

(Key and Solutions for AIMCAT1724)

Key

SECTION – I

1. D	8. B	15. D	22. A	29. 4
2. C	9. B	16. D	23. C	30. 1
3. B	10. D	17. A	24. A	31. 3
4. B	11. A	18. B	25. 42513	32. B
5. D	12. C	19. C	26. 53214	33. D
6. C	13. B	20. D	27. 25143	34. C
7. B	14. B	21. B	28. 35241	

SECTION – II

35. 9	42. A	49. C	56. 5	63. 11
36. 2	43. C	50. D	57. D	64. B
37. 4	44. A	51. C	58. C	65. 9
38. 20	45. D	52. A	59. D	66. B
39. B	46. C	53. D	60. C	
40. C	47. B	54. B	61. B	
41. B	48. A	55. B	62. 5	

SECTION – III

67. C	74. C	81. 360	88. C	95. 10000
68. 64	75. C	82. A	89. 28	96. 3
69. 19	76. 19116	83. B	90. 64	97. 255
70. A	77. B	84. A	91. C	98. B
71. B	78. 60	85. 17	92. A	99. A
72. 72	79. B	86. D	93. A	100. 5
73. B	80. D	87. A	94. 25	

Solutions

SECTION – I

Solutions for questions 1 to 3:

Number of words and Explanatory notes for RC:

Number of words : 535

1. The passage explains the concept of dyslexia giving specific references to people suffering from the same. It also throws light on myths and common perceptions people had about dyslexia and then explains the phonological model of dyslexia.

Option A: Children with dyslexia are not unusually prone to reversing letters or words. Dyslexic children have problems in naming letters but not in copying letters. There is no evidence that eye training alleviates the disorder. So statement A is not true.

Option B: Yearly monitoring of phonological skills from first through 12th grade shows that the disability persists into adulthood. So it is not correct to say that dyslexia can be outgrown. Reading ability is taken as a proxy for intelligence assumption to be false. Hence, in dyslexia, the seemingly invariant relation between intelligence and reading ability breaks down. References to intelligent people like Percy F. And Gregory have been made. So choice B cannot be correct.

Option C: Dyslexia reflects a deficiency in the processing of the distinctive linguistic units, called phonemes. The cognitive deficit responsible for the disorder is related to the language system rather than the visual system. Hence choice C is not correct.

Option D: In the last paragraph, consider the text "Because there is no overt clue to the underlying segmental nature of speech, spoken language appears to be seamless. Reading is an invention and must be learned at a conscious level. The reader transforms the visual percepts of alphabetic script (graphemes) into linguistic ones (phonemes). The reader must first come to a conscious awareness of the internal phonological structure of spoken words. Then he must realize that the sequence of letters on the page represents this phonology." This clearly suggests that, for dyslexics, while speaking is an apparently seamless process, reading has to be done with more conscious effort than speaking, and hence is a less seamless cognitive process.

Choice D is the correct answer. Choice (D)

2. It can be clearly understood that a dyslexic would find the activities (i), (ii), (iii), (iv) difficult to perform. Dyslexia is an unexpected difficulty in learning to read despite intelligence, motivation and education.

- (i) Spontaneous word recovery – Rapid word retrieval has been mentioned in the passage as the least developed skill of Gregory.
- (ii) A memorizing process using routine or repetition – The passage cites rote memorization as a problem area for Gregory.
- (iii) Tests involving higher order reasoning – Gregory excelled in those areas requiring reasoning skills. So (iii) is not necessarily an activity that a dyslexic would find a problem in excelling at.
- (iv) Competitions involving timed crossword puzzles– Dyslexia is a deficiency in the processing of the distinctive linguistic units called phonemes that make up the spoken and written words. So tackling a crossword puzzle would be difficult for a dyslexic person.
- (v) Recalling and spelling out long, complex and novel scientific names – More problematic for Gregory was the simple act of pronouncing long words or novel terms (such as labels used in anatomic descriptions).

Hence, the answer is choice C.

Choice (C)

3. The last paragraph of the passage throws light on the phonological model of dyslexia.

Option A: Reading is done consciously, whereas speaking is more of a subconscious process.

Option B: This correctly describes the processes involved in speaking and reading.

Option C: According to the passage, the impact of phonological deficit is more obvious in reading than in speaking.

Option D: Reading involves graphemes and phonemes, while speaking involves only phonemes.

Hence, the answer is option B.

Choice (B)

Solutions for questions 4 to 9:

Number of words and Explanatory notes for RC:

Number of words : 624

4. According to the passage, there were a number of "Facebook Revolutions", but most of these "failed to build any sustainable new political order".

Option A: Social media does not create any polarized groups. The passage mentions that in the case of Tahrir Square revolution, "political struggle led to intense polarization". Social media amplified these polarizations but did not create it. Hence, this option is incorrect.

Option B: The passage mentions that "many voices get amplified" and this makes "consensus building impossible". This option correctly rephrases the amplification of many voices mentioned in the passage. This is mentioned as one of the reasons for the failure of "Facebook revolutions" to build any sustainable political order.

Option C: According to the passage, social media tends to spread rumours. However, this is not one of the reasons for the ineffectiveness of Facebook revolutions. It is one of the avenues through which polarization is amplified. Hence, this is not a reason in itself for ineffectiveness of social media revolutions.

Option D: Social media makes it possible for decentralized movement to arise. However, we cannot infer from the passage that such movement will lack a strong leadership. Further, this cannot be inferred to be the reason for failed revolutions. Hence, this option is incorrect.

Therefore, the correct answer is option B. Choice (B)

5. According to Wael Ghonim, social media experiences "favours broadcasting over engagements, posts over discussions, shallow comments over deep conversations". This was the context in which he makes the statement mentioned in the question.

Option A: From the passage, we cannot infer that social media does not have any feedback mechanism. The

passage does not mention the feedback mechanism in social media. Hence, this option is incorrect.

Option B: We cannot comment on the nature of people using social media as dogmatic. The passage mentions that the social media is designed in a way that favours dogmatism over deep conversation but we cannot infer from this that the people using the social media are themselves dogmatic. Hence, this is not the correct answer.

Option C: While the passage does mention that social media favours "shallow comments over deep conversations", we cannot conclude that it is impossible to hold deep and meaningful conversations using social media. Hence, this option is also incorrect.

Option D: Transmitting one's message, i.e., broadcasting, is easier in social media as compared to "engagements", i.e., conversations. This is what Ghonim means when he says that "we are here to talk at each other instead of talking with each other".

Hence, option D is the correct answer. Choice (D)

6. The passage talks about the importance of social media in galvanizing the people to topple the dictatorial regime of Mubarak in Egypt

Option A: Wael Ghonim knew about Khaled Said when browsing the internet. This does not necessarily imply that Ghonim came to know about Said through social media. Hence, this is not the correct answer.

Option B: While the passage mentions that social media can facilitate the spread of false information and rumours, this was not the role of social media in toppling Mubarak's regime. Hence, this is not the correct answer.

Option C: According to the passage, social media "helped a decentralized movement" and "made people realize that they were not alone". This was the crucial role of social media in Tahrir Square revolution. Therefore, social media provided voice to individuals and united these individuals. Hence, this is the correct answer.

Option D: The people were not galvanized after the arrest of Ghonim. They were galvanized by his Facebook posts prior to his arrest. Also, social media did not galvanize the people as this option states but Ghonim did. Hence, this option is incorrect.

Therefore, the correct answer is option C. Choice (C)

7. Wael Ghonim created a Facebook page anonymously which united people with similar ideas and concern.

Option A: Ghonim happened to unite people who shared the same concern. However, from the passage, we cannot infer that he preached for a cause or led the fight from the front. Hence, this cannot be the correct answer.

Option B: Wael Ghonim created the Facebook page anonymously unified people sharing the same concern. Hence, his role can be inferred to be similar to an anonymous revolutionary. Therefore, this is the correct answer.

Option C: While Ghonim did publicize the police brutality, we cannot say that he remained on the side-lines. Even though he remained anonymous, he also was actively involved in crowd-sourcing ideas. Hence, this is not the correct answer.

Option D: Wael Ghonim was instrumental in toppling the regime of Mubarak but he was not responsible for establishing any new political order in its place. Hence, this option is also incorrect.

Therefore, the correct answer is option B. Choice (B)

8. Wael Ghonim mentions five features of social media towards the closure of the passage.

Option A: According to the passage, "Rumours that confirm people's biases are now believed". Hence, we can say that people are more prone to believe rumours. Therefore, this is a feature of social media.

Option B: Creation of avatars is not the reason for the formation of angry mobs. According to the passage, "we forget that the people behind screens are actually real

people and not just avatars". Users of social media forget that actual people are using the social media and this tends to create the formation of angry mobs. Also, social media does not create avatars. Hence, this is not a feature of social media mentioned in the passage.

Option C: The passage mentions that people only hear what they want to hear and "mute, un-follow and block everybody else". Hence, this feature of social media is also mentioned in the passage.

Option D: Social media forces us to "jump to conclusions and write sharp opinions". These opinions live forever on the internet. Hence, this feature is also mentioned in the passage.

Therefore, only option B is not a feature of social media.
Choice (B)

9. Ghonim admitted that he was wrong in proclaiming "If you want to liberate a society, all you need is the Internet". He further says that "The same tool that united us to topple dictators eventually tore us apart".

Option A: While he mentions that social media tends to spread rumours and creates angry mobs, the primary reason for the revolution nor being able to build a sustainable political order is because social media "amplified" the polarization. This amplification was done by spreading false rumours, creating angry mobs but the reason for Ghonim to admit that he was wrong was because of the polarization. Also, while the passage mentions "consensus building", it does not talk about controlling the mobs. Hence, this is not the correct answer.

Option B: Social media amplified the polarization and created silos out of dissenting groups. This made the "environment toxic" and that social media "tore us apart" because of which they failed to build consensus. Hence, this is the reason for Ghonim to admit that he was wrong.

Option C: The police were able to track down Ghonim even though he created the Facebook page anonymously. But this sparked the revolution and was not the reason for Ghonim to admit that he was wrong.

Option D: While modifying opinions is difficult through social media, this had no bearing on Ghonim to admit that he was mistaken. Hence, this is not the correct answer.

Therefore, the correct answer is option B. Choice (B)

Solutions for questions 10 to 12:

Number of words and Explanatory notes for RC:

Number of words : 425

10. The passage mentions that one group holds that our ancestors "did not wage organized war until they started to coalesce into societies". The other group argues that "war has deep biological roots, and we've been waging it forever". This is the debate central to the passage.

Option A: The passage mentions that the skeletons "do not provide a conclusive answer" to the debate. Hence, this option is incorrect as it states that the skeletons prove one of the groups as correct.

Option B: The skeletons do not prove conclusively that the dwellers were not a part of any society when they waged war. Hence, this option is also incorrect.

Option C: The passage mentions towards the end that our "propensity for violence" is matched with a "preference for peace". However, this observation does not follow from the skeletons found in Nataruk. Hence, this option is also incorrect.

Option D: The passage mentions that "in either case, the deaths at Nataruk are testimony to the antiquity of inter-group violence and war." Hence, they only indicate the primeval nature of violent encounters and wars.

Hence, option D is the right answer. Choice (D)

11. The passage broadly defines war as "large-scale violent clashes".

Option A: The major difference between violent encounters and wars is the scale. While wars occur on a large scale, violent encounters are on a smaller scale. This can be inferred from the passage as it says that the deaths at Nataruk were a "violent encounter" but might or might not be a war. Hence, this option correctly states the difference between wars and violent clashes.

Option B: We cannot conclude that wars always occur between societies as this is central to the debate mentioned in the passage. As the passage does not present any conclusive evidence for declaring that wars occur only between societies, this cannot be the correct option.

Option C: The passage does not mention anything about or compare the number of casualties in wars and violent encounters. It only talks about the scale which might or might not involve the number of casualties. Hence, this is not the correct option.

Option D: This statement also concludes one side of the debate to be true. Hence, this statement is incorrect.

Therefore, the correct answer is option A. Choice (A)

12. Thomas Hobbes is of the view that "war has deep biological roots, and we've been waging it forever".

Option A: If the dwellers at Nataruk were part of well-formed societies, it will not support the view held by Thomas Hobbes. This would prove that the violent encounter described in the passage occurred between societies. Hence, this is not the correct answer.

Option B: If these dwellers were more violent, it would neither support nor weaken the views held by Hobbes. Hence, this is not the correct answer.

Option C: If the dwellers were not formed into societies, the claim that our ancestors "did not wage organized war until they started to coalesce into societies" would be proven false. Therefore, this would strengthen the view of Hobbes that we have always been waging war.

Option D: This statement neither proves nor disproves the views of Hobbes and is not the correct answer.

Therefore, option C is the right answer. Choice (C)

Solutions for questions 13 to 18:

Number of words and Explanatory notes for RC:

Number of words : 592

13. The paragraph which mentions Samuel Johnson starts with, "The idea of a "proper" accent only emerged fairly recently in the history of the English language". Samuel Johnson did not include pronunciations in his dictionary because "he felt there was little agreement about the correct way to articulate his terms".

Option A: While the elite during the time of Samuel Johnson did speak "with something like a local voice", this was not the primary reason why Samuel Johnson was mentioned. He was mentioned because he did not mention any "proper" way of pronouncing words. Also, it will not be accurate to state that some of the elite have unusual accents. According to the passage, most (or all) of them spoke with a local voice. Hence, this is not the primary reason.

Option B: Samuel Johnson felt that "there was little agreement about the correct way to articulate" words. This implies that there was no "proper" accent during his time. This strengthens the claim made at the beginning of the paragraph that "The idea of a "proper" accent only emerged fairly recently in the history of the English language". Hence, this is the primary reason.

Option C: We cannot infer from the passage that there no rules of pronunciation. There might have been rules which probably were not strictly adhered to by everyone. Hence, this is incorrect.

Option D: The passage clearly states that in the 18th century, people spoke with a local voice. Therefore, we cannot say that accents evolved only after Samuel Johnson published his Dictionary.

Hence, the correct answer is option B. Choice (B)

14. According to the passage, boarding schools "began to promote an accent that more closely resembled the sounds of the South East of England". The passage also claims that "the increasing popularity of boarding schools" changed "the way the elite spoke".

Option A: Even if this statement is true, it does not strengthen the claim that boarding schools played a part in associating accents with class. If the schools had people from different classes, the accents of all these students would have been affected. Hence, this is not the correct answer.

Option B: If this statement is true, then only the elite would have attended the boarding schools and the lower classes could not have. Since attending the boarding school would affect the accent of the students, this would help in strengthening the claim that boarding schools played a significant role in associating accent with the class system. Hence, this is the correct answer.

Option C: This statement does not necessarily explain how class is linked with accent. If this were true, then all high ranking officials, irrespective of their class, would have the same accent.

Option D: This statement would weaken the claim as it would imply that students from all classes would speak the same accent. Hence, this option is also incorrect.

Therefore, the correct answer is option B. Choice (B)

15. The passage explores various options through which the accent of the elite emerged.

Option A: The role of the boarding schools is clearly mentioned in the passage as it says that "the increasing popularity of boarding schools" was responsible for the accent of the elite.

Option B: BBC with its Received Pronunciation also strengthened the association as the voice was "associated with authority". Hence, this option is also incorrect.

Option C: Period dramas also strengthened the association between class and accent because they portray the accent of upper class as sophisticated. Hence, this option is also incorrect.

Option D: Samuel Johnson did not suggest any proper way of pronouncing words. Also, he felt there was more than one way of pronouncing a word. Hence, he did not strengthen the association between accent and class.

Therefore, option D is the right answer. Choice (D)

16. According to the passage, accent "was one of the few ways to mark out those who had inherited their wealth from those who had earned it". However, the passage also mentions that "Perhaps it was only a matter of time before that linguistic divide would begin to close too". The passage suggests that there has been a mixing of accents.

Option A: According to Mitford, the upper class are "neither cleaner, richer, nor better-educated than anybody else." Hence, this is not the right answer.

Option B: Even though the upper class are neither cleaner, richer, nor better-educated than anybody else, it does not imply that the opposite. Hence, this option is also incorrect.

Option C: According to the passage, it is likely that the linguistic divide will also cease to exist. Hence, this option is not very likely.

Option D: The passage mentions that there is no difference in terms of wealth or education. It can also be inferred that linguistic divide is also closing, since the passage mentions a few examples in which accents are getting intermixed. Hence, this option is the most likely.

Therefore, option D is the correct answer. Choice (D)

17. According to the passage, the Queen's diction has changed. Linguists have found that her enunciation today "might have been considered a little, well, common in her youth".

Option A: The passage mentions that the Queen's diction has become a little common i.e., unrefined. Hence, this is the correct option.

Option B: The passage mentions that the Queen's accent would have been considered a little common. 'Common' here does not mean ubiquitous (as in, "prevalent"/"in use by many"), it rather takes the meaning of coarse or unrefined. Hence, this option is incorrect.

Option C: The passage clearly mentions that her accent has changed. Hence, this option is incorrect as it states that the accent is unchanged.

Option D: The passage does mention that the Queen is not dropping her Ts and Gs. It can also be inferred that cockney accent involves dropping Ts. Therefore, we can conclude that the Queen's accent has not become a cockney hybrid.

Hence, the correct answer is option A. Choice (A)

18. The passage mentions cockney accent a few times in various places.

Statement I: The second paragraph of the passage mentions that the upper class accent has "become a little rough around the edges over the last few decades, as more and more people adopt a kind of aristo-cockney hybrid". The passage also mentions that more working class are moving into positions of power because of which people started speaking "a more modern form that verges on 'estuary' English, which is a mixture of RP and cockney". Hence, this statement can be inferred.

Statement II: From the final paragraph, we can infer that some young people are dropping their Ts. This is being compared to the language of cockney flower girl in Pygmalion. Hence, we can also conclude that cockney accent involves dropping Ts.

Statement III: The passage mentions that RP speakers use diphthongs and not cockney speakers. Hence, this statement cannot be inferred.

Statement IV: The passage mentions that Her Majesty is not dropping her Ts and Gs. Hence, this statement is incorrect.

Therefore, only statements I and II can be inferred. Hence, option B is the correct answer. Choice (B)

Solutions for questions 19 to 24:

Number of words and Explanatory notes for RC:

Number of words : 671

19. The author of the passage discusses 'intuition' in depth by first touching upon 'instinct' (in animals) and 'intelligence' (in humans).

Option A: The author elaborates on a concept and not a current issue. The passage is abstract and not argumentative. There is no debate i.e. the passage does not present arguments and counterarguments for any parameter of the concept. Hence choice A is incorrect.

Option B: There is no current issue presented nor personal experiences of the author recounted in the passage. Hence choice B does not make sense.

Option C: The author is trying to explain a concept or point of view on a dense subject. So choice C is true.

Option D: The author explains a concept in detail in the background of philosophy. The author does not point out any inconsistency of the concept with any existing theory. So choice D is incorrect.

Hence, choice C is the right answer. Choice (C)

20. The first paragraph, at the outset, explains that while the instinct of animals is sufficient to help them survive, humans need intelligence as well, because humans are not adequately equipped in instinct. The paragraph then defines intelligence (by its pragmatic orientation) from Bergson's point of view who deduced its structure, history and limitations.

Option A: Statement A brings in a new point of view (intuition) rather abruptly. This sentence can be a part of the third paragraph. So choice A is incorrect.

Option B: Choice B is more of an introduction sentence of a paragraph, rather than a conclusion sentence. It is too general to serve as an ending of the first paragraph and can come at the beginning of the first paragraph.

Option C: Statement C does not connect with the penultimate sentence of the paragraph. For choice C to work, one would wish that the paragraph said that intelligence and instinct are two mutually exclusive states. So, by combining with the conjunctive adverb 'nevertheless', choice C would work as a suitable conclusion. But this does not happen. In fact, in the second paragraph, the inverse is stated: instinct and intelligence are not simply self-contained and mutually exclusive states. So choice C is incorrect.

Option D: The penultimate sentence of the paragraph seems to cite a limitation of intelligence. (..... precludes its immediate access to the essentially qualitative nature of life). So choice D is the best sentence to complete the paragraph as it talks about plugging the gap. This sentence seems to place intelligence and instinct at the two ends of a mode of knowing and concludes that intelligence and instinct complement each other. Choice (D)

21. This is a specific detail question which is answered in the third paragraph of the passage.

Option A: The third para states that the human mind is able to create order mysteriously out of chaos. It is not a matter of order versus disorder, but rather of one order in relation to another. Hence choice A is incorrect.

Option B: Choice B is clearly stated in sentences 3, 4 and 5 of the third paragraph. We cannot access the absolute, which is beyond order and disorder, through our intelligence because we assume that our minds can make logical sense of chaos and create theories which make sense of the world.

Option C: The words 'only' and 'absolutely' in choice C make the choice limited or narrow in scope. Also, the passage does not refer to 'consciousness' as such. Choice C is not the answer.

Option D: The passage does not say that the absolute is far away from intuition. So choice D is incorrect.

Choice (B)

22. This is a specific detail question which is answered in the first paragraph of the passage. Intelligence is essentially defined by its pragmatic orientation. This essentially pragmatic, hence analytic and quantitative orientation of intelligence precludes its immediate access to the essentially qualitative nature of life.

Statement I: The answer is clearly stated in the fifth sentence of para 1. Hence intelligence is a practical proof that can help us in our survival. Thus it cannot be used to understand the qualitative nature of life. The last two sentences of the third paragraph reiterate this point: The real obeys a certain kind of organization, namely, that of the qualitative multiplicity. Structured around its needs and interests, our intelligence fails to recognize this ultimate reality. So statement I is correct.

Statement II: Refer to the penultimate sentence of the last paragraph. While one can go from intuition to intelligence by way of diminution, the analytic nature of intelligence precludes the opposite process. So statement II is true.

Statement III: We needed intelligence since unlike animals we do not have absolute instinct that is enough to ensure survival. i.e. Humans need intelligence to counter the lack of enough instinct. Instinct is at the opposite end of intelligence on the mode of knowledge. But this does not mean that humans cannot use intelligence to live instinctively like animals. Humans will not want to live like animals. Statement III is beside the point and is not specific to the question.

Statement IV: Para 1 states that relationship between consciousness and matter instantiated in the instinct of animals is sufficient and well adapted to their survival and humans are not adequately equipped in this respect. Humans need intelligence to correlate consciousness with matter. Human beings will not want to create barriers

between their consciousness and matter. Statement IV cannot be inferred.

So statements I and II are correct. Choice (A)

23. According to Bergson, the role of the philosopher is to make sense of his sudden irregular intuitions. This is clearly stated in the second sentence of the last paragraph. The role of the philosopher is to seize those **rare and discontinuous intuitions** in order to support them, then *dilate* them and *connect* them to one another. So choices A and B are incorrect.

Choice C is clearly stated in the last two sentences of para 2. There is a little bit of **instinct** surviving within each **intelligent** being, making it immediately – if only partially – coincide with the original vital impulse. This **partial coincidence** is what forms the basis of intuition. Choice D is eliminated.

Choice (C)

24. The passage talks about intuition from a philosophical dimension. Refer to the last paragraph (The role of the philosopher is , Philosophy realizes that intuition)

Choice A: The passage is abstract. It does not deal with the physical world but with a purely theoretical or conceptual world. The content is extremely dense with no easy portions to read. The passage uses very precise and functional language. The passage does not provide simple examples or personal narrative.

Choice B: The passage is not argumentative. There is no debate i.e. the passage does not present arguments and counterarguments for the concept of intuition. Hence choice B is incorrect.

Choice C: A narrative passage tells a story, usually from one person's viewpoint. A narrative passage has details which relate in some way to the main point the writer is making. This is not the case here. Hence choice C is wrong.

Choice D: A descriptive passage evokes emotions making the discussion vivid and memorable. This passage is not descriptive. Hence choice D is also incorrect.

Choice (A)

Solutions for questions 25 to 28:

25. On a careful reading of the sentences, it can be observed that sentence 4 is a general sentence that begins the paragraph. It provides the context or background: controversy raging over ethical issues arising out of eugenics. It also has the time reference: today. Sentences 4 and 2 form a mandatory pair. The "ethical issues" mentioned in sentence 4 are exemplified as questions in sentence 2. Sentence 2 is followed by sentence 5. "Such questions" in sentence 5 refers to the three questions given in sentence 2. Sentence 1 follows with the contrast conjunction 'yet'. "Yet smash the traditional limits of the argument" contrasts "questions are not entirely new" in sentence 5. So, 4251. Sentence 3 (We can now imagine remaking) summarizes the paragraph. It mirrors the introduction sentence 4. Also "not as a farmer slowly and laboriously but as an artist employing a brilliant range" in the conclusion sentence 3 substantiates "smash the traditional limits of the argument" mentioned in sentence 1. Hence, 42513.

Ans: (42513)

26. On a careful reading of the sentences, it can be observed that sentence 5 is a general sentence that begins the paragraph. It provides the background: Principles are guidelines for human conduct. Sentence 3 follows sentence 5 with additional details about principles. "They" in sentence 3 refers to "principles". It can also be observed that sentences 3 and 2 are linked together as they talk about the self-evident nature of principles. Also, sentence 2 has to follow sentence 3. "simply grasp the self-evident nature of principles" in sentence 2 links with "because they are self-evident" in sentence 3. Sentence 2 is followed by sentence 1. "simply consider the absurdity of attempting to live an effective life based on the opposites (of principles)" in sentence 2 links with "anyone would

seriously consider unfairness degeneration to be a solid foundation for lasting happiness and success" in sentence 1. Sentence 4 is a standalone sentence that is best left at the end of the paragraph. It concludes the discussion on principles. Hence 53214.

Ans: (53214)

27. On a careful reading of the sentences, it can be observed that sentence 2 is a topic sentence or opening sentence of the paragraph. It introduces the point that empathy should not be reserved only for friends and allies. Sentence 5 follows as it reiterates the same point. "do not reserve empathy only for friends and allies" in sentence 2 links with "empathizing with adversaries and even enemies" in sentence 5. Sentence 1 follows: "On these occasions" in sentence 1 refers to "empathizing with adversaries and even enemies" in sentence 5. Also "the crucial distinction between empathy and sympathy becomes more important than ever" in sentence 1 resonates with "can prove extremely difficult and distasteful" in sentence 5. Sentences 1 and 4 form a mandatory pair. "distinction between empathy and sympathy" in sentence 1 links with "empathize without sympathizing" in sentence 4. Sentence 3 concludes the paragraph with an important way of dealing effectively with enemies. Hence 25143.

Ans: (25143)

28. On a general reading of the sentences, it can be observed that sentence 3 is a standalone sentence which can either serve as an introduction or a conclusion sentence. All the remaining sentences are part of a sequence (of an incident). On a more careful reading of the sentences, it can be observed that sentence 3 is best placed at the beginning of the paragraph as it states a learning or observation (When clarity and accuracy followed by backup evidence (as illustrated by the art experts). The second part of sentence 3 is further expanded in the remaining sentences of the paragraph. Therefore sentence 3 precedes the other sentences. Sentence 5 follows sentence 3. "a genuine van Gogh" in sentence 3 refers to a self-portrait by Vincent van Gogh "*Study in Candlelight*" mentioned in sentence 5. Sentence 5 mentions details about purchase of the painting. Sentence 2 follows sentence 5. It can be observed that sentences 4 and 2 form a mandatory pair. "one person's word" in sentence 4 refers to "van Gogh's relative" mentioned in sentence 2. "The experts doubted the painting's authenticity" in sentence 4 parallels "failed to realize they had a genuine van Gogh" mentioned earlier in sentence 1. Sentence 1 summarizes the paragraph by providing details of the actual situation or reality – the painting was an original van Gogh. Also "treated as unimportant by the museum experts" in sentence 1 again mirrors "illustrated by the art experts of New York's prestigious Metropolitan Museum of Art who failed to realize they had a genuine van Gogh" given in the introduction sentence 3. Hence 35241.

Ans: (35241)

Solutions for questions 29 to 31:

29. On a careful reading of the sentences, it can be observed that sentences 1, 2 and 5 can be grouped together as they all speak about musical tones. Hence 1, 2 and 5 should be a part of the paragraph. Between sentences 3 and 4, sentence 4 can be considered the odd man sentence as the "most interesting natural limit" needs a precedent. Sentence 3 is the introductory sentence of the paragraph as it introduces a concept called channel capacity. Sentence 5 follows sentence 3 with an example. Sentences 5 and 2 form a mandatory pair. "identify each one with a number" in sentence 5 links with "low tone, you would call it one medium tone you would call it two and a high tone you would call it three" in sentence 2. Sentence 1 concludes the paragraph. "be able to distinguish among dozens of tones" in sentence 1 brings the concept of "channel capacity" to a close. Hence 3521. Sentence 4 can be a part of another paragraph as "natural limit" and "social channel capacity" needs further expansion. Ans: (4)

30. Sentence 5 is a general sentence that begins the paragraph. It introduces the features of proactive people. Sentence 5 is followed by sentence 3. The pronoun 'his' in sentence 3 refers to Gandhi. "Accusers criticizing condemning....." in sentence 3 refers to "pushy" people mentioned in sentence 5. "Smart, value driven people like Gandhi who can read reality" in sentence 5 is linked with "quietly, slowly, imperceptibly expanding his circle of influence with the field labourers" in sentence 3. Sentence 3 is followed by sentence 4. "support, trust, confidence followed him through the countryside" in sentence 4 is a consequence of "Gandhi was out in the rice paddies imperceptibly expanding his circle of influence with the field labourers" in sentence 3. Sentence 2 (he **eventually**) summarizes the paragraph. So, 5342. Sentence 1 cannot belong in the given sequence since it is not specific to the discussion about Gandhi even though the sentence mentions "proactivity" and "circle of concern". "For those filled with regret" needs a precedent.

Ans: (1)

31. On a careful reading of the sentences, it can be observed that sentence 4 is a general sentence that begins the paragraph. It introduces the topic: notion of obsolescence. It can also be seen that sentence 2 is somehow linked to sentence 5. "it impels the consumer toward rented, disposable or **temporary** products" in sentence 2 links with "idea of obsolescence is disturbing to people bred on the ideal of **permanence**" in sentence 5. Sentences 5 and 1 form a mandatory pair. "it is particularly upsetting when thought to be planned" in sentence 5 links with "Planned obsolescence" in sentence 1. Sentence 2 can come after sentence 4. "For the fear of product obsolescence drives businessmen impels the consumer" in sentence 2 justifies why it is important to turn to the notion of obsolescence (given in sentence 4). So, 4251. Sentence 3 is the odd sentence out as it needs further elaboration. The conclusion "Clearly" in sentence 3 makes the thought flow incomplete as the paragraph does not mention details about the occurrence of "obsolescence without planning."

Ans: (3)

Solutions for questions 32 to 34:

32. Choice D is distorted. Choice A is incomplete as a summary and does not cover all the important points. Choice C unnecessarily focuses more on the last few sentences of the paragraph. Only choice B is a comprehensive summary. Choice (B)
33. Choice B is not a suitable as it talks about the movies and cigarettes in the present tense, whereas the paragraph refers to the past. C is wrong, as it focuses on a relatively unimportant part of the passage. A goes too far in stating that smoking was almost a requirement in old movies. But D is a concise and correct summary of the paragraph. Choice (D)
34. Choice A does not talk about the number of rules in Wikipedia. Hence choice A is incomplete. The remaining sentences of choice A provide additional information. Choice B is incorrect, as the description 'enough for a thick book' is only applicable to the more than 50 policies with a word count of around 150,000 mentioned in the first sentence; the total word count of the rules is said to be in the millions. The second sentence in choice B seems true but cannot be inferred. Choice D is not true. There is no suggestion in the paragraph that there are not 'enough' people who know them, or that 'people no longer bother learning them all'. According to the paragraph, there is unlikely to be anyone who knows all the rules and guidelines of Wikipedia. Also, 'commonsense scores over rules' as given in choice D is incorrect. It has only been mentioned that it is perfectly fine and acceptable to just use commonsense. Only choice C accurately and succinctly summarizes the paragraph. Choice (C)

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

SECTION – II

Solutions for questions 35 to 38:

35. The cumulative accuracy of Bryant after the 5th round

$$= 65\%$$

The cumulative accuracy of Bryant after the 4th round

$$= 70\%$$

After the 4th round, Bryant scored 70% from 80 attempts.

$$\text{Total number of points after 4}^{\text{th}} \text{ round} = 70\% * 80 = 56$$

$$\text{Total number of points after 5}^{\text{th}} \text{ round} = 65\% * 100 = 65$$

$$\text{Number of points scored in the 5}^{\text{th}} \text{ round} = 65 - 56 = 9 \text{ points}$$

Ans: (9)

36. We need to calculate the points scored by each player in each round:

Round	Jordan			Bryant		
	Cumulative Accuracy	Total Points at the end of Round	Points scored during the Round	Cumulative Accuracy	Total Points at the end of Round	Points scored during the Round
Round 1	50.0%	10	10	60.0%	12	12
Round 2	70.0%	28	18	65.0%	26	14
Round 3	70.0%	42	14	70.0%	42	16
Round 4	67.5%	54	12	70.0%	56	14
Round 5	70.0%	70	16	65.0%	65	9
Round 6	70.0%	84	14	62.5%	75	10
Round 7	65.0%	91	7	65.0%	91	16
Round 8	65.0%	104	13	65.0%	104	13
Round 9	65.0%	117	13	60.0%	108	4
Round 10	65.0%	130	13	62.5%	125	17

Therefore, the maximum total number of points were scored in Round 2 (32 points).

Ans: (2)

37. From the above table, we can see that Jordan scored more than Bryant in four rounds.

Ans: (4)

38. The total points scored by Lebron will be
 $(10\% + 20\% + 30\% + 40\% + 50\% + 60\% + 70\% + 80\% + 90\% + 100\%) \times 20 = 110$
 The difference in points between LeBron and Jordan
 $= 20 \text{ points}$

Ans: (20)

Solutions for questions 39 to 42:

39. Number of children born in October = 500
 Number of children born during the year
 $=$
 $400+350+370+310+480+230+300+320+490+500+240+340$
 $= 4330$
 Required percentage = $500/4330 \approx 11.55\%$

Choice (B)

40. We need to calculate the ranks for all the months for solving this question.

Month	Child Rank	Boy Rank	Girl Rank
January	4	10	2
February	6	9	5
March	5	3	7
April	9	8	8
May	3	1	4
June	12	12	9
July	10	6	11
August	8	5	10
September	2	2	3
October	1	4	1
November	11	11	12
December	7	7	6

We can see that the sum of the three ranks is the highest for November.

Choice (C)

41. At least two ranks are same for April, June, September, October, November and December, i.e. six months.
 Choice (B)
42. The percentage is greater than 120% for January, June and October.

For January = $250/150 = 1.67$
 For June = $130/100 = 1.3$
 For October = $290/210 = 1.38$

Choice (A)

Solutions for questions 43 to 46:

43. The total number of people who watched any movie in a theater
 $= \frac{24.7 + 20.8 + 20.8 + 16.9 + 6.5 + 26 + 22.1 + 11.7}{130} = 1.15 \text{ mn}$
 Choice (C)

44. Number of people who watched movie B in a theater

$$= \frac{20.8}{130} = 0.16 \text{ mn} = 160000$$

Total number of people who watched the movie = 280000

$$\text{Required percentage} = \frac{16}{28} \times 100 = 57.14\%$$

Choice (A)

45. To find the number of people who watched a pirated print as a percentage of the total number of people who watched the movie, the ratio of revenues to total number of people who watched the movie must be the least.

For Movie E = $6.5/110 = 0.059$

For Movie C = $20.8/340 = 0.061$

For Movie G = $22.1/360 = 0.061$

For Movie H = $11.7/210 = 0.056$

Hence, the required percentage must be the highest for Movie H.
 Choice (D)

46. All the movies which have $\frac{\text{Revenue} \times 1000}{130}$ (denoted by

x) greater than $\frac{\text{Number of people}}{2}$ (denoted by y) will

meet the criteria.

For Movie A, $x = 190$ and $y = 125 \Rightarrow x > y$

For Movie B, $x = 160$ and $y = 140 \Rightarrow x > y$

For Movie C, $x = 160$ and $y = 170 \Rightarrow x < y$

For Movie D, $x = 130$ and $y = 90 \Rightarrow x > y$

For Movie E, $x = 50$ and $y = 55 \Rightarrow x < y$

For Movie F, $x = 200$ and $y = 135 \Rightarrow x > y$

For Movie G, $x = 170$ and $y = 180 \Rightarrow x < y$

For Movie H, $x = 90$ and $y = 105 \Rightarrow x < y$

Hence, for movies A, B, D and F, at least half the people who watched the movie watched it in a theater.

Therefore the answer is 4.
 Choice (C)

Solutions for questions 47 to 50:

The total number of goals scored by all the players combined is 19. From (i), the winning team (Team Red) must have scored 10 goals and the losing team must have scored 9 goals. From (ii), the winning team had the ball for 40 minutes and the losing team had the ball for 50 minutes.

E cannot be in the Team Red because Team Red (winning team) had the ball for 40 minutes and B (possession time: 20 minutes) is in Team Red.

If E and G were in Team Blue with 9 goals and 38 minutes between them, the other three players in the team must have scored 1 goal and a possession time of 12 minutes. In this case, for any combination of three players, the possession time cannot be 50 minutes. Hence, E and G must be in different teams.

Therefore, B and G must be in Team Red and E in Team Blue. B and G together scored 8 goals and have a possession time of 33 minutes. The remaining players must have scored 2 goals and a possession time of 7 minutes. The 2 goals must have been scored by a single player (A, D or F) since two players could not have scored 1 goal each. Between A, D and F, only D can be a part of Team Red because the other two have a higher possession time. The remaining two players must not have

scored any goals and have a possession time of 5 minutes. From the table, we can see that C must be a part of Team Red. One among H and I must also be a part of Team Red.

Team Blue must comprise E, A, F, J and one among H and I. The following table presents the teams:

Team Red	Team Blue
B	E
G	A
D	F
C	J
H/I	I/H

47. D is a part of Team Red.
 Choice (B)

48. E scored the maximum number of goals in Team Blue.
 Choice (A)

49. F and J belong to the same team.
 Choice (C)

50. The Player of the Match must have been B. Choice (D)

Solutions for questions 51 to 54:

From (v), in the revised rankings, D must have been ranked 4th or 5th. If D was ranked 5th, in the initial rankings D must have been ranked at least 5th. But this will violate condition (v), because D would have more number of students ranked better than him in initial rankings as well. Therefore, D must have been ranked 4th in the revised rankings and in the original rankings as well. This is possible if all the three students who cheated had a rank worse than D's initial rank.

Of the four students initially ranked below D, three must have cheated. From (iii), G and H must be 2nd and 3rd.

From (i), B must have been 5th and A must have been 8th. From (iv), E must have been 6th and C must have been 7th.

From (ii), the revised rank of C must have been 5 and A, B and E must have cheated.

51. F was ranked first initially.
 Choice (C)

52. The rank of C changed after revising the ranks.
 Choice (A)

53. For four students (F, G, H, D), the rank did not change.
 Choice (D)

54. A, B and E cheated. Among the three of them, B was ranked the highest, i.e., 5th.
 Choice (B)

Solutions for questions 55 to 58:

The possible routes from A to F are ABEF, ABEDF, ABEDCF, ADF, ADEF, ADCF, ACF, ACDF and ACDEF.

From (iii), Rahul was the only person who travelled through both town B and town D and from (ii), he also travelled through town C. Hence, Rahul must have travelled along ABEDCF.

From (i), Praveen and Tarun must have travelled through ABEDF, ADF or ACDF. No one else travelled in these three routes. However, since we already have seen that only Rahul travelled through both B and D, Praveen and Tarun must have travelled along ADF and ACDF, not necessarily in the same order, while no one would have travelled along ABEDF.

From (iv), since Yasim travelled through EF but not D, the only possibility for him is ABEF.

Since, one of Praveen and Tarun travelled along ACDF, the other route with the same set of towns, i.e., ACDF cannot be taken by anyone else.

The remaining routes are ACF, ACDEF and ADEF. But from (ii) Vatsal did not travel through C, which means that the only possibility left for him is ADEF. Further, from (iii), Satish did not travel through E, which leaves ACF as the only possibility for him. Which leaves ACDEF as the only possibility for Zakir.

The following table presents the possible routes that each person travelled along:

Person	Possible Route(s)
Praveen	ADF, ACDF
Rahul	ABEDCF
Satish	ACF
Tarun	ADF, ACDF
Vatsal	ADEF
Yasim	ABEF
Zakir	ACDEF

55. Vatsal travelled along ADEF. Choice (B)
 56. Zakir travelled through a total of 5 towns Ans: (25)
 57. The correct combinations are E-4, D-5, C-4 and B-2. Only choice D is correct. Choice (D)
 58. Satish travelled along ACF. Choice (C)

Solutions for questions 59 to 62:

59. Only one among LCD, AMOLED and IPSLED must be included and only one among Bluetooth and Infrared must be included. Symbian OS cannot be in the phone because if Symbian OS is present in the phone, it can have a maximum of only 4 features (Infrared or Bluetooth, LED or AMOLED and GPS).

If the phone has Android OS, it must have IPSLED and HD Recording. It must also include one among Bluetooth and Infrared. It cannot have GPS. Hence, the phone must have Quad core. Only then will the phone have five features. Hence, the answer is D. Choice (D)

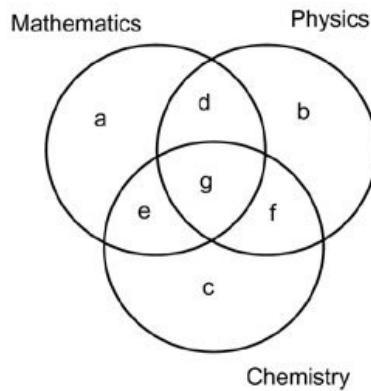
60. If GPS is included in the phone, Symbian OS must be present. One among Bluetooth and Infrared must also be present. One among LCD and AMOLED must also be present (IPSLED cannot be present because if IPSLED is present, Android OS must be present). Quad core cannot be present (from (v)).

Hence, a maximum of four features can be in the phone. Choice (C)

61. In this case, one among Infrared and Bluetooth must be present. One among LCD and AMOLED must be present. IPSLED cannot be present because the number of features will become more than 3. Therefore, Android OS and HD Recording must also not be present. If Symbian OS is included, GPS must also be included. Therefore, both Symbian OS and GPS cannot be included. Only Quad core can be included, if the phone should have three features. Hence, from the options, the answer is option B. Choice (B)

62. If Symbian OS is present, at most four features can be included (from the previous question). If Android OS is present, IPS LED and HD recording must be present. Quad core can also be present. One among Bluetooth and Infrared must be present. Hence, a maximum of five features can be in the phone. Ans: (5)

Solutions for questions 63 to 66:



Let the Venn diagram represent the students that failed in the exams.

From (i), $d = c$
 From (ii), $b + f + c = 10$

Since each student failed in at least one subject,
 $a + d + g + e = 15 - 10 = 5$

From (iii), a must be at least 2 (K and O) and g must be at least 3 (A, D and F).

Since $a + d + g + e = 5$, $d = e = 0$
 Since $d = c$, $c = 0$.

From (iv), $b = 4$ (B, E, G and H). Therefore, $f = 6$.

63. Number of students who failed in either Mathematics or Chemistry = 11. Ans: (11)

64. The maximum number of students failed in Physics (13). Choice (B)

65. Number of students who failed in Chemistry = 9. Ans: (9)

66. Option A: 6; Option B: 11; Option C: 6; Option D: 6. Hence, option B is the highest. Choice (B)

Difficulty level wise summary - Section II	
Level of Difficulty	Questions
Very Easy	-
Easy	35, 38, 39, 40, 41, 42, 43, 44, 45, 53, 55, 58, 59, 60, 61, 62, 63, 64, 65, 66
Medium	36, 37, 46, 47, 48, 49, 50, 51, 52, 54, 56, 57
Difficult	-
Very Difficult	-

SECTION – III

Solutions for question 67:

67. Given $(a + \sqrt{b}) \times (a - \sqrt{b}) = 33 \Rightarrow a^2 - b = 33$
 Also, $ab = 18 \Rightarrow b = 18/a$

$$a^2 - \frac{18}{a} = 33 \Rightarrow a^3 - 33a - 18 = 0$$

From the options, a can only be 6.

Alternative Solution:

Considering each option, we can also calculate the possible value of b, and check for the product $(a + \sqrt{b})(a - \sqrt{b}) = 33$. For example, if a = 2 and given

$$ab = 18, b = 9, \text{ and } (2 + \sqrt{9})(2 - \sqrt{9}) \neq 33.$$

But for $a = 6$, $b = 3 \left(6 + \sqrt{3}\right) \left(6 - \sqrt{3}\right) = 33$.

Hence, Choice (C)

Choice (C)

Solutions for questions 68 and 69:

68. Let the ages of Ram and Raj be $4x$ and $5x$.
Fifteen years ago, their ages would have been $4x-15$ and $5x-15$.

$$\therefore \frac{4x-15}{5x-15} = \frac{3}{5}$$

$$\Rightarrow 20x - 75 = 15x - 45$$

$$\Rightarrow x = 6$$

Hence, the ages of Ram and Raj are 24 and 30. Five years from now, the sum of their ages would be $24 + 30 + 10 = 64$ years

Ans: (64)

69. Given that the roots of the equation $x^2 - ax + b = 0$ are 2 and 3.

$$\text{Equation whose roots are 2 and 3 are } x^2 - 5x + 6 = 0$$

$$\therefore a = 5 \text{ and } b = 6$$

$$\text{Equation whose roots are 5 and 6 is } x^2 - 11x + 30 = 0.$$

$$\therefore \alpha = -11 \text{ and } \beta = 30 \Rightarrow \alpha + \beta = 19$$

Ans: (19)

Solutions for questions 70 and 71:

70. 20% of the cartons = 3 cartons

$$10\% \text{ of pencil boxes in 3 cartons} = 10\% \times 3 \times 120 = 54$$

$$10\% \text{ of the pencils in 54 pencil boxes} = 81$$

Choice (A)

71. 300 ml of 40% milk contains $60\% \times 300$ ml of water i.e., 180 ml water and 120 ml milk.

$$700 \text{ ml of 18\% milk contains } 574 \text{ ml water and } 126 \text{ ml milk.}$$

$$\text{Ratio of water and milk in the new mixture} = 754 : 246 = 377:123$$

Choice (B)

Solutions for questions 72:

72. Given that $2i = d$ and $3d = p$

$$\text{Also, } \frac{p}{6} + \frac{p}{3} + p = 108$$

$$\text{Hence, } p = 72.$$

Ans: (72)

Solutions for questions 73 to 75:

73. Since $16 = 2^4$, in order to convert a number from base 2 to base 16, every set of four digits, starting from the left, can be directly replaced with their base 16 equivalent.

$$\therefore (10110101101110)_2 = [(101)(1101)(0110)(1110)]_2 = [5D6E]_{16}$$

Hence, there are two digits which are less than 9.

Choice (B)

74. First equation $\Rightarrow y = \frac{2-x}{2}$

$$\text{Second equation} \Rightarrow y = \frac{3x+5}{a}$$

Intersection of the two lines

$$\Rightarrow \frac{2-x}{2} = \frac{3x+5}{a} \Rightarrow 2a - ax = 6x + 10$$

$$\Rightarrow (6+a)x = 2a - 10 \Rightarrow x = \frac{2a - 10}{a + 6}$$

$$y = 1 - \frac{2a - 10}{2a + 12} = \frac{22}{2a + 12}$$

However, x and y must both be greater than 0 (since the lines must intersect in the first quadrant).

For $x > 0$, $a > 5$ or $a < -6$

For $y > 0$, $a > -6$

Hence, $a > 5$ and only choice C satisfies. Choice (C)

75. Since 4 men and 2 women take 15 days, while 5 men and 4 women take 9 days to do the same work, we can say that $(4m + 2w) \times 15 = (5m + 4w) \times 9$, where m and w are the rates of work of one man and one woman per day.

$$\Rightarrow 60m + 30w = 45m + 36w$$

$$\Rightarrow 15m = 6w$$

Now the entire work can be written in terms of men, i.e., $60m + 30w = 60m + 75m = 135m$.

Hence, 6 men will be able to finish the work in

$$\frac{135}{6} = 22.5 \text{ days.}$$

Choice (C)

Solutions for questions 76:

76. Sum of all positive even numbers less than 300

$$= \frac{n}{2}(a + 1) = \frac{149}{2} * (2 + 298) = 22,350$$

The highest multiple of 7 less than 300 = $7 \times 42 = 294$

Therefore, we need to subtract all the even multiples of 7 lower than this value.

$$\text{Required value} = 22350 - (7 \times 2 + 7 \times 4 + 7 \times 6 \dots + 7 \times 42)$$

$$= 22350 - 7 \times (2 + 4 + 6 + 8 \dots + 42)$$

$$22350 - 7 \times \frac{21}{2} \times 44 = 22350 - 3234 = 19116$$

Ans: (19116)

Solutions for questions 77:

77. Let r and h_1 be the initial radius and height of the cylinder.

$$\text{Initial volume} = \pi \times r^2 \times h_1$$

$$\text{After reduction, radius} = \frac{3}{4}r$$

$$\text{Final volume} = (\pi \times r^2 \times h_1)/2$$

$$(\pi \times r^2 \times h_1)/2 = (\pi \times \frac{9}{16} \times r^2 \times h_2)$$

$$\Rightarrow h_1/h_2 = \frac{9}{16} \times 2 = \frac{9}{8}$$

$$\text{Percentage decrease in height} = \frac{1}{9} = 11\frac{1}{9}\%$$

Choice (B)

Solutions for questions 78:

78. Since the speed of the metro is constant, the 20 minutes that Raju needs to save must all come from an increase in the speed at which he travels on his bike.

Since he takes $20/30 \times 60$ minutes = 40 minutes, he has to now travel the same distance in just 20 minutes, i.e., he has to halve his travel time on his bike, for which he would need to double his speed and travel at 60 kmph.

Ans: (60)

Solutions for questions 79 and 80:

79. The LCM of two prime numbers a and b will be ab . If ab is divisible by c , then c has to be either 1 or a or b or ab . Since c is greater than a and b , c cannot be 1 or a or b . Hence,

$$c = ab.$$

Choice (B)

80. Given $\log_{10} a^2 b = 5 \Rightarrow 2\log_{10} a + \log_{10} b = 5$

$$\text{Also, } \log_{10} a/b^2 = 8 \Rightarrow \log_{10} a - 2\log_{10} b = 8$$

Solving for $\log a$, we get $\log_{10} a = 18/5$

$$\Rightarrow a = 10^{18/5}$$

Choice (D)

Solutions for questions 81:

81. Number of distinct letters in the word PROPORTION = 6

$$\text{Number of 4 letter words that can be formed} = \frac{6!}{2!} = 360$$

Ans: (360)

Solutions for questions 82 to 84:

82. Ratio in which profits are to be divided = (Initial investment of Tarun) × (Number of months) : (Initial investment of Varun) × (Number of months) = 4 × 8 : 5 × 12 = 8:15
 Percentage of profit that Tarun will receive = $8/23 \times 100 = 34.78\%$
 Choice (A)

83. Given $\frac{1}{1-r} : \frac{1-r^n}{1-r} = 1.144$

$$\therefore \frac{1}{1-r^n} = 1.144$$

$$\Rightarrow r^n = 1 - \frac{1}{1.1444} \approx 0.1262$$

Now, calculating and checking for each of the options, using the on-screen calculator, only option B satisfies.

Choice (B)

84. Duration for which green light is on from 8:00 AM to 10:00 PM = $6/9 \times 14 \times 60 = 560$ min
 Duration for which green light is on from 10:00 PM to 8:00 AM = $3/8 \times 10 \times 60 = 225$ min
 Total duration in 24 hours = $560 + 225 = 785$ min
 = 13 hours and 5 min.
 Choice (A)

Solutions for questions 85:

85. The increase in the weight of all five persons together = $5 \times (81 - 76) = 25$ kg
 To find the maximum possible increase in weight of any person in the group, let the other four persons have the least possible increase in weight, i.e., 2 kg each.
 Therefore, $2 \times 4 = 8$ kg of increase in weight was due to the four persons.
 Hence, the maximum possible increase in weight of the fifth person would be $25 - 8 = 17$ kg
 Ans: (17)

Solutions for questions 86 to 88:

86. Let x and y be $52a + 23$ and $31b + 19$. For any value of a, x will always be odd. But y can be even or odd depending on the value of b. Hence, the correct answer is option D.
 Choice (D)

87. Number of ways in which two balls can be picked from 10 balls = ${}^{10}C_2$
 Number of ways in which two balls of the same colour can be picked = ${}^4C_2 + {}^6C_2 = 21$
 Required probability = $21/{}^{10}C_2 = 21/45 = 7/15$
 Choice (A)

88. Let a and b be the time taken by Tap A and Tap B individually to fill the tank.
 Given that

$$\frac{1}{a} + \frac{1}{b} = \frac{1}{20}$$

Also, a = 44 minutes (since Tap A can fill three quarters of the tank in 33 minutes, it takes 44 minutes for Tap A to fill the entire tank).

$$\therefore \frac{1}{b} = \frac{1}{20} - \frac{1}{44} = \frac{3}{110} \Rightarrow b = \frac{110}{3} = 36.67 \text{ minutes}$$

Choice (C)

Solutions for questions 89 and 90:

89. The availability of lead, zinc and iron is 6 kg, 10 kg, and 14 kg, respectively, while the required ratio for forming the alloy is 2:3:5.
 In order to make the maximum possible alloy, we need to identify the metal which will be the limiting factor. This will be the metal with the least ratio of availability to requirement. The ratio for lead, zinc and iron will be 6/2, 10/3 and 14/5 respectively. The ratio is the least for iron,

and therefore we can use all of the iron available without any of the other two metals falling short. Since 5 kg of iron is sufficient to form $2 + 3 + 5 = 10$ kg of alloy, 14 kg of iron will be sufficient to form $14 \times 10/5 = 28$ kg of alloy.
 Hence, the maximum quantity of alloy that can be prepared is 28 kg.
 Ans: (28)

90. Let $f(x) = ax + b \Rightarrow f(-x) = -ax + b$
 Given $f(x) - f(-x) = 4x$
 $\Rightarrow 2ax = 4x \Rightarrow a = 2$
 Also, $f(x) + f(-x) = 4 \Rightarrow 2b = 4 \Rightarrow b = 2$
 Hence, $f(x) = 2x + 2$
 If $x = 31$, then $f(x) = 31.2 + 2 = 64$

Ans: (64)

Solutions for questions 91 to 93:

91. Total cost of purchasing 10 watches = 20000
 For earning 15% profit, he has to sell the watches for 23000.
 Since he can sell only 8 watches, price of each watch = ₹2875.
 Choice (C)

92. The decrease in the volume of the pencil can be understood to comprise two parts. Firstly a cylindrical portion of 10% of the total length, i.e., 1 cm, was completely removed. Secondly, since the conical tip is also 1 cm high, we can consider that $(1-1/3) = 2/3$ rd of a cylindrical portion of 1 cm length was removed (since a cone on same radius and height as a cylinder has only $1/3$ rd the volume of the cylinder).

Hence the decrease in volume

$$= \left(1 + \frac{2}{3}\right)$$

Volume of cylindrical portion of height 1 cm and radius 0.25 cm

$$= \left(1 + \frac{2}{3}\right) \pi (0.25)^2 1 = 0.3272 \text{ cm}^3 \quad \text{Choice (A)}$$

93. Let the roots be an and bn.

Product of the roots $abn^2 = 4ab \Rightarrow n = \pm 2$
 Sum of the roots = an + bn = $\pm 2(a+b)$

Choice (A)

Solutions for questions 94 to 97:

94. Length of the race = 0.5/1.6 miles
 Time taken (in hours) for Kishan to complete the race

$$= \frac{0.5}{1.6} \times 1.5 = \frac{0.1}{1.6}$$

= Time taken (in hours) for Sundar to complete the race

$$= \frac{0.15}{1.6} \times \frac{1}{8} + \frac{0.35}{1.6} \times \frac{1}{4} = 0.425 \times \frac{1}{4} \times \frac{1}{1.6}$$

Difference in time

$$= \frac{1}{1.6} \times \left(\frac{0.425}{4} - 0.1 \right) = \frac{0.00625}{1.6} \text{ hours}$$

Hence, when Kishan (the winner) finishes, Sundar (the loser) is $\frac{0.00625}{1.6}$ hours $\times 4 \times 1.6 = 0.025$ km

Alternative Solution:

By the time Sundar has covered 150m at a speed of 8 mph, Kishan, running at 5 mph, would have covered a distance of $150 \times 5/8 = 93.75$ m.

At this point, Kishan is yet to cover $500 - 93.75 = 406.25$ m at a speed of 5 mph, and Sundar is yet to cover 350 m at a speed of 4 mph. Clearly, Kishan will win the race, since he is 25% faster but has less than 125% of Sundar's distance to be covered.

Hence, when Kishan covers 406.25m, Sundar would have covered $406.25 \times 4/5 = 325$ m, i.e., he would still be $350 - 325 = 25$ m behind.
 Ans: (25)

95. The difference between the simple interest and the compound interest for two years at 8% per annum will be

$$P(1.08)^2 - P \left(1 + \frac{2 \times 8}{100}\right) = P(0.0064).$$

Given, $P(0.0064) = 64$, $P = 64/0.0064$

$$\Rightarrow P = ₹10000$$

Ans: (10000)

96. Let abc be the three-digit number ($a \neq 0$). Since the number is divisible by 11,

Either $a + c = b$ or $a + c = b + 11$

(since $a + c - b$ cannot be any higher multiple of 11).

Case i: If $a + c = b$, given that $a + b + c = 10$

$\Rightarrow a + c = b = 5$ and (a, c) can be $(5, 0)$, $(3, 2)$ or $(1, 4)$, since the three-digit number must be even.

Case ii: If $a + c = b + 11$, given that $a + b + c = 10$

$$\Rightarrow 2b + 11 = 10 \Rightarrow b = -0.5.$$

Since this is not possible, case ii is not possible.

Hence, only three such numbers are possible i.e., 550, 352 and 154.

Ans: (3)

97. $f(0) = 2^2$

$$f(1) = 2^2 \times 2 = 2^3$$

$$f(2) = 2^3 \times 2^2 = 2^5$$

$$f(3) = 2^5 \times 2^3 = 2^8$$

By observing the powers of 2, we see that they follow a pattern of $2, 2+1, 2+1+2, 2+1+2+3$.

$$\text{Therefore, } f(22) = 2^{2+1+2+3+\dots+22} = 2^{\frac{2+22(22+1)}{2}} = 2^{255}$$

Ans: (255)

Solutions for questions 98 and 99:

98. If the triangle is to be right-angled, the sum of the squares of two of the three sides must equal the square of the third side. Also, since the length of each side must be positive, each of $(3x+3)$, $(4x+5)$ and $(5x+2)$ must be positive. That is, $x \geq -0.4$

Now, three cases arise for the hypotenuse:

Case (i):

$$(3x+3)^2 + (4x+5)^2 = (5x+2)^2$$

$$\Rightarrow 25x^2 + 58x + 34 = 25x^2 + 20x + 4$$

$$\Rightarrow 38x = -30 \Rightarrow = -\frac{15}{19}, \text{ which is not greater than } -0.4.$$

Hence, case (i) is not possible

Case (ii):

$$(3x+3)^2 + (5x+2)^2 = (4x+5)^2$$

$$\Rightarrow 34x^2 + 38x + 13 = 16x^2 + 40x + 25$$

$$\Rightarrow 18x^2 - 2x - 12 = 0$$

$$\Rightarrow 9x^2 - x - 6 = 0$$

$$\Rightarrow x = \frac{1 \pm \sqrt{217}}{18}$$

$$\Rightarrow x \approx 0.874 \text{ OR } x \approx -0.76$$

Since, $x \geq -0.4$, only $x \approx 0.874$ is a feasible solution

Case (iii):

$$(4x+5)^2 + (5x+2)^2 = (3x+3)^2$$

$$\Rightarrow 41x^2 + 60x + 29 = 9x^2 + 18x + 9$$

$$\Rightarrow 16x^2 + 21x + 10 = 0$$

The roots of the above quadratic are imaginary, since $4.16.10 > 21=2$, i.e., $(b^2 - 4ac) < 0$.

Hence, only one solution is possible, i.e., $x \approx 0.874$ and the lengths of the two perpendicular sides of the right-triangle are $(3x+3)$ and $(4x+5)$, i.e., 5.622 and 6.37 (approximately).

The area of the triangle will be $0.5 \times 5.622 \times 6.37 \approx 17.9$, i.e., 18 sq. units, rounded off to the nearest integer.

Choice (B)

99. Since A is in the second quadrant, B must be in the third quadrant (if the origin is to be contained within the square). Therefore, the coordinates of B must be $(-4, -5)$, since AB is parallel to y-axis and $AB=7$.

Also, since AB is parallel to Y axis, BC must be parallel to X axis.

Now, since B is $(-4, -5)$ and $BC=7$, the coordinates of C must be $(3, -5)$.

Choice (A)

Solutions for question 100:

100. If x is to be maximum, y is to be minimum and z can be maximum. Also, the minimum possible value of y is 2 (since $4x$ and $2z$ are even and $3y$ should also be even if the equation is to be even).

For $z = 9$ and $y = 2$, x will be 5.5. This is not possible.

For $z = 8$ and $y = 2$, x will be 5. This is the maximum possible value of x.

Ans: (5)

Difficulty level wise summary - Section III	
Level of Difficulty	Questions
Very Easy	-
Easy	68, 69, 70, 72, 73, 75, 77, 78, 79, 80, 85, 86, 87, 91, 93, 95, 99
Medium	67, 71, 74, 76, 81, 82, 83, 84, 88, 89, 90, 92, 94, 97, 100
Difficult	96, 98
Very Difficult	-