a) people avoid car-pooling despite its benefits because they are not used to commuting with strangers and mere acquaintances.

b) people throw birthday parties despite the expenses to socialise with near and dear ones.

c) people buy homes more to save on taxes than to enjoy a sense of accomplishment in society.

d) people take vacations based on what their families would enjoy most and not on the basis of the cost.

Number of words and Explanatory notes for RC:

Number of words: 542

Gelfand believed that the leaders of human behaviour are more cultural than material. So, Gelfand would approve of explanations where culture/social norms are the important factors rather than material gains.
Option A: Here, although there is material gain, car-pooling is avoided more because of social and cultural reasons and the obvious discomfort of commuting with a stranger. Hence, Gelfand would approve of this explanation. Option A is not the answer.
Option B: The act of socializing or celebrating takes precedence over the cost of such a party, which means cultural norms precede material gain here. Hence, Option B is not the answer.
Option C: Here, it is the material gain that is spurring the action rather than culture or a social norm. This goes against the grain of the argument made by Gelfand. Hence, Option C is the answer.
Option D: This example shows that people consider fun and enjoyment of families, in a social setup a priority compared to the cost they incur. Hence, Gelfand would approve of this. Option D is not the answer. Choice (C)

Q25. DIRECTIONS for question 25: The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.
1.We all know that successful people come from hardy seeds.
2.Biologists often talk about the “ecology” of an organism.
3.But do we know enough about the sunlight that warmed them, the soil in which they put down their roots, and the rabbits and lumberjacks they were lucky enough to avoid?
4.The tallest oak in the forest is the tallest not just because it grew from the hardiest acorn; it is the tallest also because no other trees blocked its sunlight, the sun around it was deep and rich, no rabbit chewed through its bark as a sapling, and no lumberjack cut it down before it matured.

Sentence 1: Sentence 1 is a general sentence that talks about successful people.
Sentence 2: Sentence 2 is a general sentence that has a reference to “ecology of an organism”.
Sentence 3: Sentence 3 has a contrast conjunction 'but' and the objective pronoun “them”.
Sentence 4: Sentence 4 mentions the factors responsible for the tallest oak in the forest to be so.
On a careful reading of the sentences it can be observed that sentences 3 and 4 have similar clues: sunlight, rabbits and lumberjacks. Sentence 3 can be placed in sequence later than sentence 4.
Also sentences 2 and 4 refer to a main singular noun – 'organism' and 'tallest oak'. Sentences 1 and 3 refer to the plural case – 'people' and 'them'. Sentence 1 and 3 are linked. Sentence 1 (We all know) and sentence 3 (Do we know enough) are linked. Since sentence 3 can be placed in sequence later than sentence 4, it follows that sentence 2 has to begin the paragraph and not sentence 1.
Sentence 2 is a general sentence that can begin the paragraph. Sentence 2 is followed by sentence 4. “ecology of an organism” in sentence 2 links with “tallest oak in the forest” in sentence 4. Favourable conditions for the tallest oak have been mentioned in sentence 4. Sentence 1 is linked with sentence 4. “grew from the hardiest acorn” in sentence 4 links with “come from hardy seeds” in sentence 1. Sentences 1 and 3 form a mandatory pair. “We all know” in sentence 1 links with “Do we know enough” in sentence 3. “them” in sentence 3 links with “successful people” in sentence 1. Sentence 3 parallels the conditions given in sentence 4 and concludes the paragraph. So, 2413. Ans: (2413)

Q26. DIRECTIONS for question 26: The paragraph given below is followed by four summaries. Choose the option that best captures the essence of the paragraph.
Catharsis is the purgation of negative emotions resulting in renewal and restoration. Aristotle used it as a metaphor in the Poetics. We suffer through aversive experiences because of the positive payoff at the end – the release of fear, anxiety or sadness. But catharsis is a poor theory of the emotions. People neither leave horror movies feeling mellow nor walk out of tragedies feeling giddy. The aggression catharsis hypothesis, which establishes that “venting” aggression by watching media violence or playing violent video games can be a method of reducing aggressive behaviours, is flawed. Although Aristotle used 'catharsis' with relation to violent media (plays and poetry), he did not mean that viewing media violence can purge the viewer of aggressive feelings. Furthermore, he offers several detailed requirements of plot and character for achieving his type of catharsis, and modern media violence does not meet these requirements. The empirical support is also not only lacking, a large empirical base contradicts the catharsis hypothesis. Human neuroscience also contradicts the catharsis hypothesis.

a) Catharsis is a poor theory of the emotions, one that has no scientific support. Aristotle argues in the Poetics that it is not true that emotional experiences have a purging effect.

b) Certain catharthic events initiate a psychological purging process, through which fear and anxiety are released, and we feel better, calmer and purified afterward. But the aggression catharsis hypothesis put forward by Aristotle is flawed.

c) Catharsis is the purgation of negative emotions, through which anxiety and sadness are released, but neuroscience and empirical data contradict the catharsis hypothesis. Aristotle who metaphorically employed the term 'catharsis' was not of the opinion that media violence, which lacks the rudiments for achieving catharsis, reduces aggressive feelings.

d) Aristotle compared the effects of tragedy on the mind of a spectator to the effect of a cathartic on the body, but he outlined several factors for achieving catharsis which are unmet by media violence.

Option A: Catharsis, as defined in the paragraph, involves the purging of negative emotions through watching or experiencing negative events. Aristotle mentions catharsis but does not argue that emotional experiences don't have a purging effect. It is also incomplete as a summary.
Option B: The first sentence in choice B is correct. However, the para only tells us that Aristotle used the term 'catharsis' as a metaphor in the *Poetics*. The para does not say that the aggression catharsis hypothesis was put forward by Aristotle. Choice B is incorrect.
Option C: Choice C concisely summarizes the contents of the para.
Option D: Choice D shifts the focus of the para to Aristotle and this is unwarranted. Choice D is also incomplete as a summary. 'several factors' needs substantiation.

Choice (C)

Q27. DIRECTIONS for question 27: The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

1.Einstein explained there is every reason to believe that planets like Mars are inhabited.
2.Einstein hypothesized, however, that the signals were due either to atmospheric disturbances or to secret experimentation of other systems of wireless telegraphy.
3.Prompted by "mysterious wireless signals" received from an unknown source in both London and New York, a London correspondent contacted Einstein for an explanation.
4.But Martians would be more likely to communicate via light rays than through the wireless, he added.

Sentence 1: Sentence 1 tells us about Einstein's response to a problem. It mentions Einstein's idea that Mars and other planets are inhabited.
Sentence 2: Sentence 2 mentions Einstein's hypothetical explanation for the signals.
Sentence 3: Sentence 3 tells us why a London correspondent contacted Einstein.
Sentence 4: Sentence 4 has the contrast conjunction 'but'.
On a careful reading of the sentences, it can be observed that sentence 3 is a general sentence that can begin the paragraph. The remaining sentences need a precedent and more substantiation. Sentence 3 is followed by sentence 1. "a London correspondent contacted Einstein for an explanation" in sentence 3 links with "Einstein explained" in sentence 1. "planets like Mars are inhabited" in sentence 1 points to "unknown source" in sentence 3. Sentence 1 is followed by sentence 4. "**But** Martians likely to communicate via light rays than through the wireless" in sentence 4 contrasts "every reason to believe that Mars and other planets are inhabited" in sentence 1 and "mysterious wireless signals" in sentence 3. Sentences 4 and 2 form another opposition pair through their contrast markers "but" and "however" respectively. "But Martians would be more likely to communicate via light rays than through the wireless" in sentence 4 again contrasts "*signals* were due either to atmospheric disturbances or to secret experimentation of other systems of wireless telegraphy" in sentence 2. "**secret** experimentation of other systems of wireless telegraphy" in the conclusion sentence 2 mirrors "Prompted by **mysterious** wireless signals" in the introduction sentence 3. So, 3142. Ans: (3142)

Q28. DIRECTIONS for question 28: Five sentences related to a topic are given in the question below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

1.Upstarts have also prised a share of the market from the country's five leading winemakers.
2.As a result, a wine industry that had seemed on the verge of a breakthrough is now plateauing.
3.Wine producers, having invested in new technology and outside consultants, have begun to win awards in international competitions.
4.The good news for Turkish wines is that quality has improved markedly in the past decade.
5."The new boutique companies have pushed the big ones to make better wine," says Sabiha Apaydin, a sommelier at one of Istanbul's leading restaurant.

Sentence 1: Sentence 1 is a positive sentence telling us that upstarts (the new arrivals) have also climbed in status. It has the clue 'also'.
Sentence 2: Sentence 2 is a slightly negative sentence with the clue "now plateauing". "now plateauing" means "reach a state of little or no change after a period of activity or progress" and contrasts "verge of a breakthrough".
Sentence 3: Sentence 3 talks about wine producers winning awards in international competitions.
Sentence 4: Sentence 4 is a positive sentence that praises the fact that quality of Turkish wines has improved.
Sentence 5: Sentence 5 provides the comments of a somnelier *(a waiter in a restaurant who has charge of wines and their service : a wine steward)*.
Sentence 4 is a general sentence that begins the paragraph. The remaining sentences need a precedent. Sentence 4 is followed by sentence 3. "having invested in new technology and outside consultants" and "win awards" in sentence 3 links with "quality has improved markedly" in sentence 4. Sentence 3 is followed by sentence 1. "Upstarts have also prised a share" in sentence 1 follows from "begun to win awards in international competitions" in sentence 3. Sentences 1 and 5 form a mandatory pair. "pushed the **big ones** to make better wine" in sentence 5 links with "Upstarts have also prised a share of the market from the country's five **leading winemakers**" in sentence 5. The concluding sentence 5 (make better wine) mirrors the introductory sentence 4 (Turkish wines' quality has improved markedly). So, 4315.
Sentence 2 is the odd sentence out. As explained above, this sentence does not gel well with the positive tone of the remaining sentences. It will need more substantiation and it can be a part of another para. Ans: (2)

Q29. DIRECTIONS for question 29: The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.
1.To science we owe dramatic changes in our smug self-image.
2.Now archaeology is demolishing another sacred belief: that human history over the past million years has been a long tale of progress.
3.Astronomy taught us that our earth isn't the center of the universe and from biology we learned that we weren't specially created by God but evolved along with millions of other species.
4.In particular, recent discoveries suggest that the adoption of agriculture, supposedly our most decisive step toward a better life, was a catastrophe from which we have never recovered.

Sentence 1: Sentence 1 is a general sentence that can begin the para. It has the introductory part: To science we owe dramatic changes.
Sentence 2: Sentence 2 has the clue 'now'. It mentions how archaeology is responsible for some changes. Note the use of the present tense in 'is demolishing' and 'has been'.
Sentence 3: Sentence 3 mentions the contributions or dramatic changes of two fields of science: astonomy and biology. Note the use of the past tense in 'taught us'.
Sentence 4: Sentence 4 has the clue 'in particular'.
Sentence 1 is a general sentence that begins the para. It introduces the background of the topic of discussion. Sentence 1 is exemplified by sentence 3 which talks about the dramatic changes in two fields of science: astronomy and biology. "our self-image" in sentence 1 links with "our earth isn't" and "we learned that we weren't" in sentence 3. Sentence 3 is further strengthened by sentence 2 (Now archaeology is demolishing .... human history ..... not progress). So, sentence 3 (our earth isn't the center of the universe, we weren't specially created by God but evolved) and sentence 2 (human history hasn't been a long tale of progress) highlight the point of sentence 1 (To science we owe dramatic changes in our smug self-image). Sentence 2 is followed by sentence 4. "long tale of progress" in sentence 2 is parallel to "our most decisive step toward a better life" in sentence 4. "In particular, the adoption of agriculture" in sentence 4 exemplifies "demolishing another sacred belief: that human history over the past million years has been a long tale of progress" in sentence 2. "supposedly our most decisive step toward a better life" in sentence 4 is also parallel to "our smug self-image" in sentence 1. So, 1324. Ans: (1324)

Q30. DIRECTIONS for questions 30 and 31: Five sentences related to a topic are given in each of the questions below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

1.The new Phoenix Hotline will make it easier to report suspected phoenix behaviour directly to the ATO so they can take timely action against companies and their directors, and safeguard employee entitlements like wages and superannuation.
2.Last financial year, the Australian Tax Office sent out tax bills totalling more than $270 million from more than 340 reviews and audits of businesses involved in phoenix activity.
3.Phoenixing – the liquidation of a business to avoid liabilities and to continue the operation under another guise – is costing Australia between $2.85 billion and $5.13 billion a year.
4.The ATO says illegal phoenix activity is prevalent in building and construction, labour hire, payroll, childcare and security services, computer consulting, cafés and restaurants.
5.Phoenix companies arise from the ashes of a collapse, usually with the same people operating the business, leaving behind a trail of avoided outstanding payments to tax authorities, creditors, businesses, customers and employees.

Sentence 1: Sentence 1 talks about the role of the new Phoenix Hotline. Note the use of the determiner 'the' in "The new Phoenix Hotline".
Sentence 2: Sentence 2 mentions the response of the Australian Tax Office in countering phoenixing.
Sentence 3: Sentence 3 explains the concept of 'phoenixing'.
Sentence 4: Sentence 4 mentions the manifold professions where phoenix activities are observed.
Sentence 5: Sentence 5 talks about how phoenix companies function.
On a careful reading of the sentences, it can be observed that sentence 3 has to be placed before sentence 5. Sentences 1, 2 and 4 cannot begin the para as they need a precedent and more substantiation. So sentence 3 which defines 'phoenixing' begins the para. Sentences 3 and 5 form a logical block.

- "the liquidation of a business" in sentence 3 links with "ashes of a collapse" in sentence 5.
- "continue the operation under another guise" in sentence 3 links with "same people operating the business" in sentence 5.
- "to avoid liabilities" in sentence 3 links with "avoided outstanding payments to tax authorities, creditors, businesses, customers and employees" in sentence 5.

So sentence 3 will be followed by sentence 5.
Sentence 5 is followed by sentence 2. "tax bills totalling more than $270 million" in sentence 2 links with "trail of avoided outstanding payments to tax authorities, creditors ...." in sentence 5. "reviews and audits of businesses involved in phoenix activity" in sentence 2 links with "Phoenix companies" in sentence 5.
Sentence 2 is followed by sentence 4. "The ATO" in sentence 4 is the acronym for "Australian Tax Office" in sentence 2. "businesses involved in phoenix activity" in sentence 2 is exemplified in sentence 4: building and construction, ... cafés and restaurants. So, 3524.
Sentence 1 is the odd sentence out. "The new Phoenix Hotline" needs an introduction. Sentence 1 which abruptly talks about a solution/ course of action cannot be a part of this paragraph. It can come much later in the flow. Ans: (1)

Q31. DIRECTIONS for questions 30 and 31: Five sentences related to a topic are given in each of the questions below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

1.Perhaps, that is how I became a poet – perhaps I longed for a space in which I could not fail, or more importantly, in which it was fine to fail.
2.Mores of grammar, syntax and logic could be smudged without explanation or excuse, and there was beauty in that chaos and blur.
3.Poetry as a medium delivers affective responses in ways traditional narrative prose may not.
4.In writing, however, my language could be perfect.
5.In poetry, I realised again and again that 'failures' were, in fact, openings to more possibilities.

Sentence 1 talks about how the narrator became a poet, the focus on 'failing'.
Sentence 2 talks about rules of grammar and logic which could be blurred to create beauty.
Sentence 3 talks about poetry, the medium, and how it is different – a contrast has been drawn – from traditional prose.
Sentence 4 talks about writing and how, the narrator's language is perfect. 'However' as a negative contrast indicator points to a connection that is not reflected in the rest of the para which is not about 'writing' but 'poetry'.
Sentence 5 talks about poetry again, where the narrator connects poetry to 'failures' in a positive way.
Both Sentence 5 and Sentence 1 connect poetry, failure, and how it is fine to fail. Hence, they form an inseparable couple. Neither of them can be the odd one out. Sentence 3 talks about poetry and Sentence 2 talks about how there is beauty in something despite blurring or rules. The clue here is the focus on 'traditional' used for prose, which poetry does away with. So, poetry is more likely to disobey rules. Hence, 2 and 3 are connected. Ans: (4)

Q32. DIRECTIONS *for question 32*: The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

1. In the past few years, the self-styled capital of the north has become renowned for its residential boom with thousands of new flats crowding into the Victorian gridlines of its city centre.
2. At street level, the piles of sleeping bags come into sight the moment you emerge from the city's Piccadilly or Victoria stations.
3. It is the great Manchester paradox.
4. But it has also become notorious for a serious homelessness problem.

Sentence 1 talks about a particular city, which must be mentioned before Sentence 1 (because it has been spoken about with the definite article 'the').
Sentence 2 talks about the situation in a particular city (from the reference 'the city') with specific details. This sentence talks about negative descriptions (piles of sleeping bags), in contrast to the positivity in 1 (residential boom and new flats).
Sentence 3 names the city and introduces the idea of the paradox. So, it is a good choice for the first sentence of the para, given that 1 has 'the' self-styled capital in it. However, the more important reason why 3 is more likely to be the first sentence of the para, rather than the last sentence of the para is because of the usage of the word 'it'. The author has no reason to use 'it' if this sentence is to be the conclusion. The more appropriate word for that position would have been 'this'. This is the great Manchester paradox – makes a lot more sense if the paradox has already been explained. So, 'it' which is generally used for abstract introductions (e.g. it is honesty that makes some humans great) makes more sense at the top of the para.
Sentence 4 starts with a negative connector 'But', followed by a negative idea – homelessness. That means, 4 should be preceded by a positive sentence. 1 is the only positive sentence. So, 14 is a couple. 2 (negative details) is an elaboration of 4. So, 142 makes a block. 3 names the city and introduces the idea of the paradox. So, it should be the first sentence of the para. Ans: (3142)

Q33. DIRECTIONS *for questions 33 and 34*: The paragraph given in each of the questions below is followed by four summaries. Choose the option that best captures the author's position.

One of the signs of passing youth is the birth of a sense of fellowship with other human beings as we take our place among them. We certainly take more interest in the writings of our contemporaries and pardon their lack of inspiration for the sake of something that brings them nearer to us. It is even arguable that we get more from the living, although they may be much inferior, than from the dead. In the first place there can be no secret vanity in reading our contemporaries, and the kind of admiration which they inspire is extremely warm and genuine, because to give way to our belief in them, we have to often sacrifice some very respectable prejudice which does us credit.

a) **The writings of our contemporaries start appealing to us over superior work by the dead as old age brings us closer to other humans.**

b) **The writings of the living are more inspiring than the writings of the dead because of genuinely warm admiration we have for our contemporaries.**

c) **It is prejudice that leads us to believe that the writings of the dead are superior to those of the living which lack inspiration.**

d) **We overlook the lack of inspiration in the writings of our contemporaries, even though they are inferior to those of the dead, for the sense of fellowship that we develop post-youth.**

The para has two parts. The first comprises of the first two sentences, where the author talks about how we begin to appreciate the writings of our contemporaries. The author argues that this is genuine despite the lack of inspiration in contemporary writings, because of the sense of fellowship we develop as a sense of passing youth.
Option A: While the first part of this sentence is true, that writings of contemporaries appeals to us despite their inferior quality, the second part of the sentence extrapolates the author's ideas in the para. Whether it is old age (this is far-fetched from 'sense of passing youth') that brings us closer to other humans cannot be surmised from the author saying we develop a sense of fellowship. Hence, this is not an apt choice despite being close.
Option B: The inspiration provided by the writings of contemporaries and the writings of the dead haven't been compared in the para. It is more about how we feel a sense of fellowship for contemporary writings. Hence, Option B is not the answer.
Option C: While the author does indicate that it is prejudice that makes us admire the writings of the dead, the para talks more about the dropping of the prejudice in order to admire something that contemporary writers write. Hence, Option C is not the answer.
Option D: The first part of the summary is apt given there is a lack of inspiration in contemporary writings. We overlook that in favour of how we relate to those writings, despite the superior quality of writing of those who are now dead. Hence, Option D is the closest summary to the ideas represented in the para. Choice (D)

Q34. DIRECTIONS *for questions 33 and 34*: The paragraph given in each of the questions below is followed by four summaries. Choose the option that best captures the author's position.
The history of chess is a history of metaphors and moral lessons. It emerged in fifth-century India, and wherever it has gone since has been a ludic mirror-image of the world around it. Until the 19th century, when the set was standardised – becoming the Staunton version we play with today – the mirror's reflections were preserved in pieces, which show chess's extraordinary ability to adapt to new places and people. In ancient India, there were no bishops, castles or queens, but elephants, chariots and ministers of war. In the world of early Islam, there could be no images of beast or man, so the game was played with elegant cylinders and conicals in ivory or stone, the pawns lined up like a battalion of salt-shakers. And in 12th-century Norway, the kings were bearded brutes with lustrous hair, flanked by crazy, shield-biting berserkers – the world of the Lewis chess set, now held in the British Museum.

a) **Chess has managed to adapt over the centuries, reflecting in its pieces the mirror-image of the world around it.**

b) **The history of chess starts with India as the game evolved over the centuries to eventually reach its present-day version largely influenced by Islam and 12th century Norway.**

c) **It is not until the 19th century that someone was able to standardise all the variations in chess, a game which emerged in fifth-century India and played around the world.**

d) **Chess is an extraordinary game that has survived despite the changes brought to it by different places and people to fit their needs.**

The para largely revolves around the idea of chess, that has adapted to people and places and reflects the world around it. Whether it is ancient India, 12th century Norway or early Islam, chess-pieces have reflected the age and time.
Option A: This option reflects all the ideas – the adaptability of chess and the way the chess pieces have reflected the world around it. Option A is a good choice.
Option B: The para doesn't state that the chess versions of Islam or Norway are evolved versions of the one that was born in India. Option B can be eliminated.
Option C: The para doesn't convey the opinion that all the different variations of chess have been standardised into one particular form in the 19th century. Yes, we got one standardised version in the 19th century, but we cannot be sure it was the amalgamation of all the existing versions. Secondly, this is not the chief idea of the para. It is not the style of chess but rather what it conveyed, which the author is talking about here. Hence, Option C is not the answer.
Option D: The para states that chess has adapted to the society around it. It doesn't indicate that it has 'survived' 'despite' the changes. The changes are a part of chess, not necessarily opposed to it. Hence, Option D is not the answer. Choice (A)

DIRECTIONS *for questions 1 to 4:* Answer the questions on the basis of the information given below.

Mohan collected coins and notes of four different currencies – Senzu, Lingot, Urmi and Tristan. It is known that, in each of these four currencies, there are only two denominations – one denomination in the form of a coin and the other in the form of a note. In each currency, one coin represents one unit of that currency. For example, the value of one coin in Senzu currency is equal to 1 Senzu. Further, in each currency, the value of each note is an even multiple of the value of each coin in that currency. Mohan had at least three notes of each currency. The following information is also known:

i. The value of three Senzus is same as the value of two Lingots and the value of two Urmis is same as the value of three Tristans.
ii. The total value of the coins and notes that he had of each currency was the same for all four currencies.
iii. He had eight Lingot notes and seven Tristan notes. The number of Urmi notes that he had was not more than five.
iv. He had a total of 66 coins with him. The number of Lingot coins he had was same as the number of Urmi coins he had and the number of Tristan coins he had was ten more than the number of Senzu coins he had.
v. The total amounts of Senzus and Urmis he had with him are 72 Senzus and 52 Urmis respectively.
vi. He had a total of 28 notes. The value of a Tristan note is eight times that of a Tristan coin.

Q1. DIRECTIONS *for questions 1 to 4:* Type in your answer in the input box provided below the question.
How many Senzu notes did Mohan have with him?

From (ii) and (v), we can understand that 72 Senzus = 52 Urmis.
From (i), he had a total of (2/3)*72 = 48 Lingots and (3/2)*52 = 78 Tristans.
Let the number of Senzu coins, Lingot coins, Urmi coins and Tristan coins he has be x, y, y, and (x + 10) respectively (from(iv)).
From (iv), $x + y + y + x + 10 = 66 \Rightarrow x + y = 28$.
From (iii) and (vi), we know that he had 7 Tristan Notes and each note is worth 8 Tristans.
The value of the notes he has = 7*8 = 56 Tristans. Therefore, the number of Tristan coins that he had = 78 – 56 = 22 Tristans.
Now, $x + 10 = 22 \Rightarrow x = 12$.
We know that x + y = 28. So, y = 16.
Therefore, the number of Senzu coins, Lingot coins, Urmi coins and Tristan coins that he had with him are 12, 16, 16, and 22 respectively.
From (iii), he had 8 Lingot notes.
He had a total of 48 Lingots and 16 Lingot coins. Let the value of each Lingot note be P times the value of each Lingot coin.
$16 + 8P = 48 \Rightarrow P = 4$. Therefore, the value of each Lingot note is 4 times the value of each Lingot coin, i.e. 1 Lingot note = 4 Lingots.
From (vi), he had a total of 28 notes, out of which 8 were Lingot notes and 7 were Tristan notes. Let's say that the number of Senzu notes is s and the number of Urmi notes is u.
s + u = 13.
Since he had at least three notes of each currency and from (iii), u cannot be greater than 5. Therefore, the possible values for u are 3, 4, and 5.
If u = 3, s = 10.
In that case the value of each Urmi note would be $\frac{52-16}{3} = 12\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{10} = 6\ \text{Senzus}$.
If u = 4, s = 9.
In that case the value of each Urmi note would be $\frac{52-16}{4} = 9\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{9} = 6.67\ \text{Senzus}$. But it is given that in each currency, the value of each note is an even multiple of the value of each coin in that currency. Therefore, u cannot be 4.
If u = 5, s = 8.
In that case the value of each Urmi note would be $\frac{52-16}{5} = 7.2\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{8} = 7.5\ \text{Senzus}$. But it is given that in each currency, the value of each note is an even multiple of the value of each coin in that currency. Therefore, u cannot be 5.
Therefore, the only possible values of u and s are 3 and 10 respectively.
The following is the overall distribution of coins and notes that he had:

	Number of Coins	Number of Notes	Value of a Note/Value of a Coin	Total Value
Senzu	12	10	6	72 Senzus
Lingot	16	8	4	48 Lingots
Urmi	16	3	12	52 Urmis
Tristan	22	7	8	78 Tristans

Mohan has 10 Senzu notes. Ans: (10)

Q2. DIRECTIONS *for questions 1 to 4:* Type in your answer in the input box provided below the question.

The value of how many Senzu coins is equal to that of 13 Urmi notes?

From (ii) and (v), we can understand that 72 Senzus = 52 Urmis.
From (i), he had a total of (2/3)*72 = 48 Lingots and (3/2)*52 = 78 Tristans.
Let the number of Senzu coins, Lingot coins, Urmi coins and Tristan coins he has be x, y, y, and (x + 10) respectively (from(iv)).
From (iv), $x + y + y + x + 10 = 66 \Rightarrow x + y = 28$.
From (iii) and (vi), we know that he had 7 Tristan Notes and each note is worth 8 Tristans.
The value of the notes he has = 7*8 = 56 Tristans. Therefore, the number of Tristan coins that he had = 78 – 56 = 22 Tristans.
Now, $x + 10 = 22 \Rightarrow x = 12$.
We know that x + y = 28. So, y = 16.
Therefore, the number of Senzu coins, Lingot coins, Urmi coins and Tristan coins that he had with him are 12, 16, 16, and 22 respectively.
From (iii), he had 8 Lingot notes.
He had a total of 48 Lingots and 16 Lingot coins. Let the value of each Lingot note be P times the value of each Lingot coin.
$16 + 8P = 48 \Rightarrow P = 4$. Therefore, the value of each Lingot note is 4 times the value of each Lingot coin, i.e. 1 Lingot note = 4 Lingots.
From (vi), he had a total of 28 notes, out of which 8 were Lingot notes and 7 were Tristan notes. Let's say that the number of Senzu notes is s and the number of Urmi notes is u.
s + u = 13.
Since he had at least three notes of each currency and from (iii), u cannot be greater than 5. Therefore, the possible values for u are 3, 4, and 5.
If u = 3, s = 10.
In that case the value of each Urmi note would be $\frac{52-16}{3} = 12\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{10} = 6\ \text{Senzus}$.
If u = 4, s = 9.
In that case the value of each Urmi note would be $\frac{52-16}{4} = 9\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{9} = 6.67\ \text{Senzus}$. But it is given that in each currency, the value of each note is an even multiple of the value of each coin in that currency. Therefore, u cannot be 4.
If u = 5, s = 8.
In that case the value of each Urmi note would be $\frac{52-16}{5} = 7.2\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{8} = 7.5\ \text{Senzus}$. But it is given that in each currency, the value of each note is an even multiple of the value of each coin in that currency. Therefore, u cannot be 5.
Therefore, the only possible values of u and s are 3 and 10 respectively.
The following is the overall distribution of coins and notes that he had:

	Number of Coins	Number of Notes	Value of a Note/Value of a Coin	Total Value
Senzu	12	10	6	72 Senzus
Lingot	16	8	4	48 Lingots
Urmi	16	3	12	52 Urmis
Tristan	22	7	8	78 Tristans

An Urmi note is worth 12 Urmi coins. 52 Urmis = 72 Senzus $\Rightarrow 1\ \text{Urmi} = 72/52\ \text{Senzus} = 18/13\ \text{Senzus}$
13 Urmi notes = 13 × 12 Urmis = 13 × 12 × 18/13 Senzus = 216 Senzus.

Ans: (216)

Q3. DIRECTIONS *for questions 1 to 4:* Type in your answer in the input box provided below the question.
The value of all the Lingot coins that Mohan had is equal to that of how many Senzu notes?

From (ii) and (v), we can understand that 72 Senzus = 52 Urmis.
From (i), he had a total of (2/3)*72 = 48 Lingots and (3/2)*52 = 78 Tristans.
Let the number of Senzu coins, Lingot coins, Urmi coins and Tristan coins he has be x, y, y, and (x + 10) respectively (from(iv)).
From (iv), $x + y + y + x + 10 = 66 \Rightarrow x + y = 28$.
From (iii) and (vi), we know that he had 7 Tristan Notes and each note is worth 8 Tristans.
The value of the notes he has = 7*8 = 56 Tristans. Therefore, the number of Tristan coins that he had = 78 – 56 = 22 Tristans.
Now, $x + 10 = 22 \Rightarrow x = 12$.
We know that x + y = 28. So, y = 16.
Therefore, the number of Senzu coins, Lingot coins, Urmi coins and Tristan coins that he had with him are 12, 16, 16, and 22 respectively.
From (iii), he had 8 Lingot notes.
He had a total of 48 Lingots and 16 Lingot coins. Let the value of each Lingot note be P times the value of each Lingot coin.
$16 + 8P = 48 \Rightarrow P = 4$. Therefore, the value of each Lingot note is 4 times the value of each Lingot coin, i.e. 1 Lingot note = 4 Lingots.
From (vi), he had a total of 28 notes, out of which 8 were Lingot notes and 7 were Tristan notes. Let's say that the number of Senzu notes is s and the number of Urmi notes is u.
s + u = 13.
Since he had at least three notes of each currency and from (iii), u cannot be greater than 5. Therefore, the possible values for u are 3, 4, and 5.
If u = 3, s = 10.
In that case the value of each Urmi note would be $\frac{52-16}{3} = 12\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{10} = 6\ \text{Senzus}$.
If u = 4, s = 9.
In that case the value of each Urmi note would be $\frac{52-16}{4} = 9\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{9} = 6.67\ \text{Senzus}$. But it is given that in each currency, the value of each note is an even multiple of the value of each coin in that currency. Therefore, u cannot be 4.
If u = 5, s = 8.
In that case the value of each Urmi note would be $\frac{52-16}{5} = 7.2\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{8} = 7.5\ \text{Senzus}$. But it is given that in each currency, the value of each note is an even multiple of the value of each coin in that currency. Therefore, u cannot be 5.
Therefore, the only possible values of u and s are 3 and 10 respectively.
The following is the overall distribution of coins and notes that he had:

	Number of Coins	Number of Notes	Value of a Note/Value of a Coin	Total Value
Senzu	12	10	6	72 Senzus
Lingot	16	8	4	48 Lingots
Urmi	16	3	12	52 Urmis
Tristan	22	7	8	78 Tristans

Mohan had 16 Lingot coins. This is equal to 24 Senzu coins, which, in turn, is equal to 4 Senzu Notes. Ans: (4)

Q4. DIRECTIONS *for questions 1 to 4:* Type in your answer in the input box provided below the question.

If Mohan exchanged 13 Tristan coins for Lingot notes with one of his friends, what would be the sum of the number of Urmi notes and the number of Lingot notes with him?

From (ii) and (v), we can understand that 72 Senzus = 52 Urmis.
From (i), he had a total of (2/3)*72 = 48 Lingots and (3/2)*52 = 78 Tristans.
Let the number of Senzu coins, Lingot coins, Urmi coins and Tristan coins he has be x, y, y, and (x + 10) respectively (from(iv)).
From (iv), $x + y + y + x + 10 = 66 \Rightarrow x + y = 28$.
From (iii) and (vi), we know that he had 7 Tristan Notes and each note is worth 8 Tristans.
The value of the notes he has = 7*8 = 56 Tristans. Therefore, the number of Tristan coins that he had = 78 – 56 = 22 Tristans.
Now, $x + 10 = 22 \Rightarrow x = 12$.
We know that x + y = 28. So, y = 16.
Therefore, the number of Senzu coins, Lingot coins, Urmi coins and Tristan coins that he had with him are 12, 16, 16, and 22 respectively.
From (iii), he had 8 Lingot notes.
He had a total of 48 Lingots and 16 Lingot coins. Let the value of each Lingot note be P times the value of each Lingot coin.
$16 + 8P = 48 \Rightarrow P = 4$. Therefore, the value of each Lingot note is 4 times the value of each Lingot coin, i.e. 1 Lingot note = 4 Lingots.
From (vi), he had a total of 28 notes, out of which 8 were Lingot notes and 7 were Tristan notes. Let's say that the number of Senzu notes is s and the number of Urmi notes is u.
s + u = 13.
Since he had at least three notes of each currency and from (iii), u cannot be greater than 5. Therefore, the possible values for u are 3, 4, and 5.
If u = 3, s = 10.
In that case the value of each Urmi note would be $\frac{52-16}{3} = 12\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{10} = 6\ \text{Senzus}$.
If u = 4, s = 9.
In that case the value of each Urmi note would be $\frac{52-16}{4} = 9\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{9} = 6.67\ \text{Senzus}$. But it is given that in each currency, the value of each note is an even multiple of the value of each coin in that currency. Therefore, u cannot be 4.
If u = 5, s = 8.
In that case the value of each Urmi note would be $\frac{52-16}{5} = 7.2\ \text{Urmis}$ and the value of each Senzu note would be $\frac{72-12}{8} = 7.5\ \text{Senzus}$. But it is given that in each currency, the value of each note is an even multiple of the value of each coin in that currency. Therefore, u cannot be 5.
Therefore, the only possible values of u and s are 3 and 10 respectively.
The following is the overall distribution of coins and notes that he had:

	Number of Coins	Number of Notes	Value of a Note/Value of a Coin	Total Value
Senzu	12	10	6	72 Senzus
Lingot	16	8	4	48 Lingots
Urmi	16	3	12	52 Urmis
Tristan	22	7	8	78 Tristans

78 Tristans = 48 Lingots => 13 Tristans = 13 * 48/78 = 8 Lingots. 1 Lingot note = 4 Lingots. Therefore, 13 Tristan coins can be exchanged for two Lingot notes. Hence, the total number of Lingot notes and Urmi notes with him 10 + 3 = 13.

Ans: (13)

DIRECTIONS *for questions 5 to 8*: Answer the questions on the basis of the information given below.

Eight persons – A to H – are seated in eight equally spaced chairs around a circular table, facing the center. Three among the eight are adults and the remaining are children. They are seated around the table as follows:

i. Each child is sitting adjacent to at least one adult.
ii. F is sitting opposite G.
iii. C is sitting four places away from the person who sits to the right of D.
iv. E is sitting two places to the left of H.
v. Both A and D are sitting opposite adults and there is exactly one person in between them when counted from A in the clockwise direction.
vi. G is sitting second to the left of C.

Q5. DIRECTIONS *for questions 5 to 8:* Select the correct alternative from the given choices.
How many children are sitting adjacent to D?

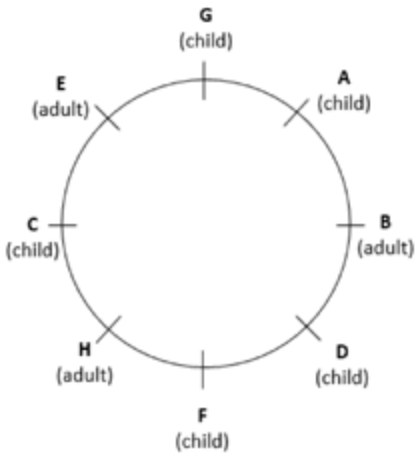
a) **1**

b) **2**

c) 0

d) Cannot be determined

From (i), it can be inferred that no two adults are sitting adjacent to each other.
This is because if two adults are sitting adjacent to each other, there can be two children who are sitting on either side of these two adults. Adjacent to the third adult, there can be two more children. Hence, in this case, a maximum of four children can sit adjacent to at least one adult. However, since there are a total of five children, this is not possible and hence, no two adults can be sitting adjacent to each other.
From (ii) F and G are sitting opposite each other and, from (iv), C is second to the right of G.
From (iii), C is sitting opposite the person who is to the immediate right of D. This implies that D is to the immediate right of F.
From (v), A sits second to the right of D.
Since the persons sitting opposite A and D are adults, both the persons adjacent to C are adults. Since no two adults can sit next to each other, C must be a child.
From (iv), E is two places to the left of H. Neither E nor H cannot be between A and D.
Therefore, H and E are adults who are sitting opposite A and D, respectively. B must be between A and D.
Since no two adults are sitting adjacent to each other, F and G must be children.
Now one among A, B and D will be the third adult.
If A is the adult, then both B and D will be children but, in this case, both the neighbors of D, i.e. B and F, will be children and (i) will be violated. So, A cannot be the adult.
If D is the adult, then both B and A will be children but, in this case, both the neighbors of A, i.e. B and G, will be children and (i) will be violated. So, D cannot be the adult.
Therefore, B is the adult and A and D are children. The final arrangement will be as shown:



F is the only neighbor of D who is a child. Choice (A)

Q6. DIRECTIONS *for questions 5 to 8:* Select the correct alternative from the given choices.
Who among the following is not sitting adjacent to an adult?

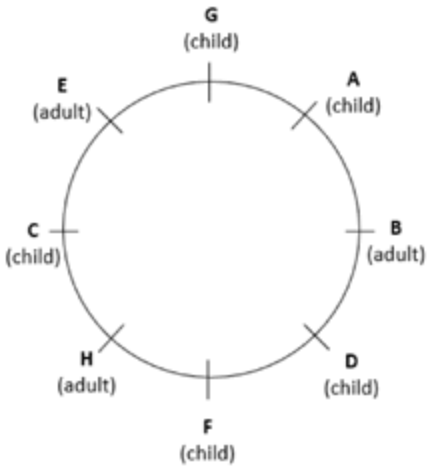
a) **D**

b) **A**

c) **B**

d) C

From (i), it can be inferred that no two adults are sitting adjacent to each other.
This is because if two adults are sitting adjacent to each other, there can be two children who are sitting on either side of these two adults. Adjacent to the third adult, there can be two more children. Hence, in this case, a maximum of four children can sit adjacent to at least one adult. However, since there are a total of five children, this is not possible and hence, no two adults can be sitting adjacent to each other.
From (ii) F and G are sitting opposite each other and, from (iv), C is second to the right of G.
From (iii), C is sitting opposite the person who is to the immediate right of D. This implies that D is to the immediate right of F.
From (v), A sits second to the right of D.
Since the persons sitting opposite A and D are adults, both the persons adjacent to C are adults. Since no two adults can sit next to each other, C must be a child.
From (iv), E is two places to the left of H. Neither E nor H cannot be between A and D.
Therefore, H and E are adults who are sitting opposite A and D, respectively. B must be between A and D.
Since no two adults are sitting adjacent to each other, F and G must be children.
Now one among A, B and D will be the third adult.
If A is the adult, then both B and D will be children but, in this case, both the neighbors of D, i.e. B and F, will be children and (i) will be violated. So, A cannot be the adult.
If D is the adult, then both B and A will be children but, in this case, both the neighbors of A, i.e. B and G, will be children and (i) will be violated. So, D cannot be the adult.
Therefore, B is the adult and A and D are children. The final arrangement will be as shown:



B is not adjacent to an adult. Choice (C)

Q7. DIRECTIONS *for questions 5 to 8:* Select the correct alternative from the given choices.
Who is sitting second to the left of E?

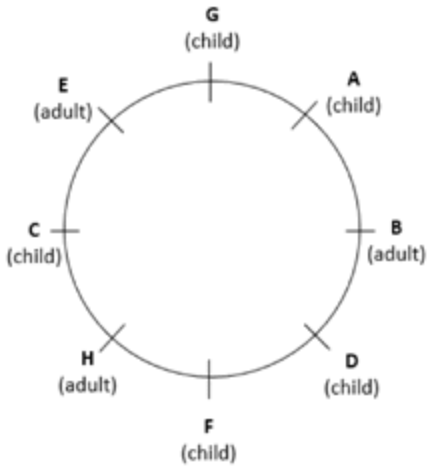
a) **G**

b) **H**

c) **A**

d) C

From (i), it can be inferred that no two adults are sitting adjacent to each other.
This is because if two adults are sitting adjacent to each other, there can be two children who are sitting on either side of these two adults. Adjacent to the third adult, there can be two more children. Hence, in this case, a maximum of four children can sit adjacent to at least one adult. However, since there are a total of five children, this is not possible and hence, no two adults can be sitting adjacent to each other.
From (ii) F and G are sitting opposite each other and, from (iv), C is second to the right of G.
From (iii), C is sitting opposite the person who is to the immediate right of D. This implies that D is to the immediate right of F.
From (v), A sits second to the right of D.
Since the persons sitting opposite A and D are adults, both the persons adjacent to C are adults. Since no two adults can sit next to each other, C must be a child.
From (iv), E is two places to the left of H. Neither E nor H cannot be between A and D.
Therefore, H and E are adults who are sitting opposite A and D, respectively. B must be between A and D.
Since no two adults are sitting adjacent to each other, F and G must be children.
Now one among A, B and D will be the third adult.
If A is the adult, then both B and D will be children but, in this case, both the neighbors of D, i.e. B and F, will be children and (i) will be violated. So, A cannot be the adult.
If D is the adult, then both B and A will be children but, in this case, both the neighbors of A, i.e. B and G, will be children and (i) will be violated. So, D cannot be the adult.
Therefore, B is the adult and A and D are children. The final arrangement will be as shown:



A sits second to the left of E. Choice (C)

Q8. DIRECTIONS *for questions 5 to 8:* Select the correct alternative from the given choices.
Who among the following can exchange places with B such that even after exchanging the places, each child is still adjacent to at least one adult?

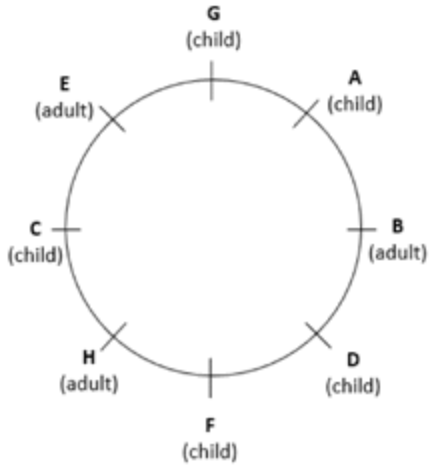
a) **F**

b) **D**

c) **A**

d) **H**

From (i), it can be inferred that no two adults are sitting adjacent to each other.
This is because if two adults are sitting adjacent to each other, there can be two children who are sitting on either side of these two adults. Adjacent to the third adult, there can be two more children. Hence, in this case, a maximum of four children can sit adjacent to at least one adult. However, since there are a total of five children, this is not possible and hence, no two adults can be sitting adjacent to each other.
From (ii) F and G are sitting opposite each other and, from (iv), C is second to the right of G.
From (iii), C is sitting opposite the person who is to the immediate right of D. This implies that D is to the immediate right of F.
From (v), A sits second to the right of D.
Since the persons sitting opposite A and D are adults, both the persons adjacent to C are adults. Since no two adults can sit next to each other, C must be a child.
From (iv), E is two places to the left of H. Neither E nor H cannot be between A and D.
Therefore, H and E are adults who are sitting opposite A and D, respectively. B must be between A and D.
Since no two adults are sitting adjacent to each other, F and G must be children.
Now one among A, B and D will be the third adult.
If A is the adult, then both B and D will be children but, in this case, both the neighbors of D, i.e. B and F, will be children and (i) will be violated. So, A cannot be the adult.
If D is the adult, then both B and A will be children but, in this case, both the neighbors of A, i.e. B and G, will be children and (i) will be violated. So, D cannot be the adult.
Therefore, B is the adult and A and D are children. The final arrangement will be as shown:

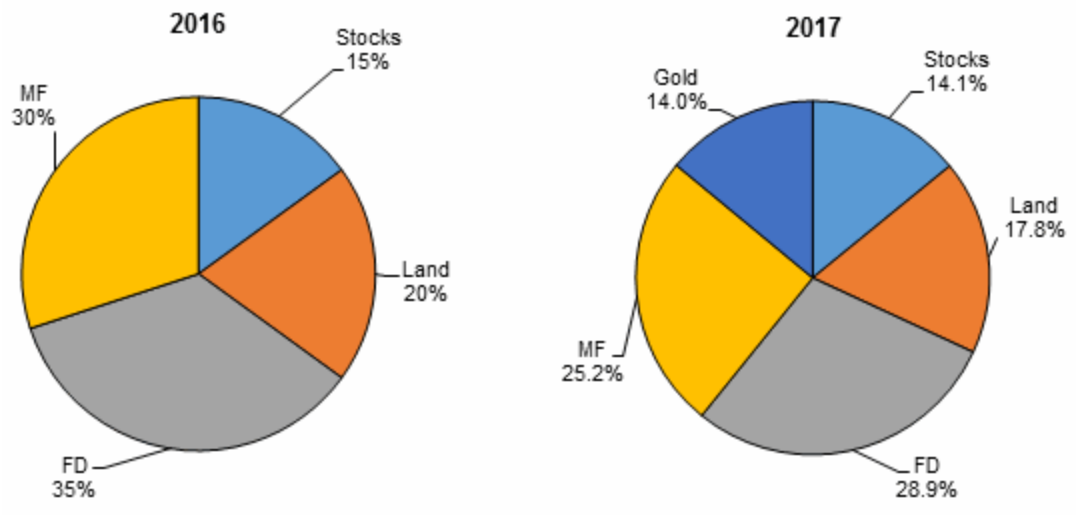


If each child is still adjacent to at least one adult even after interchanging places, then B must have exchanged places with an adult. Among the given options, only H is an adult. Choice (D)

DIRECTIONS *for questions 9 to 12:* Answer the questions on the basis of the information given below.

Amit invested a total of Rs.7,40,000 in four different types of assets – Stocks, Land, Fixed Deposits (FD) and Mutual Funds (MF) – by the end of 2016. During 2017, he invested an equal amount in each of these four types of assets and also invested a certain amount in Gold, which was Rs.20,000 more than what he invested in the above four types of assets combined in 2017.

The following pie charts provide the percentage breakup of Amit's total investments at the end of the year 2016 and at the end of the year 2017:



Q9. DIRECTIONS *for questions 9 to 12:* Select the correct alternative from the given choices.
What is the total amount invested by Amit in 2017?

a) **Rs.2,60,000**

b) **Rs.3,80,000**

c) **Rs.10,00,000**

d) **Rs.12,50,000**

Given that Amit invested ₹740000 until 2016.
From the first pie chart, Amit must have invested 111000 in Stocks, 148000 in Land, 259000 in FD, 222000 in MF.
Let X be the amount that Amit invested in each of Stocks, Land, FD and MF in 2017.
Hence, Amit must have invested 4X + 20000 in Gold in 2017.
Total amount invested until 2017 = 740000 + 4X + 4X + 20000 = 760000 + 8X
From the second pie chart, the amount invested in Gold is 14% of the total amount invested until 2017.
Hence, $4X + 20000 = 0.14 \times (760000 + 8X) \Rightarrow 4X + 20000 = 106400 + 1.12X \Rightarrow X = 30000$
Hence, in 2017, Amit must have invested ₹30000 in each of Stocks, Land, FD and MF and must have invested ₹140,000 in Gold.

Total amount invested by Amit in 2017 = 30000 × 4 + 140000 = 260000

Choice (A)

Q10. DIRECTIONS *for questions 9 to 12:* Select the correct alternative from the given choices.
What is the difference between the amount that he had invested in FD until 2016 and the amount that he invested in Stocks until 2017?

a) **Rs.1,18,000**

b) **Rs.1,08,000**

c) **Rs.1,36,000**

d) **Rs.1,54,000**

Given that Amit invested ₹740000 until 2016.
From the first pie chart, Amit must have invested 111000 in Stocks, 148000 in Land, 259000 in FD, 222000 in MF.
Let X be the amount that Amit invested in each of Stocks, Land, FD and MF in 2017.
Hence, Amit must have invested 4X + 20000 in Gold in 2017.
Total amount invested until 2017 = 740000 + 4X + 4X + 20000 = 760000 + 8X
From the second pie chart, the amount invested in Gold is 14% of the total amount invested until 2017.
Hence, $4X + 20000 = 0.14 \times (760000 + 8X) \Rightarrow 4X + 20000 = 106400 + 1.12X \Rightarrow X = 30000$
Hence, in 2017, Amit must have invested ₹30000 in each of Stocks, Land, FD and MF and must have invested ₹140,000 in Gold.

Amount that he invested in FD until 2016 = 259000
Amount that he invested in Stocks until 2017 = 141000
Required difference = ₹118000

Choice (A)

Q11. DIRECTIONS *for questions 9 to 12:* Select the correct alternative from the given choices.
The amount invested in MF in 2017 as a percentage of the amount invested in MF until 2016 is

a) **12.42%.**

b) **11.64%.**

c) **13.51%.**

d) **14.75%.**

Given that Amit invested ₹740000 until 2016.
From the first pie chart, Amit must have invested 111000 in Stocks, 148000 in Land, 259000 in FD, 222000 in MF.
Let X be the amount that Amit invested in each of Stocks, Land, FD and MF in 2017.
Hence, Amit must have invested 4X + 20000 in Gold in 2017.
Total amount invested until 2017 = 740000 + 4X + 4X + 20000 = 760000 + 8X
From the second pie chart, the amount invested in Gold is 14% of the total amount invested until 2017.
Hence, $4X + 20000 = 0.14 \times (760000 + 8X) \Rightarrow 4X + 20000 = 106400 + 1.12X \Rightarrow X = 30000$
Hence, in 2017, Amit must have invested ₹30000 in each of Stocks, Land, FD and MF and must have invested ₹140,000 in Gold.

The amount invested in MF in 2017 as a percentage of the amount invested in MF until 2016 = 30000/222000 = 13.51% Choice (C)

Q12. DIRECTIONS *for questions 9 to 12:* Select the correct alternative from the given choices.
The total amount invested in Gold until 2017 as a percentage of the total amount invested in FD until 2016 is

a) **51.23%.**

b) **52.47%.**

c) **53.67%.**

d) **54.05%.**

Given that Amit invested ₹740000 until 2016.
From the first pie chart, Amit must have invested 111000 in Stocks, 148000 in Land, 259000 in FD, 222000 in MF.
Let X be the amount that Amit invested in each of Stocks, Land, FD and MF in 2017.
Hence, Amit must have invested 4X + 20000 in Gold in 2017.
Total amount invested until 2017 = 740000 + 4X + 4X + 20000 = 760000 + 8X
From the second pie chart, the amount invested in Gold is 14% of the total amount invested until 2017.
Hence, $4X + 20000 = 0.14 \times (760000 + 8X) \Rightarrow 4X + 20000 = 106400 + 1.12X \Rightarrow X = 30000$
Hence, in 2017, Amit must have invested ₹30000 in each of Stocks, Land, FD and MF and must have invested ₹140,000 in Gold.

The total amount invested in Gold until 2017 as a percentage of the total amount invested in FD until 2016 = 140000/259000 = 54.05% Choice (D)

DIRECTIONS *for questions 13 to 16:* Answer the questions on the basis of the information given below.

Ten persons, A through J, trade in cashews. Among the ten persons, seven persons are retailers and three are wholesalers. The retailers buy the cashews from the wholesalers and sell it to individual customers. Each retailer buys cashews from only one wholesaler and always from the same wholesaler. The three wholesalers sell only to the seven retailers. The revenue of any trader comprises only the revenue from the sale of cashews, while the cost of any trader comprises only the cost of purchasing cashews.

The table below provides the revenue and the profit of the ten traders during the month of March. Each of the ten traders had no cashews left in their inventory either at the beginning of the month or at the end of the month. Further, it is known that, during the month of March, the profit of each wholesaler was equal to the sum of the profits of all the retailers who purchased from him.

Trader	Revenue (in Rs.'000)	Profit (in Rs.'000)
A	450	225
B	100	50
C	700	200
D	450	100
E	400	200
F	250	75
G	400	300
H	600	350
I	600	150
J	300	50

Q13. DIRECTIONS *for questions 13 and 14:* Select the correct alternative from the given choices. Who among the following is a wholesaler?

a) **A**

b) **I**

c) **D**

d) **H**

The following table provides the cost for each trader along with the revenue and the profit:

Trader	Revenue (in ₹'000)	Cost (in ₹'000)	Profit (in ₹'000)
A	450	225	225
B	100	50	50
C	700	500	200
D	450	350	100
E	400	200	200
F	250	175	75
G	400	100	300
H	600	250	350
I	600	450	150
J	300	250	50

The cost of all the retailers who source from a wholesaler must be the same as the revenue of that wholesaler.
From the table, the highest cost is for C. If C were a retailer, the wholesaler who supplies to C must have a revenue which is at least 500. The only possibilities for the wholesaler are H and I (as they are the only two traders with a revenue of more than 500). In either case, either of H and I must have an additional revenue of 100 and hence, G must also source from either H or I. Only then will the sum of the costs of the retailers (C and G) be equal to the revenue of the wholesaler. However, in these cases, the profit of the wholesaler must be equal to the profit of C and G, which is equal to 500. Since neither of the wholesalers have a profit of 500, this is not possible. Hence, C must be a wholesaler.
The profit of C is 200. The sum of the profits of the retailers who source from C must also be the same. The sum of profits is 200 only for (B, D, J); (B, I); (I, J). In the first case, the cost of B, D and J is 650, while the revenue of C is 700. Hence, this is not possible.
In the second case, the cost of B and I is 500, while the revenue of C is 700. This is also not possible.
In the last case, the cost of I and J is 700, which is the same as the revenue of C. Hence, the retailers who source from C are I and J.
Consider the profits, starting from the highest. The highest profit is for H. If H was a retailer, his profit must be less than or equal to that of his wholesaler. Since he has the highest profit, H must be a wholesaler.
The sum of the profits of all the traders = 1700
Hence, the profit of the wholesalers must be 1700/2 = 850.
Since the two wholesalers, H and C, have a total profit of 550, the third retailer must have a profit of 300. Hence, G must be the third wholesaler.
G is a wholesaler, whose revenue is 400 and profit is 300. For the profit of one or more retailers to be 300, only two possible combinations exist: (A, F) and (D, E). In the first case, the cost of A and F is 400, which is the same as the revenue of G. In the second case, the cost of D and E is 550, which is not the same as the revenue of G. Hence, A and F must be the retailers who source from G, while the remaining retailers, B, D and E source from H.
The following table provides, for each wholesaler, the retailers who source from him:

Wholesaler	Retailers
C	I, J
G	A, F
H	B, D, E

H is a wholesaler. Choice (D)

Q14. DIRECTIONS *for questions 13 and 14:* Select the correct alternative from the given choices. What is the highest profit (in Rs.'000) made by any retailer?

a) **350**

b) **300**

c) **225**

d) **200**

The following table provides the cost for each trader along with the revenue and the profit:

Trader	Revenue (in ₹'000)	Cost (in ₹'000)	Profit (in ₹'000)
A	450	225	225
B	100	50	50
C	700	500	200
D	450	350	100
E	400	200	200
F	250	175	75
G	400	100	300
H	600	250	350
I	600	450	150
J	300	250	50

The cost of all the retailers who source from a wholesaler must be the same as the revenue of that wholesaler.
From the table, the highest cost is for C. If C were a retailer, the wholesaler who supplies to C must have a revenue which is at least 500. The only possibilities for the wholesaler are H and I (as they are the only two traders with a revenue of more than 500). In either case, either of H and I must have an additional revenue of 100 and hence, G must also source from either H or I. Only then will the sum of the costs of the retailers (C and G) be equal to the revenue of the wholesaler. However, in these cases, the profit of the wholesaler must be equal to the profit of C and G, which is equal to 500. Since neither of the wholesalers have a profit of 500, this is not possible. Hence, C must be a wholesaler.
The profit of C is 200. The sum of the profits of the retailers who source from C must also be the same. The sum of profits is 200 only for (B, D, J); (B, I); (I, J). In the first case, the cost of B, D and J is 650, while the revenue of C is 700. Hence, this is not possible.
In the second case, the cost of B and I is 500, while the revenue of C is 700. This is also not possible.
In the last case, the cost of I and J is 700, which is the same as the revenue of C. Hence, the retailers who source from C are I and J.
Consider the profits, starting from the highest. The highest profit is for H. If H was a retailer, his profit must be less than or equal to that of his wholesaler. Since he has the highest profit, H must be a wholesaler.
The sum of the profits of all the traders = 1700
Hence, the profit of the wholesalers must be 1700/2 = 850.
Since the two wholesalers, H and C, have a total profit of 550, the third retailer must have a profit of 300. Hence, G must be the third wholesaler.
G is a wholesaler, whose revenue is 400 and profit is 300. For the profit of one or more retailers to be 300, only two possible combinations exist: (A, F) and (D, E). In the first case, the cost of A and F is 400, which is the same as the revenue of G. In the second case, the cost of D and E is 550, which is not the same as the revenue of G. Hence, A and F must be the retailers who source from G, while the remaining retailers, B, D and E source from H.
The following table provides, for each wholesaler, the retailers who source from him:

Wholesaler	Retailers
C	I, J
G	A, F
H	B, D, E

The highest profit made by any retailer is 225 (for A). Choice (C)

Q15. DIRECTIONS *for question 15 and 16:* Type in your answer in the input box provided below the question.

What is the total revenue (in Rs.'000) of all the retailers who buy from the wholesaler with the second lowest profit?

The following table provides the cost for each trader along with the revenue and the profit:

Trader	Revenue (in ₹'000)	Cost (in ₹'000)	Profit (in ₹'000)
A	450	225	225
B	100	50	50
C	700	500	200
D	450	350	100
E	400	200	200
F	250	175	75
G	400	100	300
H	600	250	350
I	600	450	150
J	300	250	50

The cost of all the retailers who source from a wholesaler must be the same as the revenue of that wholesaler.
From the table, the highest cost is for C. If C were a retailer, the wholesaler who supplies to C must have a revenue which is at least 500. The only possibilities for the wholesaler are H and I (as they are the only two traders with a revenue of more than 500). In either case, either of H and I must have an additional revenue of 100 and hence, G must also source from either H or I. Only then will the sum of the costs of the retailers (C and G) be equal to the revenue of the wholesaler. However, in these cases, the profit of the wholesaler must be equal to the profit of C and G, which is equal to 500. Since neither of the wholesalers have a profit of 500, this is not possible. Hence, C must be a wholesaler.
The profit of C is 200. The sum of the profits of the retailers who source from C must also be the same. The sum of profits is 200 only for (B, D, J); (B, I); (I, J). In the first case, the cost of B, D and J is 650, while the revenue of C is 700. Hence, this is not possible.
In the second case, the cost of B and I is 500, while the revenue of C is 700. This is also not possible.
In the last case, the cost of I and J is 700, which is the same as the revenue of C. Hence, the retailers who source from C are I and J.
Consider the profits, starting from the highest. The highest profit is for H. If H was a retailer, his profit must be less than or equal to that of his wholesaler. Since he has the highest profit, H must be a wholesaler.
The sum of the profits of all the traders = 1700
Hence, the profit of the wholesalers must be 1700/2 = 850.
Since the two wholesalers, H and C, have a total profit of 550, the third retailer must have a profit of 300. Hence, G must be the third wholesaler.
G is a wholesaler, whose revenue is 400 and profit is 300. For the profit of one or more retailers to be 300, only two possible combinations exist: (A, F) and (D, E). In the first case, the cost of A and F is 400, which is the same as the revenue of G. In the second case, the cost of D and E is 550, which is not the same as the revenue of G. Hence, A and F must be the retailers who source from G, while the remaining retailers, B, D and E source from H.
The following table provides, for each wholesaler, the retailers who source from him:

Wholesaler	Retailers
C	I, J
G	A, F
H	B, D, E

The retailer with the second lowest profit is G. The total revenue of the retailers who buy from G is 450 + 250 = 700. Ans: (700)

Q16. DIRECTIONS *for question 15 and 16:* Type in your answer in the input box provided below the question.

What is the minimum difference (in Rs.'000) between the cost of a wholesaler and the sum of the costs of all the retailers who buy from him?

The following table provides the cost for each trader along with the revenue and the profit:

Trader	Revenue (in ₹'000)	Cost (in ₹'000)	Profit (in ₹'000)
A	450	225	225
B	100	50	50
C	700	500	200
D	450	350	100
E	400	200	200
F	250	175	75
G	400	100	300
H	600	250	350
I	600	450	150
J	300	250	50

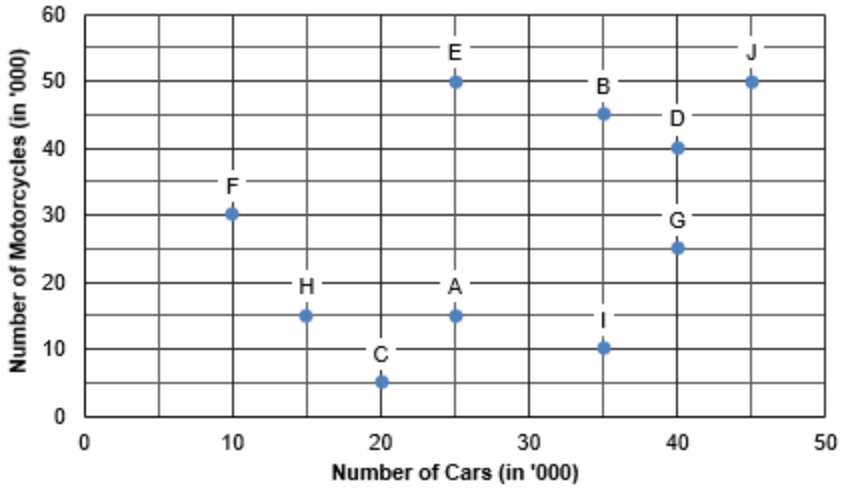
The cost of all the retailers who source from a wholesaler must be the same as the revenue of that wholesaler.
From the table, the highest cost is for C. If C were a retailer, the wholesaler who supplies to C must have a revenue which is at least 500. The only possibilities for the wholesaler are H and I (as they are the only two traders with a revenue of more than 500). In either case, either of H and I must have an additional revenue of 100 and hence, G must also source from either H or I. Only then will the sum of the costs of the retailers (C and G) be equal to the revenue of the wholesaler. However, in these cases, the profit of the wholesaler must be equal to the profit of C and G, which is equal to 500. Since neither of the wholesalers have a profit of 500, this is not possible. Hence, C must be a wholesaler.
The profit of C is 200. The sum of the profits of the retailers who source from C must also be the same. The sum of profits is 200 only for (B, D, J); (B, I); (I, J). In the first case, the cost of B, D and J is 650, while the revenue of C is 700. Hence, this is not possible.
In the second case, the cost of B and I is 500, while the revenue of C is 700. This is also not possible.
In the last case, the cost of I and J is 700, which is the same as the revenue of C. Hence, the retailers who source from C are I and J.
Consider the profits, starting from the highest. The highest profit is for H. If H was a retailer, his profit must be less than or equal to that of his wholesaler. Since he has the highest profit, H must be a wholesaler.
The sum of the profits of all the traders = 1700
Hence, the profit of the wholesalers must be 1700/2 = 850.
Since the two wholesalers, H and C, have a total profit of 550, the third retailer must have a profit of 300. Hence, G must be the third wholesaler.
G is a wholesaler, whose revenue is 400 and profit is 300. For the profit of one or more retailers to be 300, only two possible combinations exist: (A, F) and (D, E). In the first case, the cost of A and F is 400, which is the same as the revenue of G. In the second case, the cost of D and E is 550, which is not the same as the revenue of G. Hence, A and F must be the retailers who source from G, while the remaining retailers, B, D and E source from H.
The following table provides, for each wholesaler, the retailers who source from him:

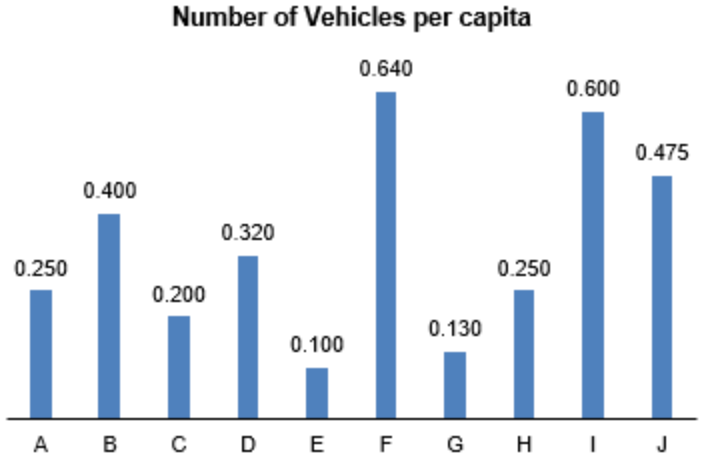
Wholesaler	Retailers
C	I, J
G	A, F
H	B, D, E

The required difference is the same as the profit of the wholesaler. This is the least for C, which is 200. Ans: (200)

DIRECTIONS *for questions 17 to 20*: Answer the questions on the basis of the information given below.

In a country, there are ten states, A through J. In each of the ten states, the only vehicles that any citizen can own are cars and motorcycles. The following scatter plot provides the total number of cars and motorcycles owned by the citizens in each of the ten states and the bar graph provides the number of vehicles per capita for each of the ten states:





Q17. DIRECTIONS *for questions 17 to 20:* Select the correct alternative from the given choices.
Which state has the highest population?

a) **B**

b) **D**

c) **E**

d) **G**

The total number of vehicles in A = 15 + 25 = 40

Population of A = $\frac{40}{0.25} = 160$

Similarly, population of B = $\frac{45+35}{0.4} = 200$

Population of C = $\frac{5+20}{0.2} = 125$

Population of D = $\frac{40+40}{0.32} = 250$

Population of E = $\frac{50+25}{0.1} = 750$

Population of F = $\frac{30+10}{0.64} = 62.5$

Population of G = $\frac{25+40}{0.13} = 500$

Population of H = $\frac{15+15}{0.25} = 120$

Population of I = $\frac{10+35}{0.6} = 75$

Population of J = $\frac{50+45}{0.475} = 200$

E has the highest population. Choice (C)

Q18. DIRECTIONS *for questions 17 to 20:* Select the correct alternative from the given choices. What is the total population (in '000) of the all the states in which the number of cars is greater than the number of motorcycles?

a) **800**

b) **820**

c) **780**

d) **860**

The total number of vehicles in A = 15 + 25 = 40

Population of A = $\frac{40}{0.25} = 160$

Similarly, population of B = $\frac{45+35}{0.4} = 200$

Population of C = $\frac{5+20}{0.2} = 125$

Population of D = $\frac{40+40}{0.32} = 250$

Population of E = $\frac{50+25}{0.1} = 750$

Population of F = $\frac{30+10}{0.64} = 62.5$

Population of G = $\frac{25+40}{0.13} = 500$

Population of H = $\frac{15+15}{0.25} = 120$

Population of I = $\frac{10+35}{0.6} = 75$

Population of J = $\frac{50+45}{0.475} = 200$

The states which have more cars than motorcycles are C, A, I and G. The total population of these states = 160 + 125 + 500 + 75 = 860. Choice (D)

Q19. DIRECTIONS *for questions 17 to 20:* Select the correct alternative from the given choices.
In nine of the ten states, each citizen can own at most one vehicle, whereas in the other state, there is no such restriction.

If the number of people who do not own a vehicle is not the same for any two states, which state has the sixth highest number of people who do not own a vehicle?

a) **B**

b) **C**

c) **J**

d) **Cannot be determined**

The total number of vehicles in A = 15 + 25 = 40

Population of A = $\frac{40}{0.25} = 160$

Similarly, population of B = $\frac{45+35}{0.4} = 200$

Population of C = $\frac{5+20}{0.2} = 125$

Population of D = $\frac{40+40}{0.32} = 250$

Population of E = $\frac{50+25}{0.1} = 750$

Population of F = $\frac{30+10}{0.64} = 62.5$

Population of G = $\frac{25+40}{0.13} = 500$

Population of H = $\frac{15+15}{0.25} = 120$

Population of I = $\frac{10+35}{0.6} = 75$

Population of J = $\frac{50+45}{0.475} = 200$

If there is a restriction on the number of vehicles that a person can buy, then the number of persons who do not own a vehicle will be the total population minus the total number of vehicles (since each vehicle represents a unique person in the population).
If the restriction is not present, then the minimum number of persons who do not own a vehicle will be the same as above.
However, the number of persons who do not own a vehicle can be more (if one person owns two vehicles, the this number will increase by 1) and can be a maximum of the total population of the state minus 1 (if one person owns all the vehicles in the state).
The following table provides the range of the number of persons (in '000) who do not own a vehicle in each state:

State	A	B	C	D	E	F	G	H	I	J
Number	120-160	120-200	100-125	170-250	675-750	22.5-62.5	435-500	90-120	30-75	105-200

Given that the number of persons who do not own a vehicle is not the same for any two states. Between A and B, if both states have the restriction, then the number of persons who do not own a vehicle will be the same (i.e., 120000). Hence, one of these must not have the restriction.
In this case, E and G will be highest and second highest. Between D, A and B, the third, fourth and fifth places will be fixed. The sixth highest will be J. Choice (C)

Q20. DIRECTIONS *for questions 17 to 20:* Select the correct alternative from the given choices.
In nine of the ten states, each citizen can own at most one vehicle, whereas in the other state, there is no such restriction.

If the number of people who do not own a vehicle is exactly 100,000 for exactly two states, in which state is it possible for a person to own more than one vehicle?

a) **C**

b) **H**

c) **B**

d) **I**

The total number of vehicles in A = 15 + 25 = 40

Population of A = $\frac{40}{0.25} = 160$

Similarly, population of B = $\frac{45+35}{0.4} = 200$

Population of C = $\frac{5+20}{0.2} = 125$

Population of D = $\frac{40+40}{0.32} = 250$

Population of E = $\frac{50+25}{0.1} = 750$

Population of F = $\frac{30+10}{0.64} = 62.5$

Population of G = $\frac{25+40}{0.13} = 500$

Population of H = $\frac{15+15}{0.25} = 120$

Population of I = $\frac{10+35}{0.6} = 75$

Population of J = $\frac{50+45}{0.475} = 200$

From the ranges, we can see that only in two states is it possible for the number of people without vehicles to be 100000 : C and H. In C, the number will be 100000, if there is restriction. In H, the number will be 100000, if there is no restriction. Hence, H must be the state without the restriction. Choice (B)

DIRECTIONS *for questions 21 to 24:* Answer the questions on the basis of the information given below.

Ravi placed six cylindrical containers in a line, from left to right. The volume of each of the six containers is distinct among 100 ml, 250 ml, 350 ml, 600 ml, 900 ml and 1200 ml, not necessarily in any specific order. Exactly three of the six containers are empty, while the other three are filled to the brim with water. Ravi labelled these three filled containers as F1, F2 and F3, from left to right, in that order. Further, F1 is to the immediate right of an empty container and the last empty container from the right is to the immediate left of a filled container.

Ravi redistributed the water in the containers in the following manner:

- He took F1 and poured water from it into the first empty container from the right until F1 was half empty.
- He then took F2 and poured water from it into the second empty container from the right until F2 was half empty.
- He then took F3 and poured water from it into the third empty container from the right until F3 was half empty.

During this process, no water spilled out from any of the containers. Further, after Ravi finished redistributing the water between the six containers, the volumes of water in the first container from the left and the fourth container from the left are 300 ml and 450 ml, respectively. Also, the second container from the left has more quantity of water than the fifth container from the left.

Q21. DIRECTIONS *for questions 21 and 22:* Select the correct alternative from the given choices.
What is the total quantity of water (in ml) in all the containers after Ravi finished redistributing the water between the six containers?

a) **2700**

b) **1750**

c) **1850**

d) **1600**

After Ravi distributed the water between the containers, one of the containers has 300 ml and another has 450 ml. These values must be half the original volume of the containers which were filled. Hence, the volume of two of the containers that were filled must be 600 ml and 900 ml.
Further, if the 100 ml container was initially empty, then Ravi must have poured half the water from one of the other containers. Also, no water was spilled in this process. Even if Ravi transferred half the water from the next smallest container, i.e., the 250 ml container, the 100 ml container would have spilled water. Hence, the 100 ml container could not have been initially empty.
Therefore, the three containers that were initially filled were the 600 ml container, the 900 ml container and the 100 ml container. After Ravi distributed the water, two containers will have 300 ml of water, two will have 450 ml of water and two will have 50 ml of water.
Given that the first container from the left and the third container from the left have 300 ml and 450 ml of water.
Also, the second container from the left has more water than the fifth container from the left.
Hence, the second container from the left cannot have 50 ml of water. If the second container from the left has 300 ml of water, then between the first container from the left and the second container from the left, one must be the filled container first from left, while the other must be the empty container first from right. However, none of these containers can be the empty container first from right. Hence, the second container from the left cannot have 300 ml of water and must have 450 ml of water.
Since the second container from the left and the fourth container from the left both have 450 ml of water, one of them must be initially filled, while the other must be initially empty. Also, the first container from the left is definitely empty because it is given that the first filled container from the left is to the right of an empty container.
Also, it is given that the last empty container from the right is to the left of a filled container. The last empty container from the right is the first container from the left. This is to the immediate left of a filled container. Hence, the second container from the left must be a filled container.
Since the second container from the left is filled, the fourth container from the left must be empty. Also, the second container from the left is the first filled container from the left. Hence, the fourth container from the left must be the first empty container from the right. All the containers to the right of the fourth container from the left (i.e., the fifth container from the left and the sixth container from the left) must be filled, while the third container from the left must be empty.
Since two empty containers, the first container from the left and the fourth container from the left have 300 ml and 450 ml of water, the third container from the left must have 50 ml of water.
the fifth container from the left and the sixth container from the left must have 300 ml and 50 ml of water in any order.
the fifth container from the left is the second filled container from left, while the third container from the left is the second empty container from left. Hence, the fifth container from the left and the third container from the left must have same amount of water after redistribution. Hence, the fifth container from the left must have 50 ml of water and the sixth container from the left must have 300 ml of water.
We know that the capacity of the filled containers, the second container from the left, the fifth container from the left and the sixth container from the left, must be double the amount of water in them after redistribution. Hence, the second container from the left, the fifth container from the left and the sixth container from the left must be the 900 ml, 100 ml and 600 ml containers.
the fourth container from the left which was filled with 450 ml water can only be 600 ml or 900 ml or 1200 ml container. Since the second container from the left and the sixth container from the left are 900 ml and 600 ml containers, the fourth container from the left must be 1200 ml container.
The first container from the left must be 350 ml container and the third container from the left must be 250 ml container.
The following table provides the quantity of water in each container after Ravi distributed the water, the capacity of water and the initial state of the container (Empty/Filled):

Order	1	2	3	4	5	6
Capacity (ml)	350	900	250	1200	100	600
Quantity of Water (ml)	300	450	50	450	50	300
Initial State	Empty	Filled	Empty	Empty	Filled	Filled

The total quantity of water = 600 + 900 + 100 = 1600 ml Choice (D)

Q22. DIRECTIONS *for questions 21 and 22:* Select the correct alternative from the given choices. What is the capacity (in ml) of the third container from the left?

a) **100**

b) **250**

c) **350**

d) **Cannot be determined**

After Ravi distributed the water between the containers, one of the containers has 300 ml and another has 450 ml. These values must be half the original volume of the containers which were filled. Hence, the volume of two of the containers that were filled must be 600 ml and 900 ml.
Further, if the 100 ml container was initially empty, then Ravi must have poured half the water from one of the other containers. Also, no water was spilled in this process. Even if Ravi transferred half the water from the next smallest container, i.e., the 250 ml container, the 100 ml container would have spilled water. Hence, the 100 ml container could not have been initially empty.
Therefore, the three containers that were initially filled were the 600 ml container, the 900 ml container and the 100 ml container. After Ravi distributed the water, two containers will have 300 ml of water, two will have 450 ml of water and two will have 50 ml of water.
Given that the first container from the left and the third container from the left have 300 ml and 450 ml of water.
Also, the second container from the left has more water than the fifth container from the left.
Hence, the second container from the left cannot have 50 ml of water. If the second container from the left has 300 ml of water, then between the first container from the left and the second container from the left, one must be the filled container first from left, while the other must be the empty container first from right. However, none of these containers can be the empty container first from right. Hence, the second container from the left cannot have 300 ml of water and must have 450 ml of water.
Since the second container from the left and the fourth container from the left both have 450 ml of water, one of them must be initially filled, while the other must be initially empty. Also, the first container from the left is definitely empty because it is given that the first filled container from the left is to the right of an empty container.
Also, it is given that the last empty container from the right is to the left of a filled container. The last empty container from the right is the first container from the left. This is to the immediate left of a filled container. Hence, the second container from the left must be a filled container.
Since the second container from the left is filled, the fourth container from the left must be empty. Also, the second container from the left is the first filled container from the left. Hence, the fourth container from the left must be the first empty container from the right. All the containers to the right of the fourth container from the left (i.e., the fifth container from the left and the sixth container from the left) must be filled, while the third container from the left must be empty.
Since two empty containers, the first container from the left and the fourth container from the left have 300 ml and 450 ml of water, the third container from the left must have 50 ml of water.
the fifth container from the left and the sixth container from the left must have 300 ml and 50 ml of water in any order.
the fifth container from the left is the second filled container from left, while the third container from the left is the second empty container from left. Hence, the fifth container from the left and the third container from the left must have same amount of water after redistribution. Hence, the fifth container from the left must have 50 ml of water and the sixth container from the left must have 300 ml of water.
We know that the capacity of the filled containers, the second container from the left, the fifth container from the left and the sixth container from the left, must be double the amount of water in them after redistribution. Hence, the second container from the left, the fifth container from the left and the sixth container from the left must be the 900 ml, 100 ml and 600 ml containers.
the fourth container from the left which was filled with 450 ml water can only be 600 ml or 900 ml or 1200 ml container. Since the second container from the left and the sixth container from the left are 900 ml and 600 ml containers, the fourth container from the left must be 1200 ml container.
The first container from the left must be 350 ml container and the third container from the left must be 250 ml container.
The following table provides the quantity of water in each container after Ravi distributed the water, the capacity of water and the initial state of the container (Empty/Filled):

Order	1	2	3	4	5	6
Capacity (ml)	350	900	250	1200	100	600
Quantity of Water (ml)	300	450	50	450	50	300
Initial State	Empty	Filled	Empty	Empty	Filled	Filled

The capacity of C3 is 250 ml. Choice (B)

Q23. DIRECTIONS *for questions 23 and 24:* Type in your answer in the input box provided below the question.

What is the total quantity (in ml) of water that is present in the second, fourth and fifth containers from the left, after Ravi finished redistributing the water between the six containers?

After Ravi distributed the water between the containers, one of the containers has 300 ml and another has 450 ml. These values must be half the original volume of the containers which were filled. Hence, the volume of two of the containers that were filled must be 600 ml and 900 ml.
Further, if the 100 ml container was initially empty, then Ravi must have poured half the water from one of the other containers. Also, no water was spilled in this process. Even if Ravi transferred half the water from the next smallest container, i.e., the 250 ml container, the 100 ml container would have spilled water. Hence, the 100 ml container could not have been initially empty.
Therefore, the three containers that were initially filled were the 600 ml container, the 900 ml container and the 100 ml container. After Ravi distributed the water, two containers will have 300 ml of water, two will have 450 ml of water and two will have 50 ml of water.
Given that the first container from the left and the third container from the left have 300 ml and 450 ml of water.
Also, the second container from the left has more water than the fifth container from the left.
Hence, the second container from the left cannot have 50 ml of water. If the second container from the left has 300 ml of water, then between the first container from the left and the second container from the left, one must be the filled container first from left, while the other must be the empty container first from right. However, none of these containers can be the empty container first from right. Hence, the second container from the left cannot have 300 ml of water and must have 450 ml of water.
Since the second container from the left and the fourth container from the left both have 450 ml of water, one of them must be initially filled, while the other must be initially empty. Also, the first container from the left is definitely empty because it is given that the first filled container from the left is to the right of an empty container.
Also, it is given that the last empty container from the right is to the left of a filled container. The last empty container from the right is the first container from the left. This is to the immediate left of a filled container. Hence, the second container from the left must be a filled container.
Since the second container from the left is filled, the fourth container from the left must be empty. Also, the second container from the left is the first filled container from the left. Hence, the fourth container from the left must be the first empty container from the right. All the containers to the right of the fourth container from the left (i.e., the fifth container from the left and the sixth container from the left) must be filled, while the third container from the left must be empty.
Since two empty containers, the first container from the left and the fourth container from the left have 300 ml and 450 ml of water, the third container from the left must have 50 ml of water.
the fifth container from the left and the sixth container from the left must have 300 ml and 50 ml of water in any order.
the fifth container from the left is the second filled container from left, while the third container from the left is the second empty container from left. Hence, the fifth container from the left and the third container from the left must have same amount of water after redistribution. Hence, the fifth container from the left must have 50 ml of water and the sixth container from the left must have 300 ml of water.
We know that the capacity of the filled containers, the second container from the left, the fifth container from the left and the sixth container from the left, must be double the amount of water in them after redistribution. Hence, the second container from the left, the fifth container from the left and the sixth container from the left must be the 900 ml, 100 ml and 600 ml containers.
the fourth container from the left which was filled with 450 ml water can only be 600 ml or 900 ml or 1200 ml container. Since the second container from the left and the sixth container from the left are 900 ml and 600 ml containers, the fourth container from the left must be 1200 ml container.
The first container from the left must be 350 ml container and the third container from the left must be 250 ml container.
The following table provides the quantity of water in each container after Ravi distributed the water, the capacity of water and the initial state of the container (Empty/Filled):

Order	1	2	3	4	5	6
Capacity (ml)	350	900	250	1200	100	600
Quantity of Water (ml)	300	450	50	450	50	300
Initial State	Empty	Filled	Empty	Empty	Filled	Filled

Quantity of water in C2, C4 and C5 = 450 + 450 + 50 = 950 ml. Ans: (950)

Q24. DIRECTIONS *for questions 23 and 24:* Type in your answer in the input box provided below the question.

What is the maximum quantity (in ml) of water that can be further poured into any of the six containers, after Ravi finished redistributing the water between the six containers?

After Ravi distributed the water between the containers, one of the containers has 300 ml and another has 450 ml. These values must be half the original volume of the containers which were filled. Hence, the volume of two of the containers that were filled must be 600 ml and 900 ml.
Further, if the 100 ml container was initially empty, then Ravi must have poured half the water from one of the other containers. Also, no water was spilled in this process. Even if Ravi transferred half the water from the next smallest container, i.e., the 250 ml container, the 100 ml container would have spilled water. Hence, the 100 ml container could not have been initially empty.
Therefore, the three containers that were initially filled were the 600 ml container, the 900 ml container and the 100 ml container. After Ravi distributed the water, two containers will have 300 ml of water, two will have 450 ml of water and two will have 50 ml of water.
Given that the first container from the left and the third container from the left have 300 ml and 450 ml of water.
Also, the second container from the left has more water than the fifth container from the left.
Hence, the second container from the left cannot have 50 ml of water. If the second container from the left has 300 ml of water, then between the first container from the left and the second container from the left, one must be the filled container first from left, while the other must be the empty container first from right. However, none of these containers can be the empty container first from right. Hence, the second container from the left cannot have 300 ml of water and must have 450 ml of water.
Since the second container from the left and the fourth container from the left both have 450 ml of water, one of them must be initially filled, while the other must be initially empty. Also, the first container from the left is definitely empty because it is given that the first filled container from the left is to the right of an empty container.
Also, it is given that the last empty container from the right is to the left of a filled container. The last empty container from the right is the first container from the left. This is to the immediate left of a filled container. Hence, the second container from the left must be a filled container.
Since the second container from the left is filled, the fourth container from the left must be empty. Also, the second container from the left is the first filled container from the left. Hence, the fourth container from the left must be the first empty container from the right. All the containers to the right of the fourth container from the left (i.e., the fifth container from the left and the sixth container from the left) must be filled, while the third container from the left must be empty.
Since two empty containers, the first container from the left and the fourth container from the left have 300 ml and 450 ml of water, the third container from the left must have 50 ml of water.
the fifth container from the left and the sixth container from the left must have 300 ml and 50 ml of water in any order.
the fifth container from the left is the second filled container from left, while the third container from the left is the second empty container from left. Hence, the fifth container from the left and the third container from the left must have same amount of water after redistribution. Hence, the fifth container from the left must have 50 ml of water and the sixth container from the left must have 300 ml of water.
We know that the capacity of the filled containers, the second container from the left, the fifth container from the left and the sixth container from the left, must be double the amount of water in them after redistribution. Hence, the second container from the left, the fifth container from the left and the sixth container from the left must be the 900 ml, 100 ml and 600 ml containers.
the fourth container from the left which was filled with 450 ml water can only be 600 ml or 900 ml or 1200 ml container. Since the second container from the left and the sixth container from the left are 900 ml and 600 ml containers, the fourth container from the left must be 1200 ml container.
The first container from the left must be 350 ml container and the third container from the left must be 250 ml container.
The following table provides the quantity of water in each container after Ravi distributed the water, the capacity of water and the initial state of the container (Empty/Filled):

Order	1	2	3	4	5	6
Capacity (ml)	350	900	250	1200	100	600
Quantity of Water (ml)	300	450	50	450	50	300
Initial State	Empty	Filled	Empty	Empty	Filled	Filled

In C4, an additional 750 ml can be poured. This is the maximum quantity of water than can be poured into any container. Ans: (750)

DIRECTIONS *for questions 25 to 28:* Answer the questions on the basis of the information given below.

In a playschool, as a part of an assignment, each of fifteen children, A through O, was given a distinct integer, from 1 to 15, and was asked to write down the number of letters in the integer (when written as a word) that he was given (for example, 1, when written as a word as 'one', has three letters; 2, when written as a word as 'two', has three letters…). The following table gives the numbers written down by the fifteen children:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	6	4	5	7	8	3	4	3	5	6	3	3	5	4	8

Further, it is also known that

i. the integer with B is higher than that with each of I and C.
ii. the sum of the integers with M and H is the same as the sum of the integers with E and I.
iii. the integers with A and G add up to a prime number which is less than the sum of the integers with F, H and K.

Q25. DIRECTIONS *for questions 25 to 28:* Select the correct alternative from the given choices.
What is the difference between the number with C and the number with O?

a) **5**

b) **10**

c) **6**

d) **4**

Given that each child wrote the number of letters in the number that they were given. The following table provides the possible numbers that each child could have been given:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	11 12	4 5 9	3 7 8	15	13 14	1 2 6 10	4 5 9	1 2 6 10	3 7 8	11 12	1 2 6 10	1 2 6 10	3 7 8	4 5 9	13 14

From (i), B must have a number greater than 7. Hence, B must have 9.
For E and I, the minimum sum of their numbers is 16 and the maximum is 22.
For M and H, the minimum sum is 4 and the maximum is 18.
From (ii), this sum can only be 16, 17 or 18.
Sum of numbers with M and H cannot be 16. Sum of numbers with E and I cannot be 18. Hence, the sum will be 17. M and H will have 7 and 10 respectively. E and I will have 14 and 3 respectively.
Since E has 14, O will have 13. Since I has 3 and M has 7, C will have 8.
From (iii), A and G must have 12 and 5 respectively. Only then will the sum of the numbers with them be a prime number. Since G has 5 and B has 9, N will have 4. Since A has 12, J will have 11.
The maximum sum of the numbers with F, H and K will be 18 (6 + 2 + 10). Only for this, condition (iii) will be satisfied. Hence, F and K will have 6 and 2 in any order (since H has 10). L will have the number 1. The following table gives the possible cases:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	12	9	8	15	14	2 6	5	10	3	11	6 2	1	7	4	13

The required difference = 13 – 8 = 5. Choice (A)

Q26. DIRECTIONS *for questions 25 to 28:* Select the correct alternative from the given choices.
How many children have a number less than that with F?

a) **0**

b) **1**

c) **5**

d) **Cannot be determined**

Given that each child wrote the number of letters in the number that they were given. The following table provides the possible numbers that each child could have been given:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	11 12	4 5 9	3 7 8	15	13 14	1 2 6 10	4 5 9	1 2 6 10	3 7 8	11 12	1 2 6 10	1 2 6 10	3 7 8	4 5 9	13 14

From (i), B must have a number greater than 7. Hence, B must have 9.
For E and I, the minimum sum of their numbers is 16 and the maximum is 22.
For M and H, the minimum sum is 4 and the maximum is 18.
From (ii), this sum can only be 16, 17 or 18.
Sum of numbers with M and H cannot be 16. Sum of numbers with E and I cannot be 18. Hence, the sum will be 17. M and H will have 7 and 10 respectively. E and I will have 14 and 3 respectively.
Since E has 14, O will have 13. Since I has 3 and M has 7, C will have 8.
From (iii), A and G must have 12 and 5 respectively. Only then will the sum of the numbers with them be a prime number. Since G has 5 and B has 9, N will have 4. Since A has 12, J will have 11.
The maximum sum of the numbers with F, H and K will be 18 (6 + 2 + 10). Only for this, condition (iii) will be satisfied. Hence, F and K will have 6 and 2 in any order (since H has 10). L will have the number 1. The following table gives the possible cases:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	12	9	8	15	14	2 6	5	10	3	11	6 2	1	7	4	13

Since F can have 2 or 6, the answer cannot be determined. Choice (D)

Q27. DIRECTIONS *for questions 25 to 28:* Select the correct alternative from the given choices.
Which student has the number 1?

a) **F**

b) **H**

c) **L**

d) **K**

Given that each child wrote the number of letters in the number that they were given. The following table provides the possible numbers that each child could have been given:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	11 12	4 5 9	3 7 8	15	13 14	1 2 6 10	4 5 9	1 2 6 10	3 7 8	11 12	1 2 6 10	1 2 6 10	3 7 8	4 5 9	13 14

From (i), B must have a number greater than 7. Hence, B must have 9.
For E and I, the minimum sum of their numbers is 16 and the maximum is 22.
For M and H, the minimum sum is 4 and the maximum is 18.
From (ii), this sum can only be 16, 17 or 18.
Sum of numbers with M and H cannot be 16. Sum of numbers with E and I cannot be 18. Hence, the sum will be 17. M and H will have 7 and 10 respectively. E and I will have 14 and 3 respectively.
Since E has 14, O will have 13. Since I has 3 and M has 7, C will have 8.
From (iii), A and G must have 12 and 5 respectively. Only then will the sum of the numbers with them be a prime number. Since G has 5 and B has 9, N will have 4. Since A has 12, J will have 11.
The maximum sum of the numbers with F, H and K will be 18 (6 + 2 + 10). Only for this, condition (iii) will be satisfied. Hence, F and K will have 6 and 2 in any order (since H has 10). L will have the number 1. The following table gives the possible cases:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	12	9	8	15	14	2 6	5	10	3	11	6 2	1	7	4	13

L has the number 1. Choice (C)

Q28. DIRECTIONS *for questions 25 to 28:* Select the correct alternative from the given choices.
The sum of the numbers with which of the following pairs of children is definitely a prime number?

a) **A, B**

b) **B, L**

c) **I, K**

d) **F, J**

Given that each child wrote the number of letters in the number that they were given. The following table provides the possible numbers that each child could have been given:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	11 12	4 5 9	3 7 8	15	13 14	1 2 6 10	4 5 9	1 2 6 10	3 7 8	11 12	1 2 6 10	1 2 6 10	3 7 8	4 5 9	13 14

From (i), B must have a number greater than 7. Hence, B must have 9.
For E and I, the minimum sum of their numbers is 16 and the maximum is 22.
For M and H, the minimum sum is 4 and the maximum is 18.
From (ii), this sum can only be 16, 17 or 18.
Sum of numbers with M and H cannot be 16. Sum of numbers with E and I cannot be 18. Hence, the sum will be 17. M and H will have 7 and 10 respectively. E and I will have 14 and 3 respectively.
Since E has 14, O will have 13. Since I has 3 and M has 7, C will have 8.
From (iii), A and G must have 12 and 5 respectively. Only then will the sum of the numbers with them be a prime number. Since G has 5 and B has 9, N will have 4.
Since A has 12, J will have 11.
The maximum sum of the numbers with F, H and K will be 18 (6 + 2 + 10). Only for this, condition (iii) will be satisfied. Hence, F and K will have 6 and 2 in any order (since H has 10). L will have the number 1. The following table gives the possible cases:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	12	9	8	15	14	2 6	5	10	3	11	6 2	1	7	4	13

F and J will have a sum of either 13 or 17, both of which are prime numbers.

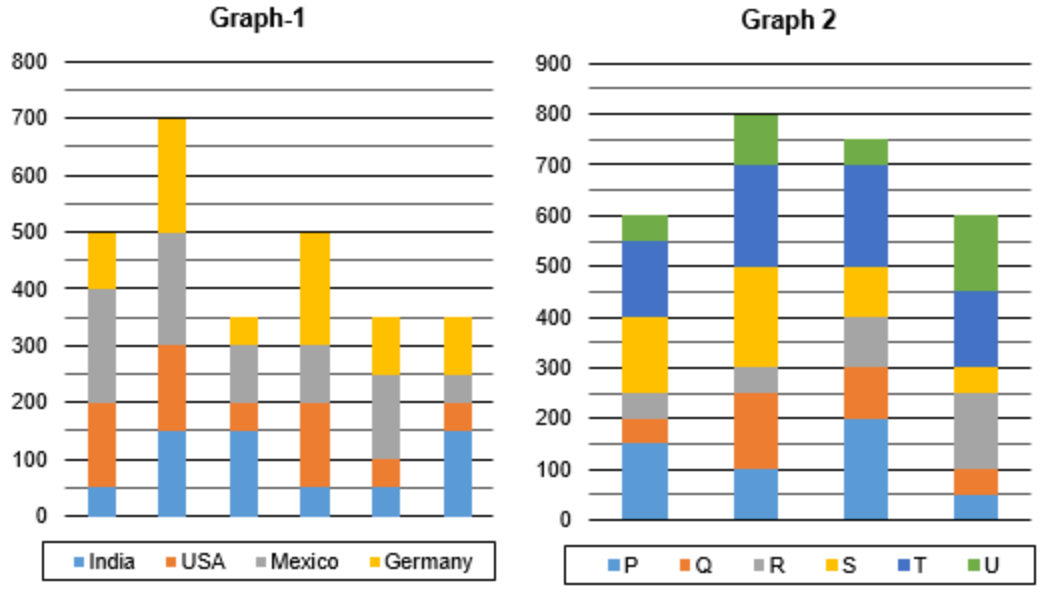
Choice (D)

DIRECTIONS *for questions 29 to 32:* Answer the questions on the basis of the information given below.

Each of six companies, P through U, has employees from four different countries – India, USA, Mexico and Germany.

In the first bar graph below, titled Graph-1, each bar represents the employees in a company and provides the breakup of the number of employees from each country in that company. However, the labels of the companies have been omitted in this graph.

In the second bar graph below, titled Graph-2, each bar represents the employees from a country and provides the breakup of the number of employees in each company from that country. However, the labels of the countries have been omitted in this graph.



Q29. DIRECTIONS *for questions 29 to 32:* Select the correct alternative from the given choices.
How many employees in P are from Mexico?

a) **50**

b) **150**

c) **100**

d) **Cannot be determined**

From the first graph, we know the number of employees from each country. The following table provides this information where each row of the table represents a different company:

India	USA	Mexico	Germany
50	150	200	100
150	150	200	200
150	50	100	50
50	150	100	200
50	50	150	100
150	50	50	100

In the table above, India and USA have a similar distribution of employees across the six companies (each number appears the same number of times for these two countries). For each of these two countries, the number of employees from that country is not 200 for any company. In Graph-2, the first and last bars must represent these two countries in any order.

The second and third bar from the left must represent Mexico and Germany. In the table above, we can observe that the number of employees from Mexico is 150 for one company, while the number of employees from Germany is not 150 for any company. Between the two bars, i.e., the second from left and the third from left, in Graph-2, the bar which is second from left is the only bar which has a value of 150. Hence, the bar second from left must be Mexico, while the bar third from left is Germany.

From the Mexico bar in Graph-2, we can see that the number of employees in P, Q, R, S, T and U from Mexico are 100, 150, 50, 200, 200 and 100, respectively. From the table above, we can see that the last row, which has a value of 50 for Mexico, must correpsond to R. The fifth row which has a value of 150 must correspond to Q. The first two rows can be S and T, in any order. The third and fourth rows can be P and U, in any order.

From the Germany bar in Graph-2, we can see that the number of employees in P, Q, R, S, T and U from Germany are 200, 100, 100, 100, 200 and 50. From the table above, we can see that the second and fourth row, which have a value of 200 for Germany, must correspond to P and T in any order. However, from the above para, we can see that the second row must correspond to either S or T. Hence, the only possibility is that the second row must be T. Hence, the first row must be S (since first two rows must be S and T, in any order, from above). The fourth row must be P (since second and fourth rows must be P and T, in any order) and the third row must be U (from above).

The following table provides the number of employees from each company for each country:

Country	India	USA	Mexico	Germany	Total
S	50	150	200	100	500
T	150	150	200	200	700
U	150	50	100	50	350
P	50	150	100	200	500
Q	50	50	150	100	350
R	150	50	50	100	350

The number of employees in P from Mexico is 100. Choice (C)

Q30. DIRECTIONS *for questions 29 to 32:* Select the correct alternative from the given choices. What percentage of employees in Q are from USA?

a) **14.29%**

b) **28.57%**

c) **30%**

d) **21.43%**

From the first graph, we know the number of employees from each country. The following table provides this information where each row of the table represents a different company:

India	USA	Mexico	Germany
50	150	200	100
150	150	200	200
150	50	100	50
50	150	100	200
50	50	150	100
150	50	50	100

In the table above, India and USA have a similar distribution of employees across the six companies (each number appears the same number of times for these two countries). For each of these two countries, the number of employees from that country is not 200 for any company. In Graph-2, the first and last bars must represent these two countries in any order.

The second and third bar from the left must represent Mexico and Germany. In the table above, we can observe that the number of employees from Mexico is 150 for one company, while the number of employees from Germany is not 150 for any company. Between the two bars, i.e., the second from left and the third from left, in Graph-2, the bar which is second from left is the only bar which has a value of 150. Hence, the bar second from left must be Mexico, while the bar third from left is Germany.

From the Mexico bar in Graph-2, we can see that the number of employees in P, Q, R, S, T and U from Mexico are 100, 150, 50, 200, 200 and 100, respectively. From the table above, we can see that the last row, which has a value of 50 for Mexico, must correpsond to R. The fifth row which has a value of 150 must correspond to Q. The first two rows can be S and T, in any order. The third and fourth rows can be P and U, in any order.

From the Germany bar in Graph-2, we can see that the number of employees in P, Q, R, S, T and U from Germany are 200, 100, 100, 100, 200 and 50. From the table above, we can see that the second and fourth row, which have a value of 200 for Germany, must correspond to P and T in any order. However, from the above para, we can see that the second row must correspond to either S or T. Hence, the only possibility is that the second row must be T. Hence, the first row must be S (since first two rows must be S and T, in any order, from above). The fourth row must be P (since second and fourth rows must be P and T, in any order) and the third row must be U (from above).

The following table provides the number of employees from each company for each country:

Country	India	USA	Mexico	Germany	Total
S	50	150	200	100	500
T	150	150	200	200	700
U	150	50	100	50	350
P	50	150	100	200	500
Q	50	50	150	100	350
R	150	50	50	100	350

The percentage of employees in Q from USA = 50/350 = 14.29% Choice (A)

Q31. DIRECTIONS *for questions 29 to 32:* Select the correct alternative from the given choices.
In which of the following companies is the number of employees from India as a percentage of the total number of employees in the company the highest?

a) **U**

b) **P**

c) **Q**

d) **T**

From the first graph, we know the number of employees from each country. The following table provides this information where each row of the table represents a different company:

India	USA	Mexico	Germany
50	150	200	100
150	150	200	200
150	50	100	50
50	150	100	200
50	50	150	100
150	50	50	100

In the table above, India and USA have a similar distribution of employees across the six companies (each number appears the same number of times for these two countries). For each of these two countries, the number of employees from that country is not 200 for any company. In Graph-2, the first and last bars must represent these two countries in any order.

The second and third bar from the left must represent Mexico and Germany. In the table above, we can observe that the number of employees from Mexico is 150 for one company, while the number of employees from Germany is not 150 for any company. Between the two bars, i.e., the second from left and the third from left, in Graph-2, the bar which is second from left is the only bar which has a value of 150. Hence, the bar second from left must be Mexico, while the bar third from left is Germany.

From the Mexico bar in Graph-2, we can see that the number of employees in P, Q, R, S, T and U from Mexico are 100, 150, 50, 200, 200 and 100, respectively. From the table above, we can see that the last row, which has a value of 50 for Mexico, must correpsond to R. The fifth row which has a value of 150 must correspond to Q. The first two rows can be S and T, in any order. The third and fourth rows can be P and U, in any order.

From the Germany bar in Graph-2, we can see that the number of employees in P, Q, R, S, T and U from Germany are 200, 100, 100, 100, 200 and 50. From the table above, we can see that the second and fourth row, which have a value of 200 for Germany, must correspond to P and T in any order. However, from the above para, we can see that the second row must correspond to either S or T. Hence, the only possibility is that the second row must be T. Hence, the first row must be S (since first two rows must be S and T, in any order, from above). The fourth row must be P (since second and fourth rows must be P and T, in any order) and the third row must be U (from above).

The following table provides the number of employees from each company for each country:

Country	India	USA	Mexico	Germany	Total
S	50	150	200	100	500
T	150	150	200	200	700
U	150	50	100	50	350
P	50	150	100	200	500
Q	50	50	150	100	350
R	150	50	50	100	350

The number of employees from India as a percentage of the total number of employees in the company is the highest for U and R. From the options, the answer is U. Choice (A)

Q32. DIRECTIONS *for questions 29 to 32:* Select the correct alternative from the given choices.
In which of the following companies is the number of employees from Germany less than that from USA?

a) **P**

b) **Q**

c) **R**

d) **S**

From the first graph, we know the number of employees from each country. The following table provides this information where each row of the table represents a different company:

India	USA	Mexico	Germany
50	150	200	100
150	150	200	200
150	50	100	50
50	150	100	200
50	50	150	100
150	50	50	100

In the table above, India and USA have a similar distribution of employees across the six companies (each number appears the same number of times for these two countries). For each of these two countries, the number of employees from that country is not 200 for any company. In Graph-2, the first and last bars must represent these two countries in any order.

The second and third bar from the left must represent Mexico and Germany. In the table above, we can observe that the number of employees from Mexico is 150 for one company, while the number of employees from Germany is not 150 for any company. Between the two bars, i.e., the second from left and the third from left, in Graph-2, the bar which is second from left is the only bar which has a value of 150. Hence, the bar second from left must be Mexico, while the bar third from left is Germany.

From the Mexico bar in Graph-2, we can see that the number of employees in P, Q, R, S, T and U from Mexico are 100, 150, 50, 200, 200 and 100, respectively. From the table above, we can see that the last row, which has a value of 50 for Mexico, must correpsond to R. The fifth row which has a value of 150 must correspond to Q. The first two rows can be S and T, in any order. The third and fourth rows can be P and U, in any order.

From the Germany bar in Graph-2, we can see that the number of employees in P, Q, R, S, T and U from Germany are 200, 100, 100, 100, 200 and 50. From the table above, we can see that the second and fourth row, which have a value of 200 for Germany, must correspond to P and T in any order. However, from the above para, we can see that the second row must correspond to either S or T. Hence, the only possibility is that the second row must be T. Hence, the first row must be S (since first two rows must be S and T, in any order, from above). The fourth row must be P (since second and fourth rows must be P and T, in any order) and the third row must be U (from above).

The following table provides the number of employees from each company for each country:

Country	India	USA	Mexico	Germany	Total
S	50	150	200	100	500
T	150	150	200	200	700
U	150	50	100	50	350
P	50	150	100	200	500
Q	50	50	150	100	350
R	150	50	50	100	350

The number of employees from Germany is less than that from USA in S.

Choice (D)

Q1. DIRECTIONS *for question 1:* Type in your answer in the input box provided below the question.
Find the number of pairs (x, y) satisfying $5x - 19y = 2$ and $x \leq 1000$, where x and y are both positive integers.

The least value of x and y, that satisfy the equation $5x - 19y = 2$ are $x = 8$ and $y = 2$
The next values of x that satisfy the equation are $8 + 19$, $8 + 38$, $8 + 57$....., $8 + (19 \times 52)$
Total number of values = 53 Ans: (53)

Q2. DIRECTIONS *for questions 2 to 4:* Select the correct alternative from the given choices.
Fresh coconut contains 80% water by weight whereas dry coconut contains 10% water by weight. What is the weight of dry coconut that can be obtained from 20 kg of fresh coconut?

a) **4 kg**

b) **4.12 kg**

c) **4.44 kg**

d) **4.54 kg**

Fresh coconuts contain 20(0.2) = 4 kg of other matter and this other matter forms 90% of dry fruit weight.
Hence the weight of dry coconut is 4/0.9 kg or 4.44 kg. Choice (C)

Q3. DIRECTIONS *for questions 2 to 4:* Select the correct alternative from the given choices.
In a 200 m race, A beats B by 4 m and B beats C by 10 m. In a 200 m race, if C and A should finish the race at the same time, what head start should A give C?

a) **10 m**

b) **14 m**

c) **14.8 m**

d) **13.8 m**

A	B	C
200	196	?
	200	190

When B runs 196m, C runs $\frac{196 \times 190}{200}$ = 186.2 m

Hence, A beats C by 200 – 186.2 = 13.8m Choice (D)

Q4. DIRECTIONS *for questions 2 to 4:* Select the correct alternative from the given choices.
A three-digit number when reversed becomes three-eighths of the original number. How many such three-digit numbers are there?

a) **0**

b) **1**

c) **2**

d) **More than 2**

The difference between a three-digit number and its reverse is always a multiple of 99.
Let the number be $8k$, then its reverse is $3k$.
$\therefore$ The difference = $5k = 99m$
$\Rightarrow k$ is multiple of 99 and m is a multiple of 5.
$\therefore$ The difference is a multiple of 5×99,
i.e. 495, 990 .....
Since the difference between a number and its reverse is at most 891, the difference has to be 495.
$\Rightarrow k = 99$
$\therefore$ The number if 8×99
i.e. 792
So, only one such number is possible. Choice (B)

DIRECTIONS *for questions 5 and 6:* These questions are based on the following data.

In a class of 128 students, 100 passed Mathematics, 96 passed Physics, 99 passed Chemistry, 90 passed Biology while 40 passed all the four subjects.

Q5. DIRECTIONS *for question 5:* Select the correct alternative from the given choices.
What could be the maximum number of students who failed in all the four subjects?

a) **25**

b) **28**

c) **13**

d) **12**

There are 128 students in the class with 100 + 96 + 99 + 90 i.e., 385 passes. It is also known that 40 students passed in 4 subjects. So, they have a total of 160 passes. The remaining 88 students got the remaining 225 passes. Now, each of these 88 students can get at most 3 passes.

If the number of students who have no passes has to be maximised, then the number of students who have at least one pass has to be minimised. The number of students who have at least one pass will be minimum, when each student gets maximum number of passes i.e., 3 passes (because the students getting 4 passes are already taken care of). ∴The minimum number of students required to get the 225 passes

$= \frac{225}{3} = 75$

i.e., each of these 75 students have exactly three passes and there are no students with one pass or two passes.

∴Number of students with no passes

= 128 – (40 + 75) = 13 Choice (C)

DIRECTIONS *for questions 5 and 6:* These questions are based on the following data.

In a class of 128 students, 100 passed Mathematics, 96 passed Physics, 99 passed Chemistry, 90 passed Biology while 40 passed all the four subjects.

Q6. DIRECTIONS *for question 6:* Type in your answer in the input box provided below the question. What could be the minimum number of students who passed exactly two subjects?

There are 128 students in the class with 100 + 96 + 99 + 90 i.e., 385 passes. It is also known that 40 students passed in 4 subjects. So, they have a total of 160 passes. The remaining 88 students got the remaining 225 passes. Now, each of these 88 students can get at most 3 passes.

In the above problem, we could see that the number of students with two passes is zero. (the minimum possible) Ans: (0)

Q7. DIRECTIONS *for questions 7 to 10:* Select the correct alternative from the given choices.

What values of x satisfy the relationship $|x - \frac{1}{2}| > 3$, where x is real?

a) $-\frac{5}{2} < x < \frac{7}{2}$

b) $x < -\frac{7}{2}$ or $x > \frac{7}{2}$

c) $x < -\frac{5}{2}$ or $x > \frac{7}{2}$

d) $-\frac{7}{2} < x < \frac{5}{2}$

The expression $|x - a|$ is the distance of x from a on the number line.
$\therefore$ If $|x - 1/2| > 3$, $x > 1/2 + 3$ or
$x < 1/2 - 3$ i.e., $x > 7/2$ or $x < -5/2$. Choice (C)

Q8. DIRECTIONS *for questions 7 to 10:* Select the correct alternative from the given choices.
Nitish was to get a 50% hike in his pay but the computer operator wrongly keyed in the figure as 80% and printed the new pay slip. He received salary at this level for three months before the company realized the mistake. What percentage of his correct new salary will he get in the fourth month, if the excess salary paid to him in the previous three months is deducted in the fourth month?

a) **20%**

b) **25%**

c) **40%**

d) **33$\frac{1}{3}$%**

Let the actual salary of Nitish be ₹100. For 50% hike his new salary should be ₹150. As the computer operator made a mistake, his salary according to the computer operator is ₹180. Nitish got ₹90 more than the actual salary for the 3 months. His salary has to be reduced by ₹90 from ₹150.

$\therefore$ He receives $\left(\frac{60}{150}\right) \times 100\% = 40\%$ of his new salary in the fourth month.

Choice (C)

Q9. DIRECTIONS *for questions 7 to 10:* Select the correct alternative from the given choices.
A 16 cm long thread is cut into three parts. The length (in cm) of each part is an integer. The three parts thus obtained are used to construct a triangle, with each part taken as one side. How many such triangles can be constructed?

a) **6**

b) **4**

c) **3**

d) **5**

Let the length of the three segments be x, y and z respectively.
$x + y + z = 16$, Let x be the length of the greatest side.
Since sum of any two sides is greater than the third side, $x \leq 7$.
The possibilities are listed down in the table below.

x	y	z
7	7	2
7	6	3
7	5	4
6	6	4
6	5	5

Hence 5 such triangles can be drawn. Choice (D)

Q10. DIRECTIONS *for questions 7 to 10:* Select the correct alternative from the given choices.
In a triangle whose angles are in the ratio 1 : 2 : 1, the length of the perpendicular drawn to the longest side is 10 cm. What is radius (in cm) of the circle that can be inscribed in the triangle?

a) $10 - 5\sqrt{2}$

b) $10\left(\sqrt{2}-1\right)$

c)

$\frac{10+5\sqrt{2}}{2}$

d) $10\left(\sqrt{2}+1\right)$

Since angles are in the ratio 1 : 2 : 1 they must be 45, 90, 45. It is an isoceles right triangle. Perpendicular drawn to the hypotenuse is also its median.

$\therefore$ Hypotenuse = $10 \times 2 = 20$ cm

Hence the other two sides are $\frac{20}{\sqrt{2}}, \frac{20}{\sqrt{2}}$ i.e., $10\sqrt{2}, 10\sqrt{2}$

Area = $\frac{1}{2} \times 10\sqrt{2} \times 10\sqrt{2} = 100$ cm^2

Perimeter = $20\left(1+\sqrt{2}\right)$

Semi perimeter = $10\left(1+\sqrt{2}\right)$

We know

Area = rs, where r is the inradius and S is the semi perimeter.

$\therefore 100 = r \times 10\left(1+\sqrt{2}\right)$

$r = \frac{100}{10\left(1+\sqrt{2}\right)}$

$= \frac{10}{1+\sqrt{2}} = 10\left(\sqrt{2}-1\right)$ cm

Choice (B)

DIRECTIONS *for questions 11 and 12:* Answer the questions on the basis of the information given below.

$2_{100} - 2_{99} - 2_{98} \ldots\ldots\ldots\ldots - 2_{50} = k \times 2_n$ where *k* and *n* are natural numbers.

Q11. DIRECTIONS *for question 11:* Type in your answer in the input box provided below the question.

What is the greatest possible value of *n*?

Given that
$2^{100} - 2^{99} - 2^{98} - 2^{97} \ldots\ldots\ldots - 2^{50} = k.2^n$
where $\{k, n\} \in N$
Consider $2^n - 2^{n-1} = 2.2^{n-1} - 2^{n-1} = 2^{n-1}$
$\Rightarrow 2^{99} - 2^{98} - 2^{97} \ldots\ldots\ldots\ldots - 2^{50} = k.2^n$
$\Rightarrow 2^{98} - 2^{97} \ldots\ldots\ldots\ldots - 2^{50} = k.2^n$
.
.
.
.
$2^{51} - 2^{50} = k.2^n$
$\Rightarrow 2^{50} = k.2^n$
Here k can take any value from 2^0 to 2^{49}.
$\therefore$ The greatest value of n is 50 (when $k = 1$) Ans: (50)

DIRECTIONS *for questions 11 and 12:* Answer the questions on the basis of the information given below.

$2_{100} - 2_{99} - 2_{98} \ldots\ldots\ldots\ldots - 2_{50} = k \times 2_n$ where k and n are natural numbers.

Q12. DIRECTIONS *for question 12:* Select the correct alternative from the given choices.
How many distinct values of $(k + n)$ are possible?

a) **50**

b) **52**

c) **51**

d) **49**

For each of the 50 values of k, we get 50 corresponding values of $(k + n)$.
But when $k = 1$, $n = 50 \Rightarrow k + n = 51$ and when $k = 2$, $n = 49 \Rightarrow k + n = 51$
After that, the value of $k + n$ continuously increases. So, though there are 50 ordered pairs (k, n), there are only 49 distinct values of $(k + n)$. Choice (D)

Q13. DIRECTIONS *for question 13:* Select the correct alternative from the given choices.

If $-2 < a < 1, -3 < b < -\frac{1}{3}, -3 < c < -\frac{1}{3}$ and $d = \frac{ab}{c}$, which of the following is necessarily true?

a) $-\frac{2}{9} < d < 18$

b) $-18 < d < \frac{2}{9}$

c) $-18 < d < 1$

d) $-18 < d < 9$

We have $-2 < a < 1$, $-3 < b < -1/3$, $-3 < c < -1/3$, $d = ab/c$.
b/c (the ratio of the two negative quantities) is always positive. Its minimum value is (1/3)/3 = 1/9 and its maximum value is 3/(1/3) = 9
$\therefore$ $1/9 < b/c < 9$ and $-2 < a < 1$

As $\frac{b}{c} < 9$ and $a > -2$, $\frac{ab}{c} > -18$

As $\frac{b}{c} < 9$ and $a < 1$, $\frac{ab}{c} < 9$

$\therefore -18 < \frac{ab}{c} < 9$

Only choice (D) is necessarily true. Choice (D)

Q14. DIRECTIONS *for questions 14 and 15:* Type in your answer in the input box provided below the question.
How many pairs of non-negative integers (m, n) are there such that mn = m + n + 1?

Given that
$mn = m + n + 1$
$\Rightarrow mn - m - n + 1 = 2$
$(m - 1)(n - 1) = 2 = 1 \times 2$ or 2×1
Since $m \geq 0$ and $n \geq 0 \Rightarrow m - 1 \geq -1$ and $n - 1 \geq -1$.
$\Rightarrow m - 1 = 1$ and $n - 1 = 2$ or $m - 1 = 2$ and $n - 1 = 1$
$\Rightarrow m = 2$ and $n = 3$ or $m = 3$ and $n = 2$
$\therefore$ We have only two ordered pairs (m, n) satisfying the given conditions.

Ans: (2)

Q15. DIRECTIONS *for questions 14 and 15:* Type in your answer in the input box provided below the question.

If all the words formed using all the letters of the word SONIC are arranged as listed in a dictionary, then how many words would be there before the word ICONS?

Correct alphabetical order is CINOS.
∴ Number of words staring with C will be 4!
with ICN → 2
and ICONS is 27th
∴ 26 words before ICONS. Ans: (26)

Q16. DIRECTIONS *for questions 16 to 18:* Select the correct alternative from the given choices.
The compound interest on a certain sum at a certain rate of interest for the 4th year is Rs.2,420 and for the 5th year is Rs.2,662. Find the compound interest for the 2nd year.

a) **Rs.1811**

b) **Rs.2000**

c) **Rs.2100**

d) **Rs.2200**

The compound interest for the $(n + 1)^{th}$ year is R% more than that for the n^{th} year, where R% is the annual rate of interest. Since the interest for the 5th year is 10% more than that of the 4th year, it is clear that R = 10

The compound interest for the 3rd year = $\frac{2420}{1.1}$ i.e. ₹2200

So, the compound interest for the 2nd year = $\frac{2200}{1.1}$ = ₹2000 Choice (B)

Q17. DIRECTIONS *for questions 16 to 18:* Select the correct alternative from the given choices.
Let m be a positive integer greater than 4 and $n = m^2 - m$. Then $n^3 - 6n^2 + 8n$ is always divisible by

a) **48.**

b) **6.**

c) **12.**

d) **124.**

It is given that $m > 4$, $m \in z$. $n = m(m - 1)$
$\Rightarrow$ n is even, since the product of any two consecutive numbers is always even.
Now, $n^3 - 6n^2 + 8n$
$= n(n^2 - 6n + 8)$
$= n(n - 2)(n - 4)$ = product of three consecutive even numbers. The product of three consecutive even numbers will always have at least one multiple of 4 and exactly one multiple of 6. The third number is of course, definitely even, i.e., a multiple of 2.
$\therefore$ The number $n^3 - 6n^2 + 8n$ will always be divisible by
$2 \times 4 \times 6 = 48$. Choice (A)

Q18. DIRECTIONS *for questions 16 to 18:* Select the correct alternative from the given choices.

If the line joining the points (4, k) and (3, $\frac{3}{2}$) is parallel to the line joining the points ($\frac{16}{5}$, 8) and ($\frac{6}{5}$, 2), find the value of k.

a) $\frac{1}{2}$

b) **1**

c) **4**

d) $\frac{9}{2}$

Slope of the line joining the points (4, k) and (3, 3/2)

$$= \frac{\left(\frac{3}{2} - k\right)}{3 - 4} = k - \frac{3}{2}$$

Slope of the line joining (16/5, 8)and (6/5, 2)

$$\frac{2 - 8}{\left(\frac{6}{5} - \frac{16}{5}\right)} = \frac{-6}{-2} = 3$$

Now, since the two lines are parallel, their slopes are also equal.
$k - 3/2 = 3$
$\Rightarrow k = 9/2$ Choice (D)

Q19. DIRECTIONS *for question 19:* Type in your answer in the input box provided below the question.
Among all the four-digit natural numbers divisible by 24, in how many numbers does the number 24 appear?

There are three possibilities. These are explained below.

(i) Possibility 1: The numbers are of the form $24xy$.
$24xy = 24(100) + xy$
$24(100)$ is divisible by 24.
$\therefore xy$ must be divisible by 24.
$\therefore xy$ = 00 or 24 or 48 or 72 or 96.
$\therefore$ There are 5 possible numbers.

(ii) Possibility 2: The numbers are of the form $x24y$.
$x24y$ must be divisible by both 8 and 3. As it is divisible by 8, $24y$ is divisible by 8.
$\therefore y = 0$ or 8.
$x24y$ has the sum of its digits as $x + y + 6$. This must be divisible by 3.
$\therefore x + y$ must be divisible by 3. When $y = 0$, x must be divisible by 3. $\therefore x = 3$ or 6 or 9.
When $y = 8$, $x + 8$ must be divisible by 3.
$\therefore x = 1$ or 4 or 7.
A total of 6 numbers are possible.

(iii) Possibility 3: The numbers are of the form $xy24$.
$xy24 = 100(xy) + 24$
$100(xy)$ must be divisible by 24.
100 is divisible by 4.
$\therefore xy$ must be divisible by 6.
$\therefore xy$ has 15 possibilities (xy = 12 or 18 or …… 96)
$\therefore$ A total of 15 numbers are possible.
But 2424 is occurred in possibility (i) as well as possibility (iii).
$\therefore$ A total of 25 numbers are possible. Ans: (25)

Q20. DIRECTIONS *for questions 20 to 22:* Select the correct alternative from the given choices.
Ram and Sita had a son named Bala. The sum of the present ages of Ram and Bala is 120 years. When Ram was as old as Sita is, Sita was twice as old as Bala. Find the present age of Bala (in years).

a) **35**

b) **30**

c) **40**

d) **20**

Let the present ages (in years) of Ram, Sita and Bala be r, s and b respectively.
Ram was as old as Sita was $(r - s)$ years ago.
Ages of Sita and Bala then were $[s - (r - s)]$ years and $[b - (r - s)]$ years respectively.
$s - (r - s) = 2\,[b - (r - s)]$
$2s - r = 2\,[b - r + s]$
$r = 2b$
Also $r + b = 120$
$\therefore\ b = 40$ Choice (C)

Q21. DIRECTIONS *for questions 20 to 22:* Select the correct alternative from the given choices.
Consider the following two curves in the xy plane: $y = x_4 + x_2 + 5$ and $y = x_2 + x + 6$. If the two curves intersect at n points, which of the following is true?

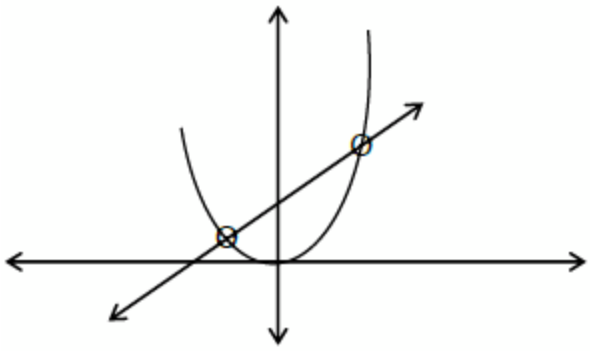
a) **n = 0**

b) **n = 1**

c) **n = 2**

d) **n = 3**

The equations of the two curves are $y_1 = x^4 + x^2 + 5$ and $y_2 = x^2 + x + 6$



At the point of intersection $y_1 = y_2$
$\Rightarrow x^4 + x^2 + 5 = x^2 + x + 6 \Rightarrow x^4 = x + 1$
This is a quartic (4^{th} degree equation) equation and finding the roots for this can be really complex. Therefore, we'll use graphs to find out the number of points of intersection.
The graphs of x^4 and $x + 1$ are given above. We see that there are two points of intersection. Choice (C)

Q22. DIRECTIONS *for questions 20 to 22:* Select the correct alternative from the given choices.
If x is a real number such that $g(x) = \min(7 - 3x, 3 + 5x)$, then the maximum possible value of $g(x)$ is

a) $\frac{5}{2}$.

b) $\frac{7}{2}$.

c) $\frac{11}{2}$.

d) $\frac{13}{2}$

$g(x) = \min(7 - 3x, 3 + 5x)$

The two expression $7 - 3x$ and $3 + 5x$ are equal when $x = \frac{1}{2}$

For $x < \frac{1}{2}$, $7 - 3x > 3 + 5x$

$\therefore g(x) = 3 + 5x < 5\frac{1}{2}$

For $x = \frac{1}{2}$, $7 - 3x = 3 + 5x$

$\therefore g(x) = 7 - 3x = 3 + 5x = \frac{1}{2}$

For $x > \frac{1}{2}$, $7 - 3x < 3 + 5x$

$\therefore g(x) = 7 - 3x < 5\frac{1}{2}$

$\therefore$ The maximum value of $g(x)$ is $5\frac{1}{2}$ or $\frac{11}{2}$. Choice (C)

Q23. DIRECTIONS *for question 23:* Type in your answer in the input box provided below the question.
The units digit in the expansion of $[(999)^{999}]^{999}$ is

Given expression is $[(999)^{999}]^{999}$. As the units digit is affected only by the last digit of 999, consider $[(9)^{999}]^{999}$.
We know that the units digit of $(9)^n$ = 9, if n is odd, and 1, if n is even.
$\therefore [(9)^{999}]^{999}$
$= 9^{999 \times 999}$
$= 9^{(\text{odd number})}$
$\therefore$ The units digit will be 9. Ans: (9)

Q24. DIRECTIONS *for question 24:* Select the correct alternative from the given choices.
The production of wheat in a country is increased by 20% in a certain year over the previous year. If the production of food grains increased by 50% during the same period and the production of wheat as a percentage of the food grain production decreased by 5 percentage points, what is the percentage change in the production of food grains other than wheat for the given period?

a) 60% increase

b) **35% increase**

c) **25% increase**

d) 45% decrease

Let the production of wheat and total food grain production in the previous year be x and y respectively.
$\therefore$ Production in the present year will be 1.2x and 1.5y respectively.

Given, $\frac{x}{y} \times 100 - \frac{1.2x}{1.5y} \times 100 = 5$

$\therefore x = \frac{y}{4}$.

$\therefore$ The production of food grains other than wheat during the given period will be $\frac{3y}{4}$ and 1.2y respectively.

$\therefore$ The required percentage change = $\frac{1.2y - 0.75y}{0.75y}(100)$

= 60% increase Choice (A)

Q25. DIRECTIONS *for question 25:* Type in your answer in the input box provided below the question.

Twenty men were employed to do some work in a certain time. It was found that, after one-third of the scheduled time, only one-quarter of the total work was completed. How many more men should now be employed to complete the work in 3/4th of the originally scheduled time?

20 men were employed to complete the work in say N days. Therefore, the estimated work is 20N mandays.

Work completed in $\frac{N}{3}$ days is 5N mandays.

The remaining time according to revised schedule

$= \frac{3N}{4} - \frac{N}{3} = \frac{9N - 4N}{12} = \frac{5N}{12}$ Remaining work

= 15N man day.

20 men in N/3 days do 5N mandays of work.

Number of men needed in 5N/12 days to do 15N mandays of work is

$(20)\left(\frac{N}{3}\right)\left(\frac{12}{5N}\right)\left(\frac{15}{5}\right) = 48$

⇒ 28 additional men are needed. Ans: (28)

Q26. DIRECTIONS *for questions 26 to 28:* Select the correct alternative from the given choices.
A number has 28 factors. If *n* of these are perfect squares, *n* cannot be

a) 4.

b) **6.**

c) **7.**

d) 8.

The number N has 28 factors.
28 {or $2^2(7)$} itself has 6 factors. The different ways in which 28 can be expressed as the product of 1, 2 or 3 factors, the corresponding structures for N, and the number of factors of N which are perfect squares, are tabulated below:

Different ways of writing 28	Structure of N	Factors which are perfect squares	No. of factor that are perfect squares
1(28)	p^{27}	$p^0, p^2, p^4 \ldots\ldots p^{26}$	14
2(14)	p^1q^{13}	$p^0q^0, p^0q^2, \ldots\ldots p^0q^{12}$	(1)(7) = 7
4(7)	p^3q^6	$p^0q^0 \ldots p^0q^6, p^2q^0 \ldots p^2q^6$	(2)(4) = 8
2(2)(7)	$p^1q^1r^6$	$p^0q^0r^0, p^0q^0r^2, \ldots, p^0q^0r^0$	(1)(1)(4) = 4

$\therefore$ N can have 4, 7, 8 or 14 factors which are perfect squares but not 6 such factors.
Choice (B)

Q27. DIRECTIONS *for questions 26 to 28:* Select the correct alternative from the given choices.
P, Q and R are distinct positive real numbers.

$$\frac{P^4\,(Q^2+R^2)+Q^4\,(P^2+R^2)+R^4\,(P^2+Q^2)}{(PQR)^2}$$ must be more than

a) 8.

b) **7.**

c) **6.**

d) 5.

The given expression is

$$P^2\left(\frac{1}{R^2}+\frac{1}{Q^2}\right)+Q^2\left(\frac{1}{P^2}+\frac{1}{R^2}\right)+R^2\left(\frac{1}{Q^2}+\frac{1}{P^2}\right)$$

$$=\frac{P^2}{R^2}+\frac{R^2}{P^2}+\frac{P^2}{Q^2}+\frac{Q^2}{P^2}+\frac{R^2}{Q^2}+\frac{Q^2}{R^2}$$

As A.M > G.M for distinct positive numbers, each of

$\frac{P^2}{R^2}+\frac{R^2}{P^2}$, $\frac{P^2}{Q^2}+\frac{Q^2}{P^2}$ and $\frac{R^2}{Q^2}+\frac{Q^2}{R^2}$ is more than 2.

∴ The given expression must be more than 6. Choice (C)

Q28. DIRECTIONS *for questions 26 to 28:* Select the correct alternative from the given choices.
Which of the following is not a perfect square?

a) $(171)_8$

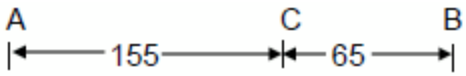
b) **$(14,641)_8$**

c) **$(61)_8$**

d) $(58)_8$

$(58)_8 = (5 \times 8) + 8 = (48)_{10}$
As 48 is not a perfect square $(58)_8$ cannot be a perfect square. Choice (D)

Q29. DIRECTIONS *for question 29:* Type in your answer in the input box provided below the question.
Two stations, A and B, are 220 km apart. A train starts at A at 9 a.m and goes towards B at 65 km/hr without stopping in between. Another train starts at B at 10 a.m and goes towards A at 52 km/hr but stops for ten minutes at station C, which lies between A and B at a distance of 65 km from B. Ignoring the length of the trains, how far (in km) from A do the two trains cross each other?



Train 1 starts at A at 9:00 am at 65 km/hr.
Train 2 starts at B at 10 am at 52 km/hr

Train 2 reaches C in $\frac{65}{52}$ hr = $1\frac{1}{4}$ hr, i.e at 11:15 am.

By this time train 1 covers

$(65)\left(\frac{9}{4}\right)$ km $= \frac{585}{4}$ km $= 146.25$ km.

To cover the remaining distance of (155 – 146.25) km
= 8·75 km to C, it takes

$\frac{8 \cdot 75}{65}$ hr $= \frac{1 \cdot 75}{13}$ hr $= \frac{7}{52}$ hr $= \frac{7}{52}(60)$ min

$= \frac{105}{13}$ min $= 8\frac{1}{13}$ min.

As Train 2 stops at C for 10 min, the two trains cross each other at C, i.e., at a distance of 155 km from A. Ans: (155)

Q30. DIRECTIONS *for question 30:* Select the correct alternative from the given choices.
What is the minimum number of integers from 7 to 77 (both inclusive) that must be chosen so that at least one multiple of 3 is included?

a) 3

b) **58**

c) **59**

d) 49

7 to 77 - Totally 71 integers. Of these, there are 23 multiples of 3 - i.e., 9, 12, 15, ----- 75. This means that there are (71 – 23) = 48 numbers that are not multiples of 3. To get at least one multiple of 3, we should take all the numbers that are not multiples and also one number which is a multiple of 3 so that at least one multiple of 3 will be there. Hence, we should take 48 + 1 = 49 numbers. Choice (D)

Q31. DIRECTIONS *for questions 31 and 32:* Type in your answer in the input box provided below the question.
A transport agency has five carriers, each of capacity ten tonnes. The carriers are scheduled such that the first carrier makes a trip every day, the second carrier makes a trip every second day, the

third makes a trip every third day and so on. Find the maximum number of times in a year that it is possible to dispatch a total shipment of 50 tonnes in a single day. The operations start on the 7th of January and continue till the end of the year, i.e., the 31st of December, without any holidays.

The first carrier makes a trip in one day and the second carrier makes one trip in 2 days and so on. Hence all the trucks will leave on the same day once every N days where N is the LCM of 1, 2, 3, 4 and 5.
$\Rightarrow N = 60$
$\therefore$ If on the 7^{th} of January all the trucks left together then after every 60 days they will leave together (i.e. on the same day). There will be at most 366 – 6 = 360 days including 7^{th} January in that year. In 360 days there can be at most 6 occasions like that. Ans: (6)

Q32. DIRECTIONS *for questions 31 and 32:* Type in your answer in the input box provided below the question.
In a chess tournament, every person played one game with every other person participating in the tournament. The total number of games that men played between themselves exceeded those played by men with women by 18. If there were 4 women in the tournament, how many games in total were played in the tournament?

If n is the number of men, then $\frac{n(n-1)}{2} - 4n = 18$
$\Rightarrow n^2 - 9n - 36 = 0$
$\Rightarrow (n - 12)(n + 3) = 0 \Rightarrow n = 12$
Total number of people in the group = 12 + 4 = 16. Hence number of games played = 16(15/2) = 120. Ans: (120)

Q33. DIRECTIONS *for questions 33 and 34:* Select the correct alternative from the given choices.
If a trader sells two articles at the same price, one at a loss of 30% and the other at a profit of 20%, then the trader makes approximately

a) 11.58% profit.

b) **10% loss.**

c) **6% loss.**

d) 11.58% loss.

$30\% = \frac{3}{10}$

$20\% = \frac{1}{5}$

	Cost Price	Selling Price
30% loss	10	7
20% profit	5	6

Since selling price is the same,

	Cost Price	Selling Price
30% loss	60	42
20% profit	35	42
	95	84

∴ Together, he bought both articles at ₹95 and sold at ₹84.

∴ Loss % = $\frac{11}{95} \times 100 = 11.58\%$ Choice (D)

Q34. DIRECTIONS *for questions 33 and 34:* Select the correct alternative from the given choices.
The number of bacteria in a laboratory doubles every 20 minutes. If the number of bacteria is 364 at 8 a.m., which of the following is the earliest time at which the number of bacteria will be 10,000 or more?

a) 9:00 a.m.

b) **9:20 a.m.**

c) **9:40 a.m.**

d) 10:00 a.m.

Given that the number of bacteria doubles every twenty minutes.

So, $364 \xrightarrow{20\,\text{min}} 728 \xrightarrow{40\,\text{min}} 1{,}456 \xrightarrow{60\,\text{min}}$

$2{,}912 \xrightarrow{80\,\text{min}} 5{,}824 \xrightarrow{100\,\text{min}} 10{,}000+$

∴ The count of bacteria will be more than 10,000 in 100 minutes i.e. at 9:40 a.m.

Choice (C)