

(Key and Solutions for AIMCAT2025)

Key

SECTION – I

1. A	8. C	15. D	22. D	29. 4321
2. C	9. B	16. B	23. A	30. 1
3. B	10. C	17. D	24. D	31. D
4. A	11. B	18. D	25. 4	32. 3
5. B	12. D	19. C	26. 2413	33. 1432
6. D	13. B	20. A	27. D	34. B
7. A	14. D	21. B	28. 1243	

SECTION – II

1. 7	8. C	15. A	22. B	29. C
2. D	9. 4	16. B	23. D	30. A
3. A	10. B	17. C	24. 7	31. D
4. B	11. 2	18. 158	25. C	32. A
5. 18	12. B	19. A	26. A	
6. D	13. 59	20. B	27. B	
7. 32	14. D	21. D	28. D	

SECTION – III

1. 36	8. A	15. B	22. D	29. B
2. A	9. 60	16. A	23. 6	30. C
3. B	10. B	17. A	24. B	31. 2
4. 28	11. C	18. A	25. C	32. 34
5. B	12. C	19. D	26. D	33. 18
6. A	13. A	20. 5	27. 2	34. 6
7. D	14. A	21. C	28. D	

Solutions

SECTION – I

Solutions for questions 1 to 5:

Number of words and Explanatory notes for RC:

Number of words: 570

1. Option A: 'Momentary relief' is a positive term and in the passage that would refer to something that can achieve economic levelling. Option A seems to explain what good came out of the Great Depression. Hence, Option A is the answer.

Option B: If it isn't one of the four causes, it doesn't make sense to call it a momentary relief. What else could make it a relief is not clear from the first para of the passage. Hence, Option B is not the answer.

Option C: This contradicts the overall content and idea of the passage itself, since the passage suggests that a crisis increases inequality as often as it decreases it. Also, it doesn't explain why that is a momentary relief. Hence, Option C is not the answer.

Option D: The Great Depression didn't lead to a universal increase in minimum wages. This is misrepresentation of information. Hence, Option D is not the answer.

Choice (A)

2. Consider the sentences: Income taxes and property taxes rose spectacularly during both world wars. Physical damage to capital goods slashed the assets of the wealthy, too, as did post-war inflations. The wars also drove up membership in trade unions—one of the war-related factors that played a part in keeping inequality low for a generation after 1945 before it started to climb back up in the 1980s.

Option A: From the first underlined portion, it is clear that world wars contribute to income equality. Hence, Option A is not the answer.

Option B: the second underlined portion clearly suggests that world wars affect the affluent/wealthy because of physical damage to goods. Hence, Option B is not the answer.

Option C: While trade union memberships went up, nothing has been mentioned about its effect on the wages. Hence, Option C is the answer.

Option D: By soaking in the rich, and wiping out assets, wars reduced the wealth gap between people. Therefore, we can understand that Option D has been mentioned as one of the ways wars contribute to income equality.

Choice (C)

3. Consider the sentences: Catastrophic levelling will be less likely in future. Pandemics are a real risk, but

plagues similar in impact to the Black Death are not. Nor are total revolutions and wars fought over years by armies of millions. On top of that, since the Industrial Revolution, general prosperity, regardless of inequality, has risen. And in past decades, global inequality has fallen.

Option A: The author feels catastrophic levelling is not possible because the threat of a war is very low. So, Option A doesn't weaken the author's argument.

Option B: Epidemics cannot go out of hand according to the author (low probability of plagues). But, this option says an epidemic can break out, which means catastrophic levelling is possible. Hence, Option B weakens the author's argument.

Option C: The author's argument about the unlikelihood of catastrophic levelling isn't affected by the standard of living and the way it is affected by wars. Hence, Option C is not the answer.

Option D: The relative values of land and labour could be upset by epidemics but the author's argument is that catastrophic levelling is unlikely because an epidemic is unlikely. Hence, Option D is not the answer.

Choice (B)

4. Consider the sentences: Political reforms are mostly ineffectual, in part because they are often aimed at the balance of power between the straightforwardly wealthy and the politically powerful, rather than the lot of the have-nots.

Option A: This option agrees with the underlined portions of the para above, that the reforms are merely to benefit the powerful and the wealthy. Hence, Option A is right.

Option B: Whether political reforms both increase and decrease inequality has not been mentioned in the passage (financial crisis does that). Hence, Option B is distortion of information, and not the answer.

Option C: While this mentions half the truth, it is circular reasoning, in that it doesn't mention why the reforms are ineffective. Hence, Option C is not the answer.

Option D: While this talks about land reforms and their relation with violence, it doesn't bring political reforms into the argument. Hence, Option D is not the answer.

Choice (A)

5. Consider the sentences: When everyone is pauperised, the rich lose most. Total revolution, of the Russian or Chinese sort, fits the bill. So does the 20th-century sibling of such revolutions: the war of mass-mobilisation. The author is trying to equate wars with revolutions as they wipe out the wealth of the rich and bring about equality.

Option A: The parameter of comparison wasn't the impossibility of revolutions and wars. Option A is not the answer.

Option B: Mass pauperisation (wiping off wealth) is what the author was referring to in the para above. Both revolutions and wars achieve it. Hence, Option B is the answer.

Option C: Mass-mobilisation is not the issue being discussed; mass pauperisation is. Hence, Option C isn't giving the reason why the author compared revolutions with wars.

Option D: There is no causation being established by the author. Wars are like revolutions. That doesn't mean revolutions cause wars. Hence, Option D can be eliminated.

Choice (B)

Solutions for questions 6 to 9:

Number of words and Explanatory notes for RC:

Number of words: 468

6. Consider the sentences: Comparative philosophy – study in two or more philosophical traditions – is left almost entirely to people working in anthropology or cultural studies. This abdication of interest assumes that comparative philosophy might help us to understand the intellectual cultures of India, China or the Muslim world, but not the human condition.

Option A: This doesn't explain the reason why it is left to those in anthropology or cultural studies. It is a circular reasoning fallacy, not explaining why there is no interest left. Hence, Option A is not the answer.

Option B: The importance of understanding the intellectual cultures is not the reason why comparative philosophy is left to those in anthropology or cultural studies. That would mean more emphasis or demand for understanding intellectual cultures, higher priority. There is no evidence to believe so. Hence, Option B is not the answer.

Option C: We are discussing why comparative philosophy is ignored or rather left to anthropologists. And the reason is that an association between comparative philosophy and human condition is not easily made, contradicting this option.

Option D: Study of philosophical traditions (comparative philosophy) throws light on cultures rather on humanity – this is the assumption. It is thought to throw light. Hence, this is the most accurate depiction.

Choice (D)

7. Consider the sentences: ...we cannot understand ourselves if we do not understand others. Getting to know others requires avoiding the twin dangers of overestimating either how much we have in common or how much divides us. Our shared humanity and the perennial problems of life mean that we can always learn from and identify with the thoughts and practices of others, no matter how alien they might at first appear.

Option A: This represents both the sides – what we shouldn't overestimate – the commonalities and the differences. Option A is the answer.

Option B: This once again, only considers one side of the story. We shouldn't also overestimate the differences. Hence, Option B is not the answer.

Option C: It is not just the differences we shouldn't overestimate but also what we have in common, which is not mentioned in this option.

Option D: This only depicts half of the issue. We shouldn't overestimate the differences or what is shared between us. Hence, Option D is not the answer.

Choice (A)

8. Consider the sentences: By gaining greater knowledge of how others think, we can become less certain of the knowledge we think we have, which is always the first step to greater understanding. So, the author would advocate studying philosophical traditions.

Option A: It is not just the similarities, that the author is concerned about. The author is concerned about various philosophies and how they compare with each other. Hence, Option A is not the answer.

Option B: Once again, the author doesn't limit himself to just what divides humanity and what the differences are between philosophies. Option B is not the answer.

Option C: The author wants to look at other philosophies so that the assumptions one makes without even knowing, and takes for granted, can be challenged. This is possible only through comparison of philosophies. Hence, Option C is the answer.

Option D: While this is close, the author is not looking at a siloed understanding of only Eastern philosophies. Rather, the author wants to understand all the philosophies and where they stand with respect to each other. Hence, Option D is not the answer.

Choice (C)

9. Consider the sentences: Most people do not consciously articulate the philosophical assumptions they have absorbed and are often not even aware that they have any, but assumptions about the nature of self, ethics, sources of knowledge and the goals of life are deeply embedded in our cultures and frame our thinking without our being aware of them.

Option A: The way they worship is not the assumption in their philosophies. Hence, Option A is not the answer.

Option B: Ethics, nature of self, sources of knowledge and the goals – can be equated to moralities, knowledge and the purpose of life. This depicts the assumptions accurately. Option B is the answer.

Option C: This option talks about cultural assumption, which have not been mentioned anywhere. The passage

talks about assumptions that have been embedded in our culture and philosophy. They are not necessarily cultural assumptions. Hence, Option C is not the answer.

Option D: This is circular reasoning. The question asks about the assumptions, assumptions we use to frame our thinking. This choice simply mentions that without listing out the assumptions. Option D is not the answer.

Choice (B)

Solutions for questions 10 to 14:

Number of words and Explanatory notes for RC:

Number of words: 533

10. It should be noted that the passage ends with: 'Nosek agreed, saying that the growing trend for pre-registering the aims of a study and the increasing number of journals to have adopted policies promoting transparency were encouraging.' The author mainly discusses the idea of being able to replicate studies and be more serious about checking whether studies hold good, rather than just focusing on whether they are exciting.

Option A: The focus was on all studies and not just those which had significant consequences. Hence, Option A is not the answer.

Option B: The method of reaching the conclusion in studies wasn't exactly discussed in the passage directly. Yes, the discussion was around replicating the studies – but without a negative judgment on the studies which couldn't be replicated. This is understood from the lines: "It's not recriminations about who is a bad researcher or otherwise," said Nosek. "That's something that has completely changed over the last five years. Replication in 2012 felt like an attack because it was so rare in science at the time. Now it's become normal." Hence, Option B is not the answer.

Option C: The focus is on the quality of the studies. Also the author isn't too concerned about findings being replicated. The author wants findings to be refined. The passage also ends with a reference to policies which improve transparency. This can be understood from the lines - "That doesn't mean it's unreplicable, no study is definitive," said Nosek. "Science is really a process of uncertainty reduction." Hence, this is an eventuality the author would vote for.

Option D: The author isn't concerned about replicating studies. The discussion is around whether the findings of a study can be replicated and if not, can it be refined. The difference between replication of studies and replication of findings needs to be understood here. Hence, Option D is not the answer.

Choice (C)

11. The author's main conclusion in the passage is that quality of scientific studies must not be compromised. The approach he has used to arrive at this conclusion is that of replicability of findings, if studies are conducted multiple times. Option A: This statement is negative towards 'policies promoting transparency' whereas the passage exhorts policies to be put in place to improve the quality of studies. However, the overall message of the passage was not about how many studies are there around fields – quality over quantity was the discussion. Hence, Option A is not the answer.

Option B: This option tends to assert that studies cannot be replicated, virtually making it impossible to certify studies or improve their quality. If studies cannot be repeated, then we can never know about the replicability of findings of a study. Hence, this will invalidate the approach that the author has chosen to drive his point home.

Option C: This doesn't counter the message of the passage (about improving quality of studies). Rather, it talks about attitude of academicians which although important, is not the main idea. Hence, Option C is not the answer.

Option D: The author's conclusion is based on a study that checked the replicability of findings. Hence, replicability not being the best way of identifying the veracity of a study would weaken the main message, but does not attack the approach that the author has chosen.

If we compared Option B and Option D – they both weaken different aspects of the passage. However, one talks about

replicability not being the most important parameter. The other talks about replicability being 'impossible'. Hence, while option D weakens the argument of the author, option B invalidates the approach that the author has chosen. Therefore, choice B is the answer.

Choice (B)

12. Option A: From 'Nosek agreed, saying that the growing trend for pre-registering the aims of a study and the increasing number of journals to have adopted policies promoting transparency were encouraging', we can understand that this is one of the changes. Option A is not the answer.

Option B: From 'We're in the midst of a dramatic increase in the rigour and transparency of research in the social sciences', we can understand that Nosek agrees with this. Option B is not the answer.

Option C: From 'Replication in 2012 felt like an attack because it was so rare in science at the time. Now it's become normal', we can understand that Nosek agrees with this being one of the changes. Hence, Option C is not the answer.

Option D: Recrimination doesn't happen more regularly now according to Nosek. This can be understood from the sentences: "It's not recriminations about who is a bad researcher or otherwise," said Nosek. "That's something that has completely changed over the last five years. Replication in 2012 felt like an attack because it was so rare in science at the time. Now it's become normal." Hence, Option D is the answer.

Choice (D)

13. Option A: Not all of present studies are represented by the term nectar and crack cocaine – only the ones with exciting results. Hence, this is not the answer.

Option B: The exciting results are being compared to nectar and crack cocaine. Hence, 'metaphor' is the right term. Option B is the answer.

Option C: Maximising the quality is not being referred to in 'nectar and crack cocaine'. Because, it clearly uses the term 'exciting', which is not akin to high quality, rather a distraction from checking if the study was indeed of high quality. Also, analogy is comparing one situation with another situation. Hence, Option C is not the answer.

Option D: The 'nectar and crack cocaine' expression is not a 'sign' since it is not a fact or an event or inference. It is a literary expression to explain that the focus is on how exciting the results are rather than whether they are reliable. Option D is not the answer.

Choice (B)

14. Consider the sentence: The latest work revealed scientists were also uncannily accurate at predicting which studies would later succeed or fail to replicate. We can understand that there was a pattern as far as predicting the replicability of a particular study and the reliability of a study was something a majority could assess.

Option A: If this is true, it casts aspersions on scientists who conduct studies. We are not discussing their sincerity, or showing them in negative light if their studies failed during replication. Hence, Option A is not the answer.

Option B: We are not talking about reasons behind studies failing. Rather we are discussing the 'replicability'. Hence, Option B is not the answer.

Option C: What should be done with studies if they fail to be replicated is not the primary concern of the sentence in consideration. Hence, Option C is not the answer.

Option D: Since, most peers agree with each other 'uncannily', they can be trusted to have the ability to 'whet' or approve studies. This can be inferred from the sentence given. Option D is the answer.

Choice (D)

Solutions for questions 15 to 19:

Number of words and Explanatory notes for RC:

Number of words: 561

15. The author's argument is that around the world people are feeling nostalgic, for various reasons – glorifying the past and hoping for it to repeat or bemoaning the present.

Option A: If people feel, change is inevitable, it doesn't tell us whether they are happy about it or unhappy about it. Hence, this option doesn't affect the author's argument.

Option B: This means the people aren't optimistic about the future. They are more likely to prefer what existed in the past or what exists in the present. Hence, this doesn't repudiate the author. In a way, it agrees with the author.

Option C: This option doesn't tell us whether people are comfortable with things changing too fast. Hence, Option C is not the answer.

Option D: This clearly shows people are happy with the changes, and hence, nostalgia associated with past glory or better times, isn't really true. Changing for the better also implies the world is not going back to the past but is positively becoming something else, something new. Option D can repudiate the author's argument.

Choice (D)

16. Consider the sentences: In addition, *the self-esteem that nostalgists crave often seems to feed xenophobia*. Because of the taint of xenophobia, progressives are quick to treat all nostalgia as prejudice, leading them to dismiss the fears of whole sections of society. It is clear that progressives dismiss nostalgia as prejudice because of the xenophobia or fear of foreigners, which comes with the nostalgia or longing for the past glory. From these sentences we can understand that the craving for self-esteem is the cause behind nostalgia, and that self-esteem feeds xenophobia.

Option A: Racism and xenophobia, although close, cannot be equated. They are not one and the same thing. Hence, Option A is close but not the answer.

Option B: From 'the self-esteem that nostalgists crave often seems to feed xenophobia' we can understand that nostalgia stems from people craving for self-esteem and that feeds xenophobia. So, the cause of nostalgia – self-esteem - does lead to intolerance.

Option C: Rebellions haven't been discussed in the abovementioned para. This is easy to eliminate.

Option D: Populists exploit the nostalgia. But, this has got nothing to do with the progressives hating nostalgia and banishing it. Nostalgia or the craving for self-esteem is not necessarily a populist emotion. Hence, Option D is not the answer.

Choice (B)

17. Consider the sentences: *Right and left, democracies and autocracies, all are harking back to the glories of yesteryear*. Even as President Donald Trump vows to "Make America great again", President Xi Jinping is using his "Chinese dream" to banish a century of humiliation and return China to its golden age.

Option A: While it is true that politicians exploit the past, the option doesn't put a finger on the main theme discussed here – the nostalgia. Hence, Option A is not the answer.

Option B: While this is partially true, this doesn't represent the truth of all countries which are gripped by nostalgia. The author introduces these two countries to talk about nostalgia and only later, further discusses the two causes of nostalgia. Hence, Option B is close, but not the answer.

Option C: Decline of the society is a reason for nostalgia only in some countries, and that is not the reason why China and America, two different regions, are being mentioned. Hence, Option D is not the answer.

Option D: All the countries are in a mood of reminiscence – they're nostalgic. It is not limited to just politicians exploiting it. The people are reminiscing the past. Hence, Option D is the answer.

Choice (D)

18. Option A: Disillusionment is caused when someone holds something in high regard but then realises it didn't deserve that. However, the author mentions the given sentence to correct the people who are nostalgic about over-glorified past. Hence, Option A is not the answer.

Option B: The summers were mentioned by the author to show that he didn't really think things were as glorious as some of the nostalgists, talking about decline in the present, make them out to be. However, this is not the closest explanation of what the author meant by summers were rarely as idyllic (leisurely and beautiful), because not all nostalgists can be included in this explanation. As per

the para, the author talks about summers to support how the present is a good time and how those from emerging countries are right. Hence, Option B is not the best answer. Option C: The abovementioned sentence is not linked to populism in any way. Hence, this option can be eliminated. Option D: The summers clearly imply the author's stance about the glorification of the past. The option doesn't mention what the stance is – positive or negative, since the author is positive towards some and negative towards some nostalgists in the relevant lines. Hence, Option D is the answer.

Choice (D)

19. Consider the sentences: This orgy of reminiscence has different causes in different countries. In emerging markets *past glories are often a foretaste of future triumphs...In the rich world, by contrast, nostalgia usually stems from* what Sophia Gaston, of the Henry Jackson Society, calls "*an omnipresent, menacing feeling of decline*". These are the two reasons for nostalgia.

Option A: Future triumph doesn't exactly translate to 'taste of success'. More importantly, in case of rich countries, it is a sense of decline, not necessarily 'failure'. Hence, Option A is not the answer.

Option B: Sense of decline doesn't quite equate to embarrassment. Similarly, optimism for the future doesn't quite equate to 'a sense of pride'. Hence, Option B is an inaccurate representation.

Option C: In case of emerging countries, nostalgia is about a glorious past which is invoked to indicate future triumphs and in case of rich countries, it is about the sense of decline, a bleak future. Hence, this option correctly represents the difference.

Option D: It is more positive in case of emerging countries and negative in case of rich countries. Hence, the implication of nostalgia is incorrect in this choice, negative for emerging countries and positive for rich countries.

Choice (C)

Solutions for questions 20 to 24:

Number of words and Explanatory notes for RC:

Number of words: 537

20. Prof Pereira's main argument can be understood as: I tend to think we have a major biodiversity crisis, but *it would take either a fast acceleration of current extinction rates or a couple of centuries at current extinction rates*, for the current process to become a sixth mass extinction.

Option A: This is the most obvious central argument – that the extinction rates show a biodiversity crisis, but they don't yet confirm the sixth mass extinction. The main argument is that the rates are not high enough to cause an extinction in the near future. Unless the rate goes up, it'll take a couple of centuries. Hence, Option A is the answer.

Option B: The recent extinction rate may not really confirm that we are into the sixth mass extinction, according to Prof Pereira. It was not about whether those rates were known earlier or not. Hence, Option B is not the answer.

Option C: The sixth mass extinction is possible at the current extinction rate *but it will take about a couple of centuries*. Hence, Option C is not accurate.

Option D: Nothing has been mentioned about whether the data is genuine or copied, anywhere in what the Professor has argued against the study. Hence, Option D is easy to eliminate.

Choice (A)

21. Option A: From 'Under a "natural" rate of extinction, the study said that two species go extinct per 10,000 species per 100 years, rather than the one species that previous work has assumed. Modern rates of extinction were eight to 100 times higher, the authors found', we can understand that comparing the rates of extinction would be redundant, as the study has already done it. It cannot add any further depth. Option A is not the answer.

Option B: Since the study warns of a mass extinction based on the rapid rate of extinctions, a study to find out if this

rate is rapid enough to cause the extinction in near future would be the obvious next step. This will result in a well-rounded analysis and add depth. Option B is the answer. Option C: Identifying the total number of species on the planet wouldn't really affect the veracity of the study whose most important claim was that we are into the sixth mass extinction – inferred from the rate at which we are losing species. How many species exist doesn't matter. Option C is not the answer.

Option D: It has not been mentioned that the speed of extinctions is equal or comparable across various mass extinctions. So, comparing the extinction rates is a futile exercise. Option D is not the answer. Choice (B)

22. Consider the sentences: Ceballos pointed to the Pope Francis's encyclical on the environment, which was published on Thursday and lamented the loss of the world's biodiversity, and interventions by Barack Obama, as signs of hope. "These important figures are starting to really grasp the problem," he said. This explains the answer.

Option A: This doesn't explain why Obama was mentioned and what the connection with standard of living is. Hence, Option A is not the answer.

Option B: Obama has been mentioned as an important figure and how people like him are grasping the problem. Interventions from Obama have been praised as hope. However, whether the 'hope' refers to 'intensified efforts' cannot be understood clearly. Therefore, Option B is close but not the answer.

Option C: Obama was not mentioned in a negative light; he was mentioned as a positive sign. So, although Option C is close, it is not the answer, because this option suggests that important figures aren't grasping the problem.

Option D: From '**These important figures are starting to really grasp the problem**', we can understand why Barack Obama has been mentioned. Option D is the answer.

Choice (D)

23. This can be understood from: He said it was conservative because **it looked only at species that had been declared extinct**, which due to stringent rules can sometimes take many years after a species has actually gone extinct.

Option A: Only species which have been declared extinct are considered and that number is not high because it takes years to confirm extinction. Hence, Option A explains why the study was considered conservative. Option A is the answer.

Option B: Background extinction rates have not been mentioned in the above para where the reason for calling the study conservative has been mentioned. Option B is not the answer.

Option C: While vertebrates were given as an example in the passage, it was not to talk about whether the study was conservative. Option C is not the answer.

Option D: The study concludes that we are in the sixth mass extinction. Hence, this choice is an incorrect depiction of the reason why the study was conservative.

Choice (A)

24. Consider the sentences: On why people should be worried about the rate of extinctions, he said: "People say that's really sad, but why does it affect me? There are many reasons we should care. We are the species that are causing the loss of all these other species."

But the most important reason, he said, was that **by losing species, humanity was losing what enabled us to have a "good standard of living"**.

Option A: While it is true, the representation of the reason is not accurate. The author is not worried about our future standard of living. The author is worried about losing what helped us achieve the current standard of living. Hence, Option A is not the answer.

Option B: While this is a reason, it is not the most important reason according to the last line of the passage.

Option C: We are causing the extinction, true, but that is not the most important reason mentioned by the author to

highlight the alarming rates of extinction. Option C is not the answer.

Option D: We are losing something that is important for our standard of living and enabled us to have a good standard of living. This is the most important reason why the rate of extinction is important to focus on. Option D is the answer.

Choice (D)

Solution for question 25:

25. Sentence 2: Sentence 2 mentions the date, the person's name and the location.

Sentence 3: Sentence 4 has the pronoun 'his' (His discovery/ his superiors).

Sentence 1: Sentence 1 has the personal pronoun 'they'. And the clue 'shortly after'.

Sentence 5: Sentence 5 has the reference 'the mistake' and area of research "receiver operating characteristics".

Sentence 4: Sentence 3 introduces the 'credit gap'.

On a careful reading of the sentences, it can be observed that statement 2 is a general sentence that can begin the para. It has some proper nouns (names of persons and places) and a date. "noticed the largest blip" in sentence 2 establishes the topic of discussion. Sentence 2 is followed by sentence 3. The pronoun "his" in sentence 3 points to "George Elliott Junior" in sentence 2. Also "discovery" in sentence 3 relates to "noticed the largest blip" he had ever seen on a radar" in sentence 2. Sentences 3 and 1 form a mandatory pair. "dismissed by his superiors" in sentence 3 links with "unprepared for the Japanese bombers" in sentence 1. So sentence 3 is followed by sentence 1. Sentence 5 concludes the para. "The mistake" in sentence 5 points to the facts mentioned in sentences 3 and 1. So, 2315. Sentence 4 is the odd sentence out as 'credit gap' needs a precedent. Though 'operating characteristics' has been mentioned in sentence 5, "some appealing operating characteristics" in sentence 4 needs more substantiation.

Ans: (4)

Solution for question 26:

26. Sentence 1: Sentence 1 has the demonstrative pronoun 'those' and it mentions how people managed to make it into teachers' college.

Sentence 2: Sentence 2 has the proper noun "MacMillan" and the location "Jamaica".

Sentence 3: Sentence 3 again has the demonstrative pronoun 'those' and mentions how people proceeded to a university abroad.

Sentence 4: Sentence 4 talks about some problems in the education system.

On a careful reading of the sentences, it can be observed that sentence 2 is a general sentence that can begin the paragraph. It introduces the topic of discussion: Jamaica's educational system. Sentence 2 is followed by sentence 4. It expands on the concerns of the educational system in Japan: schooling upto fourteen years of age, no public schools or universities. Sentence 4 is followed by sentence 1. Sentence 1 tells us how students with academic inclinations managed to study even though Jamaica's educational system was not rosy. Sentence 1 is followed by sentence 3. "broader ambitions" in sentence 3 is parallel to "academic inclinations" in sentence 1 and it follows "with luck made it into teachers' college" in sentence 1. So, 2413.

Ans : (2413)

Solution for question 27:

27. Option A: It is democracy which is in the retreat and not 'informed citizenry'. Secondly, old-school despots embraced censorship and not modern-day dictators. Hence, Option A is not the answer.

Option B: This is true, but it ignores the central idea of modern despots propagating the misinformation. Hence, Option B is not the best possible summary.

Option C: While the first part of this summary is correct, the second half – dumbing down citizens – is an extreme exaggeration. Hence, Option C is not the answer.

Option D: This option covers the central points of the para. Firstly, modern day autocrats/despots/dictators are spreading mistrust of credible information. Secondly, this is affecting democracy negatively. Hence, Option D is the answer.
Choice (D)

Solution for question 28:

28. Sentence 1: Sentence 1 is a general sentence that can begin the para. It highlights a point – Preschoolers don't understand novel things.
Sentence 2: Sentence 2 explains preschoolers differ from older kids in terms of what they search for.
Sentence 3: Sentence 3 has the contrast conjunction 'but'. It talks about repetition and repeated exposure.
Sentence 4: Sentence 4 has the demonstrative adjective 'this' and has the clues: understanding and predictability.
So, sentence 1 is a general sentence that can begin the para. Sentence 1 is followed by sentence 2. " If you think about the world of preschoolers" in sentence 1 links with " driving force for preschoolers" in sentence 2. Also "surrounded by stuff they don't understand – things that are novel" in sentence 1 links with "not a search for novelty" in sentence 2. Sentences 2 and 4 form a mandatory pair. "a search for understanding and predictability" in sentence 2 links with "enables this process of understanding and predictability" in sentence 4. Sentence 4 explains the importance of repetition. Sentence 3 goes tangent to sentence 3. "But, of course, kids don't always like repetition" in sentence 3 contrasts "Repetition of key elements" in sentence 4. "repeated exposure, for deeper levels of comprehension" in sentence 3 links with "repetition enables this process of understanding and predictability." So, 1243.
Ans: (1243)

Solution for question 29:

29. Sentence 4: Sentence 4 is a general sentence that compares Jewish immigrants into America with other immigrants. It also mentions the various names associated with the Jewish immigrants.
Sentence 3: Sentence 3 contrasts the Irish and the Italians with the Jews.
Sentence 2: Sentence 2 tells us that the Jews took up urban professions in Europe.
Sentence 1: Sentence 1 explains what Professions the Jews had taken up in Europe.
On a careful reading of the sentences, it can be observed that sentence 4 is a general sentence that can begin the paragraph. It is the only sentence that has the word 'immigrant' in it (immigrants who came to America). So, sentence 4 has to precede the remaining sentences as the remaining sentences only talk about what the Jews and other immigrants pursued as trades before entering America. Sentence 4 is followed by sentence 3. "Jewish immigrants were not like the other immigrants" in sentence 4 links with "The Irish and Italians were peasants but not so the Jews" in sentence 3. Sentence 3 is followed by sentence 2. Both these sentences form a mandatory pair. "The Irish and the Italians were peasants, tenant farmers from the impoverished countryside of Europe but not so the Jews" in sentence 3 contrasts "the Jews had been forbidden to own land, so they clustered in cities, taking up **urban trades and professions**" in sentence 2. Sentence 2 is followed by sentence 1. "they clustered in cities, taking up urban trades and professions" in sentence 2 links with "they clustered in cities, taking up urban trades and professions" mentioned in sentence 1. So, 4321. Note that the para cannot start with sentence 2 as the arrangement will distort the thought flow.
Ans: (4321)

Solution for question 30:

30. Sentence 1: Sentence 1 does not have the word 'intelligence' and it is a general sentence that can begin another context.
Sentence 2: Sentence 2 has the clue 'also' and the names of several intelligences.

Sentence 3: Sentence 3 begins with 'unfortunately' which serves as a contrast marker here. It mentions two intelligences.

Sentence 4: Sentence 4 mentions the name of a person and the location. It establishes the topic of discussion: ten different intelligences (you may be a genius in any).

Sentence 5: Sentence 5 has the contrast conjunction 'but' and the names of several intelligences.

On a careful reading of the sentences, it can be observed that sentence 4 is a general sentence that can begin the para. It mentions the name of a Professor. It also introduces the background: ten different intelligences. Sentences 4 and 3 form a mandatory pair. "unfortunately, only two intelligences are measured" in sentence 3 contrasts "possess at least ten different intelligences" in sentence 4. So sentence 3 follows sentence 4. Sentence 3 is followed by sentence 5. The contrast conjunction 'but' in sentence 5 helps to connect sentence 5 to sentence 3. "you could be a genius in ..." in sentence 5 contrasts "only two intelligences are measured" in sentence 3. Sentence 2 adds to the list of intelligences and follows sentence 5. So, 4352. Sentence 1 is the odd sentence out. "Many things" in sentence 1 needs a precedent and more substantiation.

Ans: (1)

Solution for question 31:

31. Option A: This covers two important ideas – that Instagram stories are optimised (and therefore, manipulative and not real) and that we still accept it because we know the photographers (source) personally. Nevertheless, Option A is not the best possible answer because it leaves out the idea about comparison – the conclusion of the para.
Option B: 'Everything looks better' is an exaggeration because the central idea is that there will always be someone (at least one, not necessarily everyone) better looking. Hence, Option B is not the answer.
Option C: This is from the perspective of how one's life looks outside. The para is about how we look at others' lives through the lens of Instagram. Hence, Option C doesn't represent the right perspective and therefore, not the answer.
Option D: The manipulative aspect of Instagram and why we accept it has been pointed out subtly through 'half-truth'. Also, 'we can't stop ourselves' is what the author is trying to imply when he says 'someone is always better'. Therefore, Option D is the best possible answer.

Choice (D)

Solution for question 32:

32. Sentence 1: Sentence 1 mentions the personal pronoun 'she'. It speaks about the step she took and her conclusion.
Sentence 2: Sentence 2 has the proper noun "Vladimir Putin" and mentions the accusation being made by the (British) prime minister against him.
Sentence 3: Sentence 3 has the clues 'similar poisoning' and 'same nerve agent'. It mentions a date, a place and also the fact that two British nationals were poisoned.
Sentence 4: Sentence 4 mentions the personal pronoun 'she' and talks about her statement with reference to the attack.
Sentence 5: Sentence 5 mentions the name "Theresa May" which can be inferred to be the protagonist in the story. It mentions other proper nouns like Sergei Skripal, Yulia and Salisbury (name of a location). It mentions a proper adjective 'Novichok'. It talks about the topic of discussion: Theresa May's Commons statement on the poisoning....Sentence 5 can serve as the opening sentence of the paragraph.

On a careful reading of the sentences, it can be observed that statement 5 is a general sentence that can begin the para. It has some proper nouns and a date. Sentence 5 is followed by sentence 2. "The prime minister" in sentence 2 points to "Theresa May" in sentence 5. "pointed her finger directly" in sentence 2 links with "poisoning by a powerful nerve agent" in sentence 5. Sentence 2 is followed by

sentence 4. "the Russian state" in sentence 4 links with "Russia's president" in sentence 2. "sanctioned the attack" and "lost control of deadly poison" in sentence 4 links with "poisoning by powerful nerve agent" given earlier in sentence 5. Also, "former Russian spy" in sentence 4 points to "Sergei Skripal" in sentence 5. So, 524. Sentence 1 concludes the para. "produce an explanation" in sentence 1 follows the accusation made by Theresa May, as mentioned in sentence 4. Hence, 5241. Sentence 3 is the odd sentence out as 'similar poisoning' talks about another incident which took place on another day in another location (Amesbury, seven miles from Salisbury). Sentence 3 is parallel to the topic of discussion but does not fit in with the flow.

Ans: (3)

Solution for question 33:

33. Sentence 1: Sentence 1 has the name of a ballet: Tchaikovsky's ballet 'The Nutcracker'. It has the clue "is now".

Sentence 2: Sentence 2 mentions "1954" and the fact that the show choreographed by George Balanchine caught on and inspired others.

Sentence 3: Sentence 3 has the pronoun "it" and a reference to another time period "the early 20th century".

Sentence 4: Sentence 4 has the contrast conjunction 'but' and a reference to the past – 1892.

Among the four sentences, only sentence 1 can begin the para. The remaining sentences need a precedent and more substantiation. Sentence 1 tells us that 'The Nutcracker' is an iconic ballet today. Sentence 1 is followed by sentence 4. "But it was not a hit, in 1892" in sentence 4 contrasts "now an iconic holiday entertainment staple" in sentence 1. Sentence 4 is followed by sentence 3. "It was revived and restaged but still didn't make an impact" in sentence 3 links with "it was not a hit, in 1892" in sentence 4. Sentence 3 is followed by sentence 2. "Then in 1954, the show was staged (positive development)" in sentence 2 contrasts "still didn't make an impact" in sentence 3 and "it was not a hit" in sentence 4. So, 1432.

One can easily arrive at this answer if one follows the chronological order: now, 1892 ---- > early 20th century ---- > 1954.

Ans: (1432)

Solution for question 34:

34. Option A: Medicine and technology are pursued for 'practical necessities' – while this is true, it doesn't tell the full story. Medicine and technology have things in common and that makes engineers important. Hence, this option is not the right choice.

Option B: Technological experts play a crucial role in medicine. Also that role is understated and sometimes misunderstood. These are the two important ideas in the passage.

Option C: Engineers have become important in medicine. This part is true. They have not become important because of 'complex technological methods'. Also, the rest of the idea about the role of engineers being misunderstood is not mentioned.

Option D: This option summarises the first half of the para, but leaves out an important part – engineers' role being misunderstood. It should be noted that this option is quite similar to Option B except for the part where B mentioned 'understated' but D doesn't. Also, coming closer to patients is a sub-idea compared to 'playing a crucial role in medicine'.

Choice (B)

Difficulty level wise summary - Section I	
Level of Difficulty	Questions
Very Easy	–
Easy	16, 30
Medium	1, 2, 4, 5, 6, 7, 9, 12, 15, 17, 19, 20, 22, 23, 24, 25, 26, 28, 33, 34
Difficult	3, 8, 10, 11, 13, 14, 18, 21, 27, 29, 31, 32
Very Difficult	–

SECTION – II

Solutions for questions 1 to 4:

From (IV) the letter common to both diagonals is 'A'. i.e 2nd row 2nd column contains 'A'.

From (III) and (V) the numbers in 2nd column are 4, 2, 6

From (I) E is present either in the 2nd row of 1st column as shown in case (I) or 2nd row of 3rd column as shown in case (III)

H5	1	I4
E3	A7	2
B8	9	F6

I5	1	H4
3	A7	E2
F8	9	B6

Case (i)

Case (ii)

1. The number in the 2nd column of the 2nd row is 7.
Ans: (7)
2. The number beside G can be any of 1, 2 or 9.
Choice (D)
3. The letter present in 2nd row of the 3rd column might be E2 or C2 or D2.
Choice (A)
4. The given condition is possible only in case (ii) when G is beside 1. In this case, the sum of the numbers beside C and D is 12.
Choice (B)

Solutions for questions 5 to 8:

It is given that the duration of any call made by A to any of his friends is always the same. Similarly, the duration of any call made by B to any of his friends is always the same. The same is case for each of C, D and E.

Also, each friend made exactly two calls to each of the other friends in the group.

Hence A would have spoken to each of the other person for the same duration. So would have each of the other friends.

Since each person has talked with every other person for the same duration, A would have talked for 2 minutes with everyone else. B would have talked for 3 minutes and C would have talked for 2.5 minutes with every other person.

Let the total duration of dialed calls for D be 4x and the total duration of dialed calls for E be 4y.

Name	Duration of Dialed Calls (min)	Duration of Received Calls (min)
A	8	3+2.5+x+y
B	12	2+2.5+x+y
C	10	2+3+x+y
D	4x	2+3+2.5+y
E	4y	2+3+2.5+x

Therefore, $2+3+2.5+x = 12 \rightarrow x = 4.5$

Also, $2+3+x+y = 15 \rightarrow y = 5.5$

Name	Duration of Dialed Calls (min)	Duration of Received Calls (min)
A	8	15.5
B	12	14.5
C	10	15
D	18	13
E	22	12

5. Total duration of dialed calls of D = 18 minutes

Ans: (18)

6. The difference is maximum for E ($22 - 12$) = 10 min
Choice (D)

7. The expense incurred by E will be for 8 dialed calls, of duration 2.75 minutes each, and for 2 calls each of durations 1, 1.5, 1.25 and 2.25 minutes respectively.
Hence, the bill will be (considering the rounding up of call durations to be done)
 $\text{₹}1 \text{ per min} \times 8 \text{ calls} \times \text{each call billable for } 3 \text{ min} = \text{₹}24 \text{ for dialed calls.}$
And $\text{₹}0.5 \text{ per min} \times 2 \text{ calls from each friend} \times \text{calls billable for } (1 + 2 + 2 + 3) \text{ min} = \text{₹}8 \text{ for received calls.}$
Hence, total bill of E = $\text{₹}(24 + 8) = \text{₹}32.$ Ans : (32)

8. Since each friend made exactly two calls to every other friend, each call of A would have lasted $8 \text{ min}/(4 \text{ friends} \times 2 \text{ calls per friend}) = 1 \text{ min.}$ Similarly, the duration of each call made by B, C, D and E would be 1.5, 1.25, 2.25 and 2.75 min respectively. These values will be rounded up to 1, 2, 2, 3, and 3 minutes respectively for the purpose of billing. This would lead to a total bill of 8 calls per friend $\times (1 + 2 + 2 + 3 + 3) \text{ minutes} \times \text{₹}1 \text{ per minute} = \text{₹}88 \text{ for the dialed calls.}$

Using the same information for calculating the bill for received calls, we get a value exactly half of the above (since the rate for received calls is half that of the dialed calls), i.e., ₹44.

Now, since each of the five friends called F exactly once, for a duration of two minutes each, an additional bill of $5 \times 2 = \text{₹}10$ will be incurred.

Hence, the total bill for the five friends together will be $\text{₹}(88 + 44 + 10) = \text{₹}142$ Choice (C)

Solutions for questions 9 to 12:

9. The expenditure on salaries is equal to the profit in the following cases.

Company A – 2004 and 2007

Company B – 2002

Company C – 2004, 2005 and 2007

It happened for at least one company in the years 2002, 2004, 2005 and 2007. Ans : (4)

10. From the formula given, the ratio of expenditures

$$= \frac{\text{Ratio of incomes}}{\text{Ratio of } (100 + \text{profit}\%)} \\ \text{Ratio of expenditure of company A to that of company B is}$$

(for different years)

2002	2003	2005	2006	2007
$\frac{149.4}{157.6} \times \frac{130}{120}$	$\frac{173.4}{164.7} \times \frac{125}{125}$	$\frac{227.4}{185.3} \times \frac{140}{125}$	$\frac{223.4}{204.6} \times \frac{145}{135}$	$\frac{241.7}{268.4} \times \frac{150}{140}$

By observation, it will be the highest in 2005.

Choice (B)

11. The ratio of income to expenditure is more than $\frac{5}{4}$ ($= 1.25$)

but less than $\frac{3}{2}$ ($= 1.5$) means profit percentage is more than 25% but less than 50%, it happened for A in 2004, 2006 and 2007 for B in 2002, 2004, 2005 and 2006 for C in 2002, 2003, 2004, 2005 and 2007 \therefore It happened for at most 4 years for companies A and B. Ans : (2)

12. By observation, the share of salaries in the total expenditure is the highest for each of the three companies. Hence, the expenditure on salaries will be the highest even when all three companies are considered together.

Choice (B)

Solutions for questions 13 to 16:

13. The number required should be within the square or rectangle but should not be within both circle and triangle. We get $\rightarrow 16 + 1 + 6 + 7 + 7 + 22 = 59.$ Ans: (59)

14. The number should be in three or more of the figures.
 $\Rightarrow 13 + 2 + 4 + 1 = 20$ Choice (D)

15. Those who failed in at most 2 subjects = those who passed in exactly 4 or 3 or 2 subjects = total of all numbers given – the total of the numbers appearing in only one figure
 $= 109 - (5 + 16 + 22 + 15) = 51.$ Choice (A)

16. The number must lie inside the circle, but outside the rectangle.
 $i.e., 7 + 4 + 11 + 15 = 37$ Choice (B)

Solutions for questions 17 to 20:

17. The following table calculates the values of the votes received by each of the candidates.

	1 Lakh Votes	2 Lakh Votes	5 Lakh Votes	Value of Votes
Ravi	10	3	4	36
Aditya	5	6	2	27
Suraj	3	1	9	50
Surya	2	4	7	45

Hence, Suraj will be declared the winner. Choice (C)

18. The total population of the state = Total number of MLAs from constituencies with 1 L population * 1 + Total number of MLAs from constituencies with 2 L population * 2 + Total number of MLAs from constituencies with 5 L population * 5
 $= 20 * 1 + 14 * 2 + 22 * 5 = 158 \text{ Lakh}$ Ans: (158)

19. The number of votes that Ravi got (17) was higher than the number of votes received by any other candidate (13 votes each). Choice (A)

20. The difference between the value of votes of Suraj and Aditya is 23. Therefore, the product of the number of votes and its value should exceed this value for Aditya to win the election. This condition is satisfied only for option B.

Choice (B)

Solutions for questions 21 to 24:

Given the number of apples and bananas eaten by the five persons are 2, 3, 5, 7, 8 and 1, 3, 4, 7, 9 respectively, not necessarily in the same order. From statement (1), the only possibility is Santosh ate 9 bananas and Vinay ate 3 apples. From statement (3), the only possibility is Vinay ate 3 bananas and Santosh ate 5 apples.

From statement (4), the only possibility is Govind ate 8 apples and Pavan ate 4 bananas.

From statement (2), the only possibility is Pavan ate 2 apples and Raghu ate 1 banana.

Tabulating the above information, we get

Person	No. of apples eaten	No. of bananas eaten
Vinay	3	3
Pavan	2	4
Santosh	5	9
Raghu	7	1
Govind	8	7

21. Only the statement given in option D is true.

Choice (D)

22. Both (i) and (ii) are true.

Choice (B)

23. All of the statements given are false.

Choice (D)

24. Required difference = $8 - 1 = 7$

Ans: (7)

Solutions for questions 25 to 28:

From (i), Akhil must have received fifth rank in either Social or Mathematics. But from (iv), he could not have got fifth rank in Mathematics. Hence, Akhil must have gotten fifth rank in Social. From (iv), Akhil got 4th rank in Science. Hence, Anand received 5th rank in Science.

Anand can have either second rank or fourth rank in English because his first rank must be in either Social or Mathematics. If Anand received second rank in English, Akhil should have got first rank in English. Since, Akhil cannot have received 5th rank in Mathematics (from (iv)) or Hindi (since Anand has 3rd rank), he must have received 5th rank in Social. Akhil must have got third rank in Mathematics (since Anand has 3rd rank in Hindi). He must have had 2nd rank in Hindi. Anand must have got 4th rank in Social and 1st rank in Mathematics.

From (ii), Abhinav must have got first rank in Social and second rank in Mathematics. Since Abhinav got second rank in Mathematics, Anurag must have got second rank in English. But this is not possible because Anand has second rank in English. Hence this case is not possible.

Hence, Anand has fourth rank in English. If Anand got 2nd rank in Social, Abhinav would have got 2nd rank in Mathematics. From (iv), Akhil must have got first rank in Mathematics. This is not possible.

Hence, Anand got second rank in Mathematics and first rank in Social. Akhil would have got fifth rank in Social. Abhinav would have got 2nd rank in Social. Since Abhinav did not get first rank in Science or Hindi (from (ii)) and he could not have got first rank in Mathematics (from (iv)), he must have got first rank in English. From (iii), Abhinav's Mathematics rank cannot be 1, 2 or 4. It has to be either 3 or 5. If it is 3, Akhil must have received 1 or 2 rank in Mathematics which violates (i). Hence, Abhinav's rank in Mathematics has to be 5. The following table gives the updated information.

	English	Science	Social	Mathematics	Hindi
Abhinav	1		2	5	
Akhil		4	5		
Aman					
Anand	4	5	1	2	3
Anurag	5				

Abhinav's rank in Science has to be 3, and his rank in Hindi has to be 4. Akhil's Mathematics rank has to be 3. Akhil's rank in English has to be 2 and his rank in Hindi has to be 1. Similarly filling up the other values, we get the following table.

	English	Science	Social	Mathematics	Hindi
Abhinav	1	3	2	5	4
Akhil	2	4	5	3	1
Aman	3	2	4	1	5
Anand	4	5	1	2	3
Anurag	5	1	3	4	2

25. Aman received fifth rank in Hindi. Choice (C)

26. Akhil received a better rank than Aman in two subjects - English and Hindi. Among the given options, the answer is English. Choice (A)

27. Abhinav received the first rank in English. Choice (B)

28. Only the statement given in option D is true. Choice (D)

Solutions for questions 29 to 32:

29. The incidence of Crimes during the year is the product of the incidence of Crimes per capita and the population of the country. By observing the graph, we can see that Germany has a higher Population and Incidence of Crime per 1000 people than all the other countries except Belgium.

Total Incidence of Crime in Belgium = $92 \times 10 = 920$

Total Incidence of Crime in Germany = $80 \times 83 = 6640$

After Germany, France has a higher incidence by observing the graph = $60 \times 62 = 3720$

Therefore, the second highest incidence of Crimes occurred in France. Choice (C)

30. Since the number of policemen per 100,000 population is represented by the diameter of the bubble, we can use the product of the diameter and the total population of the country

For France $\approx 1.2 \times 61 \approx 72$

For Germany $\approx 1.7 \times 83 \approx 140$

For Thailand $\approx 2 \times 65 = 130$

For Italy $\approx 3.1 \times 56 = 170$

Hence, Italy has the highest number of policemen compared to that in other countries. Choice (A)

31. Number of crimes per policeman in Belgium = $92/350$ (ignoring the magnitude) = 0.263

Number of crimes per policeman in France = $62/210 = 0.295$

Number of crimes per policeman in Malaysia has to be lower than Belgium because the size of the bubble is the same but the number of crimes in Malaysia is very low.

Similarly, the number of crimes per policeman in Chile must be lower than that of France.

Therefore, between Belgium and France, France has the highest required ratio. Choice (D)

32. Number of policemen per 100,000 in Italy = 550

Required percentage

$$= \frac{550}{100,000} \times 100 = 0.55\%$$

Choice (A)

Difficulty level wise summary - Section II	
Level of Difficulty	Questions
Very Easy	16
Easy	12, 13, 17, 18, 19, 20, 21, 22, 23, 24, 29, 30, 32
Medium	1, 2, 3, 4, 5, 6, 9, 10, 11, 14, 15, 31
Difficult	7, 8, 25, 26, 27, 28
Very Difficult	-

SECTION – III

Solutions for questions 1 to 34:

1. Given, $x - \frac{1}{x} = 3$

taking the cubes of both sides we get $\left(x - \frac{1}{x}\right)^3 = 27$

$$\text{Now, } x^3 - \frac{1}{x^3} = \left(x - \frac{1}{x}\right)^3 + 3\left(x - \frac{1}{x}\right)$$

$$\Rightarrow x^3 - \frac{1}{x^3} = \left(x - \frac{1}{x}\right)^3 + 3\left(x - \frac{1}{x}\right)$$

$$\Rightarrow x^3 - \frac{1}{x^3} = 27 + 3(3) = 36.$$

Ans: (36)

2. Let the principal be P and the rate of interest be $r\%$ per annum.

$$\text{Now, } P + \frac{5Pr}{100} = 2P$$

$$\frac{5Pr}{100} = P \Rightarrow r = 20\%$$

Now rate of interest = $20\% + 5\% = 25\%$
Let the sum quadruple in n years at 25% per annum simple interest.

$$P + \frac{Pn25}{100} = 4P$$

$$\frac{Pn}{4} = 3P \Rightarrow n = 12 \text{ years.}$$

Choice (A)

3. Let the price of the stock be x .

$$\text{Price of the stock at the end of February} = 1.15 \times 1.22 \times x \\ = 1.403x$$

The value of the stock should become x at the end of March.

$$\text{Percentage decrease} = \frac{0.403}{1.403} = 28.72\%$$

Choice (B)

4. Let a and d be the first term and common difference of the A.P.

Average of first five terms is the third term.

$$\Rightarrow a + 2d = 4 \quad (1)$$

Average of the first ten terms = average of 5th and 6th terms, i.e., $a + 4.5d$

$$\Rightarrow a + 4.5d = 9 \quad (2)$$

Solving (1) and (2), $a = 0$ and $d = 2$.

$$\text{Therefore, } 15^{\text{th}} \text{ term} = 0 + 14 \times 2 = 28. \quad \text{Ans: (28)}$$

5. 300 ml of 40% milk contains $60\% \times 300$ ml of water i.e., 180 ml water and 120 ml milk.

700 ml of 18% milk contains 574 ml water and 126 ml milk.
Ratio of water and milk in the new mixture = 754 : 246
= 377:123

Choice (B)

6. Volume of the cube = 22^3 cm^3

$$\text{Volume of the sphere} = \frac{4}{3}\pi r^3 = 22^3 \Rightarrow r^3 = 2541$$

$$\text{Hence, } r = \sqrt[3]{2541}$$

Choice (A)

7. Time taken by tap to fill the tank = 8 hrs

Time taken to fill tank if leak is present = 13 hrs

Let the leak alone empty the tank in ' ℓ ' hours.

$$\frac{1}{8} - \frac{1}{\ell} = \frac{1}{13}$$

$$\frac{1}{\ell} = \frac{1}{8} - \frac{1}{13} = \frac{5}{8 \times 13} \text{ i.e. } \ell = \frac{8 \times 13}{5} \text{ hours}$$

Amount of liquid filled in 8 hrs (from 6 a.m. to 2 p.m.), with

leak present = $\frac{8}{13}$ th of tank

Time taken by leak to empty $\frac{8}{13}$ th of tank

$$\frac{8}{13} \times \frac{8 \times 13}{5} = \frac{64}{5} \text{ hrs} = 12 \text{ hrs } 48 \text{ min}$$

∴ At 2 : 48 a.m., next day, the tank would get empty.

Choice (D)

8. Let the current ages of Lal, Ram and Shyam be l , r and s respectively.

$$\text{Given that } l - 10 = 2(r - 10) \Rightarrow 2r - l = 10$$

$$\text{Also, } r + 10 = \frac{1}{2}(s + 10) \Rightarrow 2r - s = -10$$

After x years, $s + x = 2(l + x) \Rightarrow 2l - s = -x$

Adding the three equations above, we get $x = 20 - l$

∴ x must be less than 20.

Also, given the fact in the question "Ten years ago, Lal was twice as old as...", we can conclude that Lal must be more than 10 years old, i.e., $l > 10$.

Hence, $x (= 20 - l)$ must be less than 10.

From the options, x can only be 4.

Choice (A)

9. Let the initial number of bees in the garden be N .

$$\text{No of bees going to the sunflower garden} = \frac{N}{3}$$

$$\text{No of bees going to the mustard field} = \frac{2}{5} N$$

$$\text{Remaining number of bees} = N - \left(\frac{N}{3} + \frac{2}{5} N \right)$$

$$= N - \frac{11}{15} N$$

$$= \frac{4}{15} N$$

$$\text{It is given that, } \frac{4}{15} N = 16$$

$$\Rightarrow N = 60$$

Ans: (60)

10. The time taken to meet for the first time =

$$LCM\left(\frac{0.5}{8-5}, \frac{0.5}{15-5}\right) = LCM\left(\frac{1}{6}, \frac{1}{20}\right) = \frac{1}{2} \text{ hours}$$

= 30 minutes

Choice (B)

$$11. \log_a \left(\frac{\sqrt[4]{a^3 b^2}}{\sqrt[3]{a^2 b^2}} \right) = \log_a \left(a^{\frac{1}{12}} b^{\left(-\frac{1}{6}\right)} \right) = \frac{1}{12} - \frac{1}{6} \log_a b$$

Similarly,

$$\log_b \left(\frac{\sqrt[5]{a^4 b^6}}{\sqrt[3]{a^5 b^2}} \right) = \log_b \left(a^{-\frac{13}{15}} b^{\frac{8}{15}} \right) = -\frac{13}{15} \log_b (a) + \frac{8}{15}$$

Sum of the two terms

$$= \frac{1}{12} - \frac{1}{6} \log_a b - \frac{13}{15} \log_b (a) + \frac{8}{15}$$

Let $\log_b (a)$ be x .

$$\Rightarrow \frac{1}{12} - \frac{1}{6} - \frac{13}{15}x + \frac{8}{15} = -\frac{52}{60}x = -\frac{13}{15}x$$

$$\Rightarrow \frac{5x - 10 + 32x}{60x} = 0 \Rightarrow 37x = 10$$

$$\Rightarrow x = \frac{10}{37} \Rightarrow \log_b (a) = \frac{10}{37} \Rightarrow \log_a (b) = 3.7$$

Choice (C)

12. Let the selling price be $8k$.

$$\therefore \text{Profit} = 37.5\% (8k) = \frac{3}{8}(8k)$$

$$\begin{array}{cccc} \text{SP} & \text{Profit} & \text{CP} & \text{MP} \\ 8k & 3k & 5k & 10k \end{array}$$

Therefore the percentage discount

$$= \frac{10k - 8k}{10} \times 100 = 20\%$$

Choice (C)

$$13. x = \frac{1}{4 - \frac{1}{4 - \frac{1}{4 - \frac{1}{4 + \frac{1}{4 + \dots}}}}} \Rightarrow x = \frac{1}{4 - \left(\frac{1}{4 + \left(\frac{1}{4 + \left(\frac{1}{4 + \dots} \right)} \right)} \right)}$$

$$x = \frac{4+x}{(16+4x-1)} \Rightarrow 15x + 4x^2 = 4 + x$$

$$\Rightarrow 4x^2 + 14x - 4 = 0$$

$$\Rightarrow 2x^2 + 7x - 2 = 0$$

$$\therefore x = \frac{-7 \pm \sqrt{49 + 16}}{4} = \frac{-7 \pm \sqrt{65}}{4}$$

$$\text{As } x \text{ cannot be a negative quantity, } x = \frac{\sqrt{65} - 7}{4}$$

Choice (A)

Alternative Solution:

The given fraction can be written as $x = \frac{1}{4 - (B)}$, where

$B = \frac{1}{4 + (x)}$. Now, as $4 + x > 4$, (because x is positive), B

< 0.25 and hence $x = \frac{1}{4 - B}$ will be less than $\frac{1}{3.75}$

(i.e., 0.2667) but greater than $\frac{1}{4}$ (i.e., 0.25). Now, as $0.25 < x < 0.2667$ using the onscreen calculator we can check for each of the given options. Clearly, choices (B) and (D) are negative and choice (C) ≈ 0.292 . Hence, only choice (A) satisfies.

14. In the first three minutes, the number of gulab jamuns eaten by Rajesh and Thomas are 6×3 and 8×3 respectively.

Rajesh needs to eat at least 7 more gulab jamuns to beat Thomas.

To eat 7 more gulab jamuns Rajesh would take another $\frac{7}{6}$ minutes. Therefore Rajesh should keep eating for a total of $3 + \frac{7}{6} = 4\frac{1}{6}$ minutes to ensure that he wins the bet.

Choice (A)

15. Sum of the roots of $ax^2 + \left(1 + \frac{a}{b}\right)x + \frac{b}{a} = 0$ is

$$-\left(1 + \frac{a}{b}\right) = \frac{-(a+b)}{ab}$$

Product of the roots of $ax^2 + (a+b)x + \frac{b}{a} + 1 = 0$ is

$$\frac{\left(\frac{b}{a} + 1\right)}{a} = \frac{(a+b)}{a^2}$$

$$\text{Required ratio} = \frac{-(a+b)}{ab} \times \frac{a^2}{(a+b)} = -\frac{a}{b}$$

Choice (B)

$$16. g(x) = \frac{1}{(3x^2)^2} = \frac{1}{9x^4}$$

$$g(g(x)) = g\left(\frac{1}{9x^4}\right) = \frac{1}{9}\left(\frac{1}{9x^4}\right)^4 = 9^3 x^{16}$$

$$\therefore g(g(3)) = 9^3 (3)^{16} = 3^{22}$$

$$\log_{81} 3^{22} = \log 3^4 3^{22} = \frac{22}{4} \log_3 3 = \frac{22}{4} = 5\frac{1}{2}$$

Choice (A)

17. Let the share of C = c

\Rightarrow Share of B = $2c$

Let share of D = d .

$$\Rightarrow \text{Share of A} = \left(\frac{2c+c+d}{4}\right) = \frac{3c+d}{4}$$

But given, d = one-fourth of A's share

$$\Rightarrow d = \left(\frac{3c+d}{4}\right) \times \frac{1}{4} \Rightarrow c = 5d$$

$$\Rightarrow \text{Ratio of B's share to D's share} = 2c : d \\ = 10 : 1$$

Choice (A)

$$18. (4 \Psi 5) = \frac{4}{24} = \frac{1}{6}$$

$$\left(3 \Psi \frac{1}{6}\right) = \frac{3}{\frac{1}{6}-1} = -\frac{3}{\frac{1}{35}} \times 36 = -\frac{108}{35}$$

Choice (A)

19. Using the given information it is possible to find the ratio of the total salary of all male employees and the total salary of all female employees. However, it is not possible to find anything about the number of male and female employees, unless some further information is provided regarding the salaries of male and female employees.

Choice (D)

$$20. y = \sqrt{13\sqrt{13\sqrt{13\sqrt{\dots}}}}$$

squaring both sides, we get

$$\therefore y^2 = 13\sqrt{13\sqrt{13\sqrt{13\sqrt{\dots}}}} = 13y$$

$$y^2 - 13y = 0; y(y - 13) = 0$$

$$y \neq 0, y = 13,$$

$$\therefore y - 8 = 5$$

Ans: (5)

21. The number can be represented as $7a + 6 = 8b + 7 = 9c + 1$

If $7a + 6 = 8b + 7$, the number must be of the form $N = \text{LCM}(7, 8) - 1$, the least value of which = $56 - 1 = 55$.

Now, clearly 55 also happens to be of the form $9c + 1$. Hence, the required answer = $5 + 5 = 10$.

Alternative Solution:

The number is of the form $9c + 1$. The sum of the digits of $9c$ will be a multiple of 9. Hence, the sum of the digits of the number will be of the form $9k + 1$. From the options, the answer can only be 10.

Choice (C)

$$22. 2a = 3b = 5c \quad (1)$$

Multiplying by 4, we get $8a = 12b = 20c$

$$\text{Similarly } 4c = 5d = 6e \quad (2)$$

$$\text{Multiplying by 5, we get } 20c = 25d = 30e$$

$$\therefore 8a = 12b = 20c = 25d = 30e = N \text{ (say)}$$

$$\text{Now, } b = \frac{N}{12}, c = \frac{N}{20}, a = \frac{N}{8} \text{ and } e = \frac{N}{30}$$

$$\therefore \frac{bcd}{ae} = \frac{\left(\frac{N}{12}\right)\left(\frac{N}{20}\right)d}{\left(\frac{N}{8}\right)\left(\frac{N}{30}\right)} = d$$

Choice (D)

23. 5×6 man days of work = 9×5 women days of work.

$$\Rightarrow 2 \text{ men} = 3 \text{ women}$$

$$2 \text{ men} + x \text{ women} = (3 + x) \text{ women}$$

Considering the total work in woman days, we get

$$(3 + x)(5) = 9 \times 5$$

$$\Rightarrow x = 6$$

Ans: (6)

24. Let the distance that Ramu walks be d .

The time taken to reach home when Ramu walks at 4 kmph

$$= \frac{d}{4} \times 60 \text{ minutes} = 15d \text{ minutes}$$

Time taken by Ramu to reach home when he walks at 5 kmph = $12d$ minutes

$$\text{Given } 15d - 12d = 15 \Rightarrow d = 5$$

Hence, Ramu starts at 3:45 PM from the school.

Choice (B)

Alternative Solution:

When Ramu's speed becomes $\frac{5}{4}$ times, his time will

become $\frac{4}{5}$ th of his initial time taken for the journey, i.e.,

he will save $\frac{1}{5}$ th of his initial time. This saving in time is

clearly 15 minutes (from the given information). Hence, his initial time taken = 5×15 minutes. Hence, his starting time from school = 5.00 pm – 75 min = 3:45 pm.

25. The milkman sells $1/10$ of water + $1.5/10$ of milk = $2.5/10$ of the mixture for ₹ $(2.5 \times 18) = ₹45$.

But his effective cost price for the $2.5/10$ of mixture is simply the price of the milk, i.e., ₹ $(1.5 \times 18) = ₹27$.

Hence, he makes a profit of ₹ $(45 - 27) = ₹18$ on every ₹27 of his investment.

Hence, the profit percentage that he makes

$$= \frac{18}{27} \times 100 = 66.67\%$$

Choice (C)

26. $6^{40} = 6 \times 216^{13}$

$$\text{Rem } \frac{6 \times 216^{13}}{217} = \text{Rem} \left(\frac{6}{217} \right) \times \text{Rem} \left(\frac{216^{13}}{217} \right)$$

Remainder when 216^{13} i.e., $(217-1)^{13}$ is divided by 217 is -1. Hence, the answer is $217 - 6 = 211$.

Choice (D)

27. 84 can be written as a product of two numbers in the following ways: (1, 84); (2, 42); (3, 28); (4, 21); (6, 14); and (7, 12).

Among these combinations, only for (3, 28) and (7, 12) will the sum of the factors be a prime number. Hence, a + b can assume two values: 31 and 19.

Ans: (2)

28. $(7+4\sqrt{3})^{20} = 7^{20} + 20C_1 7^{19}(4\sqrt{3})^1 + 20C_2 7^{18}(4\sqrt{3})^2$

$$+ \dots + 20C_{19} (7)(4\sqrt{3})^{19} + (4\sqrt{3})^{20}$$

$$(7-4\sqrt{3})^{20} = 7^{20} - 20C_1 7^{19}(4\sqrt{3})^1 + 20C_2 7^{18}(4\sqrt{3})^2$$

$$+ \dots - 20C_{19} (7)(4\sqrt{3})^{19} + (4\sqrt{3})^{20}$$

$$\therefore (7+4\sqrt{3})^{20} + (7-4\sqrt{3})^{20} = 2[7^{20} + 20C_2 (7)^{18}(4\sqrt{3})^2 + \dots + (4\sqrt{3})^{20}]$$

as $(\sqrt{3})^{\text{Even no.}} = \text{Integer}$

$$\therefore (7+4\sqrt{3})^{20} + (7-4\sqrt{3})^{20} = I + F + f = \text{an integer}$$

$\because I$ is an integer, $(F + f)$ must also be an integer

$$0 < F < 1$$

$$0 < f < 1$$

$$0 < F + f < 2$$

$\therefore F + f$ must be 1

Choice (D)

29. Principal after five years

$$= 15000 \times \left(1 + \frac{15}{100 \times 2} \right)^{5 \times 2} = 15000 \times 1.075^{10} = 30915.$$

Choice (B)

30. Let Amar have n chocolates and Akbar have m biscuits. Given that $m = 2n$.

$$\text{Also, price of one chocolate} = \frac{20}{n}$$

$$\text{Price of one biscuit} = \frac{30}{m}$$

Ratio of the price of a chocolate to that of a biscuit

$$= \frac{20}{n} : \frac{30}{m} = \frac{20}{n} : \frac{30}{2n} = 4 : 3$$

Choice (C)

31. If P is even, then $P = 2$ and $199 - P = 197$ which is a prime number. If P is odd, then $199 - P$ will be an even number which must be prime. Therefore P must be 2. Thus P can take only 2 values, 2 or 197.

Ans: (2)

32. Let n be the number of boys at the camp.

For the number of girls to be the maximum, n must be minimum.

To minimize n , we need to ensure that the average weight of all the n boys equal exactly 22 kg, while meeting the given criteria. Hence, we can take 10 (i.e., the least possible number) boys to have a weight of almost (but slightly above) 26 kg and all the remaining boys to have a weight of at least 15 kg.

$$\therefore 26 \times 10 + (n - 10) \times 15 = 22n \Rightarrow n \geq 15.7 \text{ (since each of the 10 boys weighs more than 26 kg)}$$

Hence, there should be at least 16 boys at the camp and the maximum number of girls at the camp will be $50 - 16 = 34$.

Ans: (34)

33. $10x + 6y = 136 \Rightarrow 5x + 3y = 68$

$$\begin{array}{rcl} \text{Now} & 3x + 5y = 76 \\ & 5x + 3y = 68 \end{array}$$

Adding, we get, $8x + 8y = 144$

$$\Rightarrow 8(x + y) = 8(18)$$

$$\Rightarrow x + y = 18$$

Ans: (18)

$$34. \frac{1}{x} + \frac{3}{y} = \frac{1}{5}$$

$$\Rightarrow \frac{y+3x}{xy} = \frac{1}{5}$$

$$\Rightarrow 5y + 15x = xy$$

$$\Rightarrow xy - 5y - 15x = 0$$

Adding 75 to both sides, we get,

$$xy - 5y - 15x + 75 = 75$$

$$(x - 5)(y - 15) = 75$$

We need to express 75 as the product of 2 natural numbers.

$(x - 5)$	$(y - 15)$	x	y
1	75	6	90
3	25	8	40
5	15	10	30
75	1	80	16
25	3	30	18
15	5	20	20

Therefore, we get a total of 6 pairs.

Ans: (6)

Difficulty level wise summary - Section III	
Level of Difficulty	Questions
Very Easy	3, 9, 27
Easy	2, 4, 5, 6, 10, 12, 14, 15, 17, 18, 20, 22, 23, 25, 29, 30, 31, 33
Medium	1, 7, 8, 11, 13, 16, 19, 21, 24, 26, 32
Difficult	28, 34
Very Difficult	–