

(Key and Solutions for AIMCAT1717)

Key

SECTION – I

1. B	8. B	15. C	22. B	29. D
2. A	9. C	16. D	23. B	30. B
3. B	10. B	17. C	24. C	31. B
4. C	11. C	18. D	25. 24153	32. D
5. C	12. A	19. A	26. 35142	33. A
6. D	13. D	20. C	27. 54213	34. C
7. A	14. B	21. D	28. 41325	

SECTION – II

1. 3	8. 10	15. A	22. D	29. D
2. D	9. A	16. C	23. A	30. C
3. A	10. B	17. 117	24. B	31. D
4. C	11. D	18. 24	25. A	32. A
5. 33	12. D	19. 12	26. A	
6. 38	13. D	20. 27	27. B	
7. A	14. B	21. A	28. D	

SECTION – III

1. A	8. B	15. 8	22. C	29. B
2. 64	9. A	16. D	23. 2	30. 2
3. A	10. C	17. B	24. B	31. 6
4. A	11. B	18. 42	25. D	32. -1
5. B	12. 245400	19. 40	26. 18	33. 720
6. 96	13. D	20. C	27. B	34. 26
7. 13	14. B	21. C	28. 73	

Solutions

SECTION – I

Solutions for questions 1 to 6:

Number of words and Explanatory notes for RC:

Number of words: 636

1. The beginning of the passage talks about seers and prognosticators are proclaiming that "a "new decade" is ushering in a "new world"".

Option A: The author mentions that he has two reasons for not joining "in these hosannas". The minor reason is that he believes that the decade does not start until the next year. Since this is a minor reason, we cannot call this the primary reason for the author to refuse to proclaim that a new world is to be ushered. Hence, this option is incorrect.

Option B: Refer to para 3. The major reason why he fails to join in is that he believes that we face "a changed and not a new world". Hence, this is the primary reason for the author to refuse to join in.

Option C: The passage clearly states that the threat of "the Soviet invasion of Western Europe" is removed. The author also doubts whether there ever was such a threat. Refer to para 6. Hence, this option is incorrect.

Option D: Refer to para 5. While the author does state that there are no new developments if new is taken to mean "something never before seen". However, he does concede that there are two new developments if new is taken to mean "something different from what was perceived a year or 10 years or a quarter-century ago". Since the author allows a different definition of "new", we cannot conclude that the author thinks that there are no new developments. Therefore, this option is incorrect. Hence, the correct answer is option B. Choice (B)

2. The author at various points in the passage talks about the U.S. military. He mentions that the Soviet threat has been responsible for "NATO and the billions of dollars U.S. taxpayers have poured into the defence of Western Europe, every year for nearly a half-century". He also states that the Soviet threat is a paper tiger. This "liberates the West from a powerful and prevailing policy imperative" i.e., building military strength.

Option A: The author expresses that there is no real Soviet threat. Because of this, the U.S. need not concentrate as much on building their military. Hence, this option would most likely be a recommendation of the author.

Option B: The author does not mention that Soviet threat will always exist. Further, he states that it has ceased to exist for a long time. Hence, this option cannot be a recommendation of the author.

Option C: In the passage, the author does not express a strong opinion against communism. Hence, we cannot infer that this will be a recommendation of the author.

Option D: The author mentions that Soviet Union was the main reason why U.S. built nuclear arsenal. Hence, this option cannot be a recommendation of the author.

Therefore, the most likely recommendation will be the one presented in option A.

Choice (A)

3. The passage mentions that the Soviet threat to Western Europe as a "paper tiger" in the penultimate paragraph of the passage.

Option A: The passage mentions that with no control in East Germany and Poland, "it can hardly be any longer imagined that they plan to lunge across Germany and France to the English Channel". However, the passage does not mention that the Soviet relinquished their control during the time of Stalin. Hence, this option is incorrect.

Option B: The passage mentions that the Soviet threat probably did not exist since the time of Stalin. A reason for this was "the likely unreliability of Warsaw Pact forces". The author also states that this "now has been demonstrated". Hence, the support from Warsaw pact forces must have been important for Soviet threat to be effective. Therefore, this option is the correct answer.

Option C: The author does not mention the military strength of US as one of the reasons why there was no serious threat. Hence, this cannot be the correct answer.

Option D: The passage does not mention that the Warsaw Pact forces grew weak during the time of Stalin. It only states that it might have been unreliable since the time of Stalin. Hence, this is also not the correct answer.

Therefore, the correct answer is option B.

Choice (B)

4. The last paragraph of the passage talks about Communist control in Nicaragua.

Option A: The passage mentions that the Soviet are not eager to "sustain a satellite nation half a world away in Central America, much less to build it into a military threat to the United States". But from this we cannot conclude that they already relinquished control in Nicaragua. Therefore, this option is incorrect.

Option B: We can infer from the passage that Moscow does not want to develop Nicaragua into a military base. Hence, this option is also incorrect.

Option C: Since the passage states that the Soviet are not eager to develop Nicaragua into a military base, we can conclude that this is the correct answer.

Option D: The author does not state that the Sandinista regime is a threat to the U.S. Hence, this option is also incorrect.

Therefore, the correct answer is option C.

Choice (C)

5. The author provides two different definitions of "new" when he talks about the new developments that happened in the past. The first definition of new is to mean "something never before seen".

In this case, the author believes that there are no new developments. He also mentions that new can be defined to mean "something different from what was perceived a year or 10 years or a quarter-century ago". In this case, he talks of at least two new developments.

Option A: This option states the first definition that the author considered. It is not specific to the question. Hence, this is not the correct answer.

Option B: The author does not mention that the changes were minor or major. Any change to an existing system can be considered new. Hence, this option is also incorrect.

Option C: A change in the status quo will qualify as a definition of new according to the author, because that will mean "something different from what was perceived a year or 10 years or a quarter-century ago". Hence, this is the correct answer.

Option D: The author does not specify that only those changes which made the world different from what it was ten years ago can be termed as new. He mentions different time periods and hence, this is not the correct answer.

Therefore, the correct answer is option C.

Choice (C)

6. The author when talking about the Soviet mentions that "the nations' economies and trading positions will be the surest determinants of their power". Hence, the power of a nation is determined by its economic and trading policies. Therefore, the correct answer is option D.

Choice (D)

Solutions for questions 7 to 9:

Number of words and Explanatory notes for RC:

Number of words: 487

7. Refer to para 2. The passage states that the "Business schools find themselves in a bizarre situation". The bizarre situation is that the class of 2001 is struggling to find jobs but the number of applications for the class of 2004 is high.

Option A: If the applicants for the class of 2004 believe that the recession would not last till 2004, then the number of applications for that class would be quite high. This option, if true, will explain the strangeness of the situation that the business schools find themselves in.

Option B: Even if the class of 2001 believes that the recession will last only till 2003, it will not explain the high number of applications for the class of 2004. Hence, this option is not the correct answer.

Option C: If the applicants believe that the recession will last for four more years, i.e., until 2005, the number of applications should decrease and not be high. Hence, this option also is incorrect.

Option D: If companies plan to reduce the number of graduates that they hire, it will only add to the students' worries. This would, therefore, not explain the situation.

Therefore, the correct answer is option A.

Choice (A)

8. The passage states that "Other schools have been similarly bruised". The schools are bruised because around 20% of their graduates are out of work. The author feels that "at least the top schools can protest". The example which the author provides is that Harvard banned a recruiter "from recruiting on the campus for the next two years" because it behaved unprofessionally.

Option A: While the top schools can invite companies from other sector, this is not related to the context in which the author makes this statement. Hence, this option is incorrect.

Option B: In the example provided in the passage, Harvard imposed sanctions against a company (by prohibiting the company from recruiting) which withdrew job offers. Hence, this is the correct answer.

Option C: If the top schools do this, then it will not involve any protest. Hence, this option is also incorrect.

Option D: The passage does not talk about the top schools mandating a minimum number of offers to be made. Hence, this option is also incorrect.

Therefore, the correct answer is option B.

Choice (B)

9. The passage talks about the impact of economic recession on MBA schools and students, especially the students of the class of 2001.

Option A: The passage mentions that the students "are struggling to find jobs for their current crop of graduates". Hence, this option is mentioned in the passage.

Option B: The passage provides the example of Booz Allen wherein the company postponed its offer till December. Hence, this option is also mentioned in the passage.

Option C: While the passage mentions that students are struggling to find jobs, it does not talk about the pay of the students. Hence, this option is not mentioned in the passage and is the correct answer.

Option D: The passage mentions that companies like Booz Allen "have in the past usually paid a student's second-year fees" but now they are not doing so. Hence, this option is also mentioned in the passage.

Therefore, the correct answer is option C.

Choice (C)

Solutions for questions 10 to 15:

Number of words and Explanatory notes for RC:

Number of words: 508

10. The passage mentions the views of Peter F. Drucker in the fifth paragraph. He compares the internet to railroads and brings out the similarities between the two.

Option A: While the passage states that railroad lowered transportation costs, it does not talk about the Internet lowering any costs. Hence, this option is not correct.

Option B: The passage mentions that while railroads "made national businesses possible", "the Internet allows even small businesses to have global ambitions". Hence, both railroads and the Internet facilitated the increase in the scale of businesses.

Option C: Railroad "made national businesses possible". But the Internet allowed businesses to have "global ambitions". Hence, this option does not state a similarity.

Option D: The passage does not talk about the increase number of small businesses because of railroads or the Internet. Hence, this option is also incorrect.

Therefore, the correct answer is option B.

Choice (B)

11. The passage mentions that capitalism "has extended to areas where it was previously unfamiliar" and provides the example of stock markets from Ghana to Mongolia. From this, we can infer that the presence of stock markets implies that capitalism has extended to that area. Therefore, the presence of stock markets is an indication of capitalistic economy.

Choice (C)

12. The passage mentions that because of free trade, "there are losers whose political influence may be substantial". This is elaborated in the next sentence where the author talks about protests calling for "stricter standards on the environment and the treatment of workers".

Option A: We can infer that the losers refer to the environment and workers. Hence, we can say that free trade affects the environment and also does not provide protection to the workers. Therefore, this can be inferred from the passage.

Option B: While it can be inferred from the passage that environment will get affected, we cannot conclude that there should be no laws on environmental protection for free trade to flourish. Hence, this option cannot be inferred.

Option C: The passage does mention the possibility that capitalism might result in an economic collapse and provides an example of Asian economy in 1997. However, this is not related to the "losers" mentioned later in the same paragraph. Hence, this option is not related to the question.

Option D: The passage does not talk about government intervention/ planning when talking about the "losers". Hence, this option is incorrect.

Therefore, the correct answer is option A.

Choice (A)

13. The passage compares American capitalism with Asian capitalism and European capitalism at the beginning of the passage.

Option A: The passage mentions that Asian capitalism has "greater level of government planning" and European capitalism emphasizes "social welfare and protection of

workers". But, this option states the opposite. Hence, this option is incorrect.

Option B: The passage does not compare American capitalism with Asian and European capitalism in the ease of starting new businesses. Hence, this option is also incorrect.

Option C: We cannot infer from the passage that free markets do not exist in Asia and Europe. Hence, this option is also incorrect.

Option D: The level of government planning and protection of workers in America is less than that present in Asia and Europe. Hence, this option is the correct answer.

Therefore, the correct answer is option D.

Choice (D)

14. The passage talks about various features of capitalism in America.

Option A: The passage mentions that it is "relatively easy to start companies" in America. Hence, this option is mentioned in the passage.

Option B: The passage mentions an excerpt from the book "The Long Boom..." which states that the technological change and global integration has "the potential to pull the whole world into it, allowing literally billions of people to move into middle-class lifestyles". However, we cannot attribute this to capitalism in America. Further, we cannot conclude that people have already moved to middle-class in America. Hence, this option is not a feature of capitalism.

Option C: The passage mentions that "as a means of creating wealth and material progress, American capitalism seems to be clearly superior to the Asian variety" and the European version. Hence, we can infer that American capitalism creates more wealth than Asian and European versions. Therefore, this option is also a feature.

Option D: The passage talks about the ease of starting new businesses in America due to capitalism. Hence, this option is also a feature of capitalism in America.

Therefore, the correct answer is option B.

Choice (B)

15. The passage talks about a few of the effects of globalism in the fifth and seventh paragraphs.

Option A: The passage mentions that without tax reductions and relaxation in regulations, it will be difficult for the businesses in a nation to compete with global ones. But we cannot infer that the local businesses are incurring losses. Hence, this option is incorrect.

Option B: The passage does not imply that globalism results in increased political influence in the economy. Hence, this option is also incorrect.

Option C: The passage mentions that "it places pressure on nations to relax regulations and cut taxes that make it more difficult for their businesses to compete". Hence, this option is the correct answer.

Option D: The passage does not mention that nations are not allowing small businesses to become global. Hence, this option cannot be inferred.

Therefore, the correct answer is option C.

Choice (C)

Solutions for questions 16 to 18:

Number of words and Explanatory notes for RC:

Number of words: 502

16. Refer to the first and second paragraphs of the passage.

Option A: The passage neither states that Sartre did not take into account the women and slaves of every generation nor mentions that Beauvoir criticized Sartre's view of transcendence on this account. "Women and slaves" are used as examples by Beauvoir to say that their limitations cannot be transcended because of the enforcement of external institutions and power structures

upon them. So choice A does not reflect Beauvoir's primary criticism of Sartre's view of transcendence.

Option B: Choice B sounds condescending and is not mentioned in the passage as Beauvoir's primary criticism of Sartre's view of transcendence. Hence choice B is not the answer.

Option C: Achievement of transcendence for everyone versus a single individual has not been debated in the passage. It cannot be said to be Beauvoir's primary criticism of Sartre's view of transcendence. Therefore choice C is not the answer.

Option D: Refer to the first sentence of the second paragraph. Beauvoir, however, recognises that some situations are such that they *cannot be simply transcended* but serve as strict and almost unsurpassable inhibitors to action. This closely parallels the thought mentioned in the latter half of choice D (.... certain situations which serve to dispel the notion that *transcendence is even possible*). Sartre's view has been mentioned in the last two sentences of para 1:one's situation (or facticity) is merely that which is to be transcended in the spontaneous surge of freedom. The situation is certainly a limit, but it is a limit-to-be-surpassed. Choice D is the answer. Choice (D)

17. Refer to the sentences in the third paragraph where the word 'mystification' has been used. Thus the slave and the woman are **mystified** into believing that their lot is assigned to them by nature. The oppressor **mystifies** the oppressed by keeping them ignorant of their freedom, thereby preventing them from revolting.

It is clear from the context in which it is used that 'mystification' means making something difficult to understand – "their limitations cannot, in many circumstances, be transcended because they are not even known." 'Obfuscation' is the obscuring of intended meaning i.e. making the message opaque or confusing, wilfully ambiguous or harder to perceive or understand. Hence choice C is correct.

Option A: Though the second sentence of the first paragraph talks about Sartre's viewpoint: One's situation is merely that which is to be transcended in the **spontaneous surge of freedom**, it cannot be inferred that the word 'mystification' refers to the antithesis of a spontaneous surge of freedom. The word 'mystification' is not used in that context but is used to refer to the purpose behind keeping people ignorant of their freedom. So choice A is not true.

Option B: The word 'only limit' in choice B renders it extreme. Hence choice B is not the answer.

Option D: Mystification does not refer to the act or **activity** of enslaving slaves and women but more pertinently to the process of keeping people confused or ignorant about their freedom and prevent them from revolting.

Choice (C)

18. Option A: In the passage Beauvoir does not assert that individual woman is greater than cause. So choice A is not an achievement of Beauvoir.

Option B: In the passage, Beauvoir deals mostly with the relation between the oppressor and the oppressed and how it works. The passage begins with a main idea: **One** of Beauvoir's greatest achievements in *The Ethics of Ambiguity* **is found in her analyses** of situation and mystification. In other words, the analyses of situation and mystification are not in themselves her achievements, they contain one of her achievements. Choice B is not the answer.

Option C: Choice C is extreme. Beauvoir does not go a long way in criticizing Sartre's theory. She just makes one primary criticism of Sartre's view of transcendence (this is limited to the first two paras of the passage only) but goes beyond that to explain her analyses of 'situation' and 'mystification'. Hence choice C is not the answer.

Option D: The last paragraph of the passage states a parameter or a dimension (In this sense....) for one to conclude that Beauvoir is able to promote an existential

ethics. It's not 'in a sense' (which would be a possible parameter). It's 'in this sense' (which means an applied parameter). In other words, when we read in this manner, we interpret that she promotes existential ethics. Now, 'promotes' (though a little milder) is a similar word to 'champions' and (while there isn't enough to support the word 'existentialism') there is enough in the passage to support 'the existential approach to right and wrong'. Hence choice D is the answer.

Choice (D)

Solutions for questions 19 to 24:

Number of words and Explanatory notes for RC:

Number of words: 631

19. On a careful reading of the passage, it can be inferred that the author stresses the importance of "blended executives" in para 3 and goes on to discuss ways and means to increase the business-savvy technology talent of the organization from para 4 onwards.

Option A: The option of recruiting blended executives from the outside has not been suggested by the author. Therefore choice A is the answer.

Option B: The buddy system has been described and recommended by the author in para 7. Hence choice B is not the answer.

Option C: The leadership development program has been suggested by the author in para 5. Choice C forms a part of this program: Encourage your CIO to invite the heads of your major business units to meet regularly with the senior IT team to educate them on their business area. So, choice C is not the answer.

Option D: The rotation program is the first recommendation of the author to increase the number of blended executives in the organization. Refer to para 4. Therefore choice D cannot be the answer.

Choice (A)

20. Refer to the third paragraph. Those beautifully "blended executives," who can talk technology in one meeting and can talk business in another, are rare birds.

Option A: Choice A is true of technologists who do not venture into the business side of their work. Hence choice A does not refer to "Rare birds" and is not the answer.

Option B: Getting technologists to be better at "business" is to fight the natural order of things. Blended executives are people who would see the forest through the trees i.e. envision the bigger picture and see the "whole" in the "part". So choice B may be true of technologists who do not focus on the business context of their technological work. Hence choice B does not refer to "rare birds" or "blended executives" in the passage. Hence choice B is not the answer.

Option C: Refer to para 3. "These people are so narrowly focused on the technology that they fail to see the forest through the trees. They do not understand the business context of their technology work" is true of technologists who are not blended executives. From this, we can infer that the rare birds can have a meaningful discussion with the leaders of the business areas their technology supports. So choice C is the right answer.

Option D: The passage does not refer to trainers or people who can impart business skills to technologists as "rare birds". Therefore choice D is not correct.

Choice (C)

21. Option A: Choice A is very restrictive. The author does not discuss the challenges companies face in training technocrats to become "blended executives". He explains the importance of being a blended executive and then goes on to suggest ways in which "blended executives" can be created in the workplace. So choice A is not the answer.

Option B: Choice B is not very specific to the discussion in the paragraph. "fighting the natural order of things" in

choice B is very general and does not take into account the central idea of the passage.

Option C: Choice C is distorted. There is no clash between technology and business in organizations.

Option D: This is the correct answer. The author discusses ways and means to increase the business-savvy technology talent of the organization from para 4 onwards.

Choice (D)

22. Refer to the first sentence of the third paragraph: The major talent problem today is not recruiting or developing leaders or retaining the existing talent but how to give business skills to the technologists. The rest of the passage is about finding solutions to the difficult problem of technologists who lack business sense.

Option A: The passage does not cite any limitations of the "buddy system" which has been recommended by the author in para 7. So choice A has not been mentioned and is not the answer.

Option B: The author stresses on the fact that business skills should be imparted to the technologists. These "Net Geners" are so narrowly focused on the technology do not understand the business context of their technology work Yet with technology moving directly into the revenue stream of your company, you need rare birds, and your need is only going to increase. From the first sentence of para 3, choice B is true.

Option C: Option C has not been mentioned by the author. It sounds contradictory to the central idea of the passage.

Option D: The author of the passage wants Net-Geners to make the leap from "bits and bytes" to "business skills". He stresses that they should have business leadership skills and not just IT leadership skills. Hence choice D is incorrect.

Choice (B)

23. Option A: Baby boomer workers belong to the previous era as that of the "Net Geners". They are retiring and taking all of that legacy-systems knowledge with them. Net Geners are today's young technologists (*who have grown up in an environment in which they are constantly exposed to computer-based technology*). Hence choice A is incorrect.

Option B: It has been clearly mentioned in the first paragraph that there was a cap on the H-1B visas. So choice B is true.

Option C: The comparison given in choice C is out of scope. Refer to the last sentence of para 2: Would that young, brilliant developer rather join the next Zynga or upgrade the payroll systems at your insurance company? It has not been mentioned whether the next Zynga is a rapidly growing start-up or not. Refer to the second sentence of para 2: Companies are in even greater need of technology talent than they were in the late 1990s, and that talent is in even shorter supply Hence choice C cannot be understood from the passage.

Option D: No such skepticism is hinted at in the passage. The author only stresses the need to increase the business-savvy technology talent of the organization.

Choice (B)

24. In the 1990s, immigrant technologists faced the issue of limited number of visas. Today, though the demand for technology is increasing, there are not enough technologists to satisfy this requirement.

Option A: The passage is not a critique on Techno-utopianism. Hence choice A is out of scope.

Option B: This has not been discussed in the passage.

Option C: Choice C is mentioned in the second and third paras.

Option D: Choice A is wrong since technical developments need more technologists but not only for offshore work. Also, the retiring workers are taking their knowledge with them, not passing it to the next generation.

Choice (C)

Solutions for questions 25 to 28:

25. On a careful reading of the sentences, it can be observed that sentence 2 is the background sentence of the paragraph. It provides the timeline (Twenty-three years ago), the name of the person (Alison Bechdel), the headline of the comic strip (The Rule) and also the idea that was promoted. Sentence 4 (That **women on TV** ought to be characters) continues with the extension of the idea that has been mentioned in sentence 2 (That **women on screen** ought to express their real feelings). So, 24. It can also be observed that sentences 1, 3 and 5 have the pronoun referent 'we'. Sentence 1 (apply the test to the women we see on television) which gives the name of the Test (Bechdel Test) talks about the application of the idea mentioned in sentences 2 and 4. So sentence 1 follows sentence 4. Sentence 5 (**rules** about nonwhite characters) follows sentence 1 (women we see on television) as part of the application steps. Sentence 3 (What we came up with were some **thoughts**) highlights the result and concludes the paragraph. Hence 24153.

Ans: (24153)

26. On a careful reading of the sentences, it can be seen that sentence 3 is the introduction sentence of the paragraph. It gives the background of a particular scene in Hamlet: Hamlet finds his stepfather and nemesis, Claudius at prayer. Sentences 3 and 5 form a mandatory pair. "nemesis, Claudius" in sentence 3 links with "killing Claudius" in sentence 5. Sentence 1 with the contrast conjunction 'but' logically follows sentence 5. "But then Hamlet reasons with himself: if he kills Claudius now" in sentence 1 follows "considers killing Claudius" in sentence 5. So, 351. Sentence 4 follows sentence 1. "**Better to wait**, Hamlet **figures** **his soul will go to hell**" in sentence 4 links with "Hamlet **reasons**: kills Claudius **now** **Claudius' soul might go to heaven**" in sentence 1. Sentence 2 concludes the para with an opinionated statement (all this impious scheming seemed unworthy of a heroic character) about Hamlet. "all this scheming" in sentence 2 summarizes what has been mentioned in sentences 5, 1 and 4. Hence 35142.

Ans: (35142)

27. 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 of the paragraph: How animals respond to seismic activity. Sentences 5 and 4 form a mandatory pair. "how domestic animals respond, but response of wild animals" in sentence 4 links with "how animals respond" in sentence 5. Also "measuring the response is more difficult" in sentence 4 links with "because earthquakes are unpredictable" in sentence 5. Sentence 2 continues the discussion on related lines (i.e. animals respond to **seismic** activity) and highlights a finding: **now** common toads can sense an impending **earthquake**. "**Now** scientists are suggesting" in sentence 2 follows from "Few studies **had been done in the past** " in sentence 4 "such behaviour" in sentence (2) refers to "response of animals" in sentence (4). Sentence 1 follows sentence 2. "The evidence comes" in sentence 1 is linked with "it has been found that " in sentence 2. Also "left their breeding colony three days before an earthquake that struck L'Aquila in Italy in 2009" in sentence 1 follows "common toads can sense an impending earthquake and flee their colony much before the seismic activity strikes" in sentence 2. Sentence 3 concludes the paragraph. Hence 54213.

Ans: (54213)

28. 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 Guernica as Picasso's most famous and powerful work and also states the reason that Picasso painted the same. Sentence 4 has the proper nouns (Picasso, Guernica, Basque town of Guernica, Spanish Civil War). Sentence 1 follows

sentence 4 as it reiterates the purpose of the painting. "Nazi's devastating casual bombing practice on the Basque town of Guernica during Spanish Civil War" in sentence 4 links with "tragedies of war and the suffering it inflicts upon individuals" in sentence 1. Sentence 3 which talks about a world-wide display of Guernica continues after sentence 1. Sentence 3 and sentence 2 forms a mandatory pair. "This tour" in sentence 2 refers to "brief tour" in sentence 3. Also "Spanish Civil War" and world's attention" in sentence 2 reiterates "casual bombing practice on the Basque town of Guernica during Spanish Civil War" in the introduction sentence 4. Sentence 5 (**thus** gained monumental status, becoming a perpetual reminder) concludes by summarizing the importance of the painting and follows sentence 2. "This work" in sentence 5 refers to "Guernica". "perpetual reminder of the tragedies of war, an anti-war symbol" in sentence 5 links with "tragedies of war" mentioned earlier in sentence 1. So, 41325.

Sentence 4 definitely begins the para. Sentences 3 and 2 form a definite pair. Sentence 5 has to end since it brings things upto date while everything else relates to the past. 41 gives us a clear idea of the work before it embarks on the tour in 32, and 5 ends by presenting contemporary relevance.

Ans: (41325)

Solutions for questions 29 and 30:

29. "Sell yourself forcefully" in choice A is not stated in the paragraph, which is about selling one's skills or worth. The word 'only' in choice A makes it extreme or out of scope. The first sentence of choice A is incorrect. The para says that the question is a dreaded interview question and not a question that most fear to ask. "Reveal slowly about yourself..... an extraordinary manner" in choice B also distorts the meaning of the paragraph, which talks about focusing on your unique qualities. Choice B is also unnecessarily wordy. "cautioned or forewarned" has not been stated or implied in the paragraph, so choice C can be eliminated. Also one shouldn't mention weaknesses in the interview. The paragraph also discusses one interview question, so the plural 'interview questions' in choice C makes it incorrect. Only Choice D is a correct summary.

Choice (D)

30. Choices A and D are only partially correct, as they focus on only one aspect of the passage – Zurich's medieval atmosphere and its vibrancy, respectively. "ancient atmosphere" in choice A is incorrect. Choice A does not mention that Zurich is a modern city. Choice D is incorrect as the para does not talk about the history of Zurich as such. The sentence construction or contrast in choice D is absurd. Choice C focuses on a mere example, and is therefore not an adequate summary. Choice C does not make a comparison with other eras (say with past or present). Only choice B covers the main points made in the passage: that Zurich is modern and vibrant city, and that it is a blend of the old and the new. So we can say that Zurich is modern city where the past and present coalesce seamlessly into one another. Hence, Choice B.

Choice (B)

Solutions for questions 31 to 34:

31. For the first blank, 'happiness', 'comfort' or 'solace' will work. 'Solace' means comfort in sorrow, misfortune, or trouble. (The author mentions he had a fit of temper, so he would naturally look for comfort). 'Help' and 'excitement' will not fit the blank. So we can eliminate choice C and choice D.

For the second blank, 'joy' and 'bliss' will work. The latter part of sentence 3 in the para refers to how happy the author was. Magnificence and enlightenment will not fit the context. Magnificence means greatness or lavishness of surroundings; splendor. Enlightenment which means the act of enlightening or the state of being enlightened

will need another context. Hence we can eliminate choices A and D.

The author was moving around in the garden. So 'wander about' would describe the movement and 'wander' would best fit the third blank. 'Trudge' means to walk in a laborious, heavy-footed way; plod. 'Stride' means to walk with long steps, especially in a hasty or vigorous way. For the fourth blank, 'fragile' (delicate), 'dainty' (delicately beautiful or charming and usually small), 'beautiful' could be used to describe the petals.

The penultimate sentence of the paragraph goes on to say that the roses were the loveliest flowers of all. The sentence provided in choice B goes on to tell us why the author thinks that the roses were the loveliest of all. 'Asphodels' in choice B would refer to divine flowers (flowers perennially in bloom). The last sentences provided in choices A and C shift focus from a description of 'flowers' to the 'garden' and do not link with the penultimate sentence of the paragraph. The last sentence in choice A refers to the garden as 'old-fashioned'. The last sentence in choice C runs tangent to the paragraph as it highlights an irrelevant point. While the last sentence provided in choice D (heart-satisfying beauty.....) (which links with "heart-satisfying roses" in the penultimate sentence) may seem to correctly end the paragraph on a different note, we have eliminated choice D because of the wrong words given for certain blanks. Hence choice B has all the correct parts that can meaningfully complete the given paragraph.

Choice (B)

32. The paragraph talks about changes in life and renewal of religious fundamentals. The first blank needs a synonym of 'inadequate'. We can rightaway eliminate choices A and B as 'rare' and 'thin' will not work. 'incommensurate' and 'sparse' are synonyms of 'inadequate'. The second blank will not take the word 'trivial' because 'trivial' has already been used to describe 'notions' in the same sentence. So choice C is eliminated. Also 'entwined' which means "To twine around or twist together" will not fit the blank. The best word to fill the blank is 'preconceived'. Preconceived means to form (an opinion, for example) before possessing full or adequate knowledge or experience. The word 'inherent' cannot be ruled out for this blank.

Let us look at the choices available for the third blank. 'Amenable' means ready to consent; agreeable; responsible to higher authority; accountable. The word 'amenable' does not collocate with the word 'mind'. Also the words 'sympathetic' and 'friendly' cannot be used to describe 'mind' in the given context. So the best word to complete the third blank is 'receptive' (Ready or willing to receive favourably, relating to the skills of listening, reading and absorbing

For the fourth blank, the words 'tribulations' and 'ills' in the choices seem probable. Divine remedy can be obtained for the 'tribulations' and 'ills' of humanity. With reference to the last blank in the paragraph, only the sentence given in choice D can complete the paragraph. It is linked to the penultimate sentence of the paragraph. "prevent us from appreciating the light when it shines from another lamp" in choice D extends from "Why be concerned about the outward form of the lamp" in the last but one sentence of the paragraph. The last sentence given in the other choices need a precedent and more substantiation.

Hence choice D has all the correct parts that can meaningfully complete the given paragraph.

Choice (D)

33. The first half of the paragraph talks about a sense of impending evil or misfortune with respect to the introduction and use of technological gadgets. The second half of the paragraph highlights the fact that technology was synonymous with a comfortable world and a buoyant mood.

The first blank in the paragraph needs a synonym of "impending evil or misfortune". That word can be "foreboding or portent". We can rule out 'aloofness' for the first blank. 'Catastrophes' which means 'a sudden and widespread disaster' cannot be ruled out immediately for the first blank. Let us look at the other blanks.

The second blank needs a noun to represent "..... a collection of human fear". The best words among the options for this blank are 'distillate' and 'infusion'. 'Distillate' means a purified form or product or (concentrated) essence. 'Infusion' means the act or process of infusing, something infused or introduced, an extract obtained. 'Flux' means a continuing movement, especially in a larger number of things. 'Medley' means an often jumbled assortment; a mixture and will not work for the second blank.

The third blank will take the word 'harbinger'. (One that indicates or foreshadows what is to come; a forerunner; to presage or signal the approach). We cannot say that technology became the 'seer' or 'proponent'. These words are reserved for people. Similarly, we cannot say that technology became the definition of a brave new world. A brave new world does not have a definition. We can rule out choices B, C and D.

The fourth blank will best take the word 'threshold'. Here it refers to the point of departure from or the boundary that must be crossed to begin producing a given effect or result or to elicit a response. Bedlam (A place or situation of noisy uproar and confusion), paradigm (One that serves as a pattern or model) will not work.

The sixth sentence of the paragraph talks about a new dawn promised by the software revolution or technology revolution in India and the seventh sentence of the paragraph talks about economic growth in the United States. The penultimate sentence of the paragraph speaks about the technology rendering obsolete the old patterns of boom-and-bust business cycles. Hence the last sentence provided in choice A will best complete the paragraph on a climactic tone. "coming of age of America new millennium as its very epitome" in the last sentence of choice A links with "economic growth and mood was buoyant in the US" given in the paragraph.

The last sentence in choice B (such an obliteration) is extreme when it compares (the new ice economy had rendered obsolete). The last sentence in choice C runs tangent to the paragraph. The last sentence in choice D is a misfit. It paints a negative picture but the last two sentences of the paragraph are positive in tone. Choice A has all the correct parts.

Choice (A)

34. On a careful reading of the paragraph, it can be understood that the first blank can take the words 'approach' (since a comparison is been made with other traditional rationalist **approaches**) and 'perspective' (view or outlook). We can rule out 'furor' which means a general commotion; public disorder or uproar; violent anger. Also the word 'medium' is inappropriate for the given context. So choices B and D are eliminated.

The second blank will take the words 'watchful eyes' and 'stewardship'. 'Stewardship' refers to one who supervises or is in charge. Here 'stewardship' refers to the noun 'supervision'. 'Penmanship' is inappropriate here as it means 'The art, skill, style, or manner of handwriting.' Similarly, we cannot say 'under the influence of' So choices A and D are eliminated.

For the third blank, 'indefatigable' sounds extreme. 'Indefatigable' means having or showing a capacity for persistent effort; not tiring or relenting. 'Lackadaisical' (without interest, vigor, or determination; listless; lethargic) is also a negative word and cannot be used to describe the ability mentioned in the sentence. 'Improved' and 'ingenious' can be used to describe the ability spoken about in the sentence.

Though all words from the choices for the fourth blank sound plausible, 'articulate' from choice C would be the best fit as we have eliminated the other choices.

The fragment of the last sentence provided in choice C would best fit the last blank of the paragraph. Refer to the portions before the last blank. "application of conscious reasoning", "moral development throughout our lives", "sound reasons for our verdicts", "highest stages of moral development" link with "people are able to reason justice, fairness, and the Kantian maxim" as mentioned in the last sentence in choice C. The last sentence in choice A needs a precedent and more substantiation. It does not link with the penultimate sentence. The last sentence in choice B is out of scope and cannot continue the thought flow. Also "..... Trolley and Footbridge problems draw on unconscious psychological processes" needs further elaboration. Also the last sentence in choice D sounds like a limitation and cannot complete the thought flow.

Hence choice C has all the correct parts that can meaningfully complete the given paragraph.

Choice (C)

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

SECTION – II

Solutions for questions 1 to 4:

1. If the cumulative score of John has to be greater than that of Robert but less than that of William, his average score must also follow the rule.

By observation, we can see that in three rounds, i.e. Round 7, Round 9 and Round 13, this condition is satisfied.

Ans: (3)

2. If S_n is the average score of a player at the end of n^{th} round, and S_{n+1} is the average score at the end of $n + 1$ round, then the points scored by any player in $n + 1$ round is $(n + 1) \times S_{n+1} - n \times S_n$ which can be rewritten as $S_n - \{(n + 1) \times (S_n - S_{n+1})\}$

Robert's score in Round 2 = $5 + 2 \times 5 = 15$

Robert's score in Round 8 = $14.29 + 8 \times 0.09 \approx 15$

Robert's score in Round 11 = $15 + 11 \times 0.45 \approx 20$

Robert's score in Round 10 = $13.89 + 10 \times 1.11 \approx 25$

Hence, among the given options, Robert scored the maximum number of points in Round 10.

Choice (D)

3. Since William's average score was always less than 20, the number of rounds in which he scored at least 20 points can be at most the number of rounds in which his average increased. By observation, William's average increased in seven rounds (in Rounds 3, 4, 5, 6, 7, 9, 10). Hence, the answer has to be either 6 or 7 (from the options).

Number of points scored by William in Round 3 = 15 (since the average increased from 7.5 to 10)

Hence, we can eliminate 7 as the answer. Therefore, the answer is choice A.

Choice (A)

4. We can use the same formula as above but we can add the averages of the three players across the three rounds to find the total score of three players in each round.

Total score in Round 3 = $30 + 3 \times 6.66 \approx 50$

Total score in Round 5 = $45 + 5 \times 2 \approx 55$

Total score in Round 4 = $36.66 + 4 \times 8.34 \approx 70$

Total score in Round 10 = $45.55 + 10 \times 1.95 \approx 65$

Hence, the players scored the maximum number of points in Round 4.

Choice (C)

Solutions for questions 5 to 8:

Since each candidate only reported the votes that he received accurately, the first column cannot be the votes of Ankur or Vivek (if the first column corresponds to either of these two candidates, then two candidates would have accurately reported the votes received). Hence, the first column can correspond to Nitesh or Mohit or Shashank.

Similarly, the second column can correspond to Ankur/Shashank/Vivek.

The following table presents the possibilities for the five columns (with the candidates represented by the first letters of their names):

N/M/S	A/S/V	A/S/V	A/S	N/S/V
-------	-------	-------	-----	-------

From the above table, we can observe that there is only possibility for Mohit i.e., the first column. If Mohit is the first column, Nitesh has to be the last column. The other columns can correspond to the other three candidates. Hence, the actual number of votes received by Mohit must be 26 and the actual number of votes received by Nitesh has to be 33.

It is given that the average number of votes received by the five candidates is 30 \Rightarrow Total votes received by the five candidates has to be 150. The sum of votes received by Ankur, Shashank and Vivek must be 91.

Among the nine remaining values, picking one value from each column should result in a sum of 91.

If second column corresponds to Ankur, then the other two columns must have a sum of 63. Since the units digit of all the remaining values in third column is 8, and there is no number with units digit as 5 in the fourth column, this case can be ruled out.

If second column corresponds to Shashank, then the other two columns should add up to 60. This is possible if the other two columns are 28 and 32, but this is also not possible since 28 is also in the row corresponding to Shashank. This will imply that Shashank has accurately reported the votes of two candidates.

If second column corresponds to Vivek, other two columns must add up to 62. This is possible if the third column corresponds to Shashank and the third column corresponds to Ankur. The following table provides the complete table with column headers and the actual number of votes received by each candidate highlighted:

	Mohit	Vivek	Shashank	Ankur	Nitesh
Ankur	25	28	18	34	39
Nitesh	29	32	24	32	33
Mohit	26	32	24	32	39
Shashank	23	31	28	29	37
Vivek	25	29	38	32	41

5. Nitesh received 33 votes. Ans: (33)
6. Vivek reported that Shashank received 38 votes. Ans: (38)
7. Ankur would have won the election. Choice (A)
8. The maximum difference is between the actual number of votes received by Shashank and the number of votes

reported by Ankur or Vivek. The difference in the number of votes = 10.
Ans: (10)

Solutions for questions 9 to 12:

Let the Median Salary of the 20 students be x . The total salary of the 20 students = $18.6x$

9. Since the total salary is less than $20x$, the average Annual Salary of the 20 students will be lower than the Median Salary, i.e., $A < M$. Choice (A)

10. Given that $\frac{18.6x}{20} = 13.95 \Rightarrow x = 15$

Median Salary = ₹15 lakh

Highest Annual Salary = $1.7 \times 15 = ₹25.5$ lakh

Choice (B)

11. The ratio will be the highest for the point for which the slope of the line joining the origin to the point is the least (since the given ratio is the inverse of the slope). Note that the origin given in the graph is at (4, 0) and not at (0, 0). However, by observation, we can see that the slope will be the least for one of A, D or R. It is sufficient to calculate the required ratio for these three students to find the answer.

Ratio of Annual Salary to CGPA for D

$$= \frac{1.1x}{5.2} = 0.211x$$

Ratio of Annual Salary to CGPA for R

$$= \frac{1.7x}{7.6} = 0.224x$$

Ratio of Annual Salary to CGPA for A

$$= \frac{0.8x}{4.6} = 0.174x$$

Hence, the ratio is the highest for R. Therefore, the answer is option D, none of the above. Choice (D)

12. Sum of the salaries of students whose Annual Salary is less than the Median Salary = 5.9x

Given that $\frac{5.9x}{9} = 11.8 \Rightarrow x = 18$

Sum of the salaries of students whose Annual Salary is more than the Median Salary = 9.7x

Average salary

$$= \frac{9.7x}{8} = \frac{9.7 \times 18}{8} = ₹21.825 \text{ lakh} \approx ₹21.83 \text{ lakh}$$

Choice (D)

Solutions for questions 13 to 16:

13. Time spent (in minutes) in the office on 4th January by the three employees = $466 + 405 + 605 = 1476$ minutes
Time spent on 11th January = $475 + 410 + 589 = 1474$
Time spent on 12th January = $500 + 529 + 446 = 1475$
Time spent on 15th January = $504 + 512 + 500 = 1516$
Hence, the highest is for 15th January. Choice (D)

14. On 1st, 4th, 6th and 11th, the given condition is satisfied. Choice (B)

15. By observation, we can see that Guru spent more than 10 hours on 9th and Imran spent more than 10 hours on 4th January. On no other day did anyone spend more than 10 hours in the office. Between these two values, the highest is on 9th January.
Time spent in the office Guru on 9th January = 610 minutes
Choice (A)

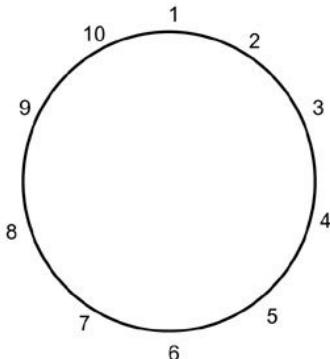
16. Guru must have been marked Late on 8 days, Harish on 12 days and Imran on 8 days. Hence, the maximum is for Harish i.e., 12 days. Choice (C)

Solutions for questions 17 to 20:

17. Total number of students = 133
 Number of students who visited four or five countries
 $= 2 + 7 + 4 + 3 = 16$
 Number of students who visited at most three countries
 $= 133 - 16 = 117$ Ans: (117)
18. Number of students who visited Italy but not Sweden
 $= 11 + 6 + 2 + 5 = 24$ Ans: (24)
19. Number of students who visited England and exactly two other countries = $5 + 7 = 12$ Ans: (12)
20. Number of students who visited exactly three countries
 $= 7 + 5 + 9 + 6 = 27$ Ans: (27)

Solutions for questions 21 to 24:

Let the figure represent the table with seats numbered from 1 to 10.



Given that between C and G, there are four people. Let C be at 1 and G be at 6.

Between G and H, there are 7 people. Hence, H can be at 4 or 8.

Let H be at 4. Between H and E there are 8 people (i.e., they are sitting next to each other). Therefore, E can be at 5 or 3. If E is at 3, between E and C there will not be 5 (or 3 people). Hence, E must be at 5.

Between E and A, there must be three people. A can be at 1 or 9. Since C is at 1, A must be at 9. Between A and I, there are three people. I can be at 3 or 5. Since E is at 5, I must be at 3. I and D are opposite each other. Hence, D must be at 8. Between J and I, there are five people. Hence, J must be at 7. Between F and D, there are three people. Hence, F must be at 2 and B must be at 10.

If H is at 8, it will result in the same arrangement but in the anticlockwise direction. Therefore, two cases are possible which are tabulated below:

Position	Case 1	Case 2
1	C	C
2	F	B
3	I	A
4	H	D
5	E	J
6	G	G
7	J	E
8	D	H
9	A	I
10	B	F

21. B is sitting opposite E. Choice (A)
22. In both the cases, one person is sitting between E and J. Hence, we cannot determine who is sitting to the left of B. Choice (D)

23. B and D are sitting next to A. From the options, the answer is option A.
 Choice (A)

24. In case 1, person to the left of A is B and the person to the right of G is E. Since these two cannot be sitting next to each other, this case is not valid.
 In case 2, person to the left of A, i.e., D, and person to the right of G, i.e., J are sitting next to each other. In this case, B is sitting to the left of C. Choice (B)

Solutions for questions 25 to 28:

Given that the Casuals is either Blue or Yellow.

From (vi), the Semi-formals is Yellow. Hence, the Casuals must be Blue.

From (iii), he will wear a Green dress on a Humid day. From (iv), he will not wear a Sportswear on a Humid day. Hence, the Sportswear is not Green. From (v), on a Rainy day, he will wear a Formals. Hence, the Formals cannot be Green or Pink. Therefore, the Formals has to be Red.

Since the Sportswear cannot be Green, it has to be Pink and the Party wear has to be Green.

The following table provides the possible dresses that he will wear on a day:

Weather	Dress
Sunny	Blue Casuals, Yellow Semi-formals, Pink Sportswear
Rainy	Red Formals
Windy	Red Formals, Pink Sportswear
Cloudy	Red Formals, Yellow Semi-formals, Pink Sportswear
Humid	Green Party wear

25. He can wear Red Formals on a Windy day. Choice (A)
26. The weather could have been either Sunny or Cloudy. From the options, the answer has to be option A.
 Choice (A)
27. He can choose from three dresses on a Cloudy day. Choice (B)
28. Only on a Sunny day can Harman wear the Blue Casuals. On a Windy day, he will wear a Pink Sportswear and on a cloudy day, he will wear Yellow Semi-formals. Hence, there is only one way that he can wear a different dress for each weather prediction. Choice (D)

Solutions for questions 29 to 32:

Let a, b, h, m, s and t represent the weights of the six children.

$$\text{From (i), } b = \frac{s+t}{2}$$

$$\text{From (ii), } a = h - 20$$

From (iv), Tanu is the lightest child. The heaviest child cannot be Bhanu, Anu or Hanu. If Manu is the heaviest child, then the weights of the six children cannot be distinct. Hence, Sonu has to be the heaviest child.

From (iv), $s + t = 100$ and from (iii), $s - t = 30$. Hence, $s = 65$ and $t = 35$.

Therefore, $b = 50$ and $m = 55$.

h can be 60 or 45 or 40 (since h cannot be less than t or greater than s).

If h is 45 or 40, a will be 25 or 20. In both the cases, a will be less than t . Hence, $h = 60$ and $a = 40$.

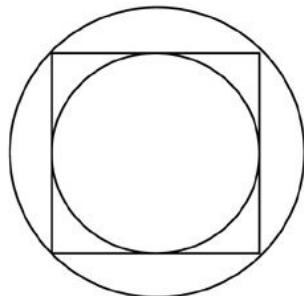
29. Tanu weighs the lowest with a weight of 35 kg.
Choice (D)
30. The sum of the weights of the six children
 $= 65 + 60 + 55 + 50 + 40 + 35 = 305$ kg. Choice (C)
31. The difference between Sonu's weight and Hanu's weight
 $= 5$ kg. Choice (D)
32. Only one child weighs more than Hanu.
Choice (A)

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

SECTION – III

Solutions for questions 1 to 34:

1.



Let the radius of the outer circle and the inner circle be R and r respectively

$$\text{Side of the square} = 2r = \frac{2R}{\sqrt{2}}$$

$$\Rightarrow \frac{R}{r} = \frac{\sqrt{2}}{1}$$

Choice (A)

2. The given expression can be written as

$$N^{\left(\frac{1}{3} \log_2 8 N^2\right)} + N^{\left(\log_2 4 N^3\right)} = 16$$

$$\Rightarrow N^{\left(\frac{1}{3} \times \frac{2}{8} \log_2 N\right)} + N^{\left(\frac{1}{3} \times \frac{1}{4} \log_2 N\right)} = 16$$

$$\Rightarrow 2N^{\left(\frac{1}{12} \log_2 N\right)} = 16$$

$$\Rightarrow N^{\left(\frac{1}{12} \log_2 N\right)} = 2^3$$

$$\Rightarrow \log_{N^2} 3 = \frac{1}{12} \log_2 N$$

$$\Rightarrow 3 \log_{N^2} 2 = \frac{1}{12} \log_2 N$$

$$\Rightarrow 3 \times 12 = (\log_2 N)^2$$

$$\Rightarrow \log_2 N = \pm 6$$

$$\Rightarrow N = 2^6 \text{ or } 2^{-6}$$

$$\text{Given } N > 1, N = 2^6 = 64.$$

Alternative Solution:

By observing the given expression, one can guess that N must be both a perfect cube and a power of 2. So we could try 8 and 64. $N = 64$ satisfies. Ans: (64)

3. Given $x^2 + ax + 2a - 3 > 0$

$$\Rightarrow x^2 + 2 \frac{(ax)}{2} + \frac{a^2}{4} - \frac{a^2}{4} + 2a - 3 > 0$$

$$\Rightarrow \left(x + \frac{a}{2}\right)^2 - \frac{a^2}{4} + 2a - 3 > 0$$

Now, since $\left(x + \frac{a}{2}\right)^2$ is always non-negative,

we can conclude that

$$\frac{-a^2}{4} + 2a - 3 > 0$$

$$\Rightarrow -a^2 + 8a - 12 > 0$$

$$\Rightarrow a^2 - 8a + 12 < 0$$

$$\Rightarrow (a-2)(a-6) > 0$$

$$\Rightarrow a \in (2, 6).$$

Alternative Solution:

It is given that, $x^2 + ax + 2a - 3 > 0$

If the value of a quadratic expression is always positive (or always negative), then the discriminant will be negative. This is because the graph of the expression will not intersect the x-axis, as a result of which the roots will be imaginary.

Therefore, the discriminant in the given case.

$$a^2 - 4(2a - 3) < 0$$

$$a^2 - 8a + 12 < 0$$

$$(a-2)(a-6) < 0$$

$$2 < a < 6 \text{ or } a \in (2, 6)$$

Choice (A)

4. $|2y - 3| \leq 11$

$$\therefore -11 \leq 2y - 3 \leq 11$$

$$-11 + 3 \leq 2y \leq 11 + 3$$

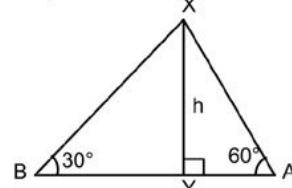
$$-8 \leq 2y \leq 14$$

$$-4 \leq y \leq 7.$$

Choice (A)

5. Let the height of the tower (YX) be h .

$$\therefore AY = \frac{h}{\sqrt{3}} \text{ and } BY = h\sqrt{3}.$$



Since A and B are travelling at the same speed, in the time A covered $\frac{h}{\sqrt{3}}$ to reach Y, B will also cover $\frac{h}{\sqrt{3}}$

Remaining distance to be covered by

$$B = h\sqrt{3} - \frac{h}{\sqrt{3}} = \frac{2h}{\sqrt{3}}.$$

B will cover the remaining distance in another $15 \times 2 = 30$ minutes.

Choice (B)

6. $x^2 - 14x + 40 = 0$

$$(x-4)(x-10) = 0$$

$$\therefore x = 4 \text{ or } x = 10$$

\therefore The inradius measures 4 and the circumradius measures 10

The area of a right angled triangle with inradius r and circumradius R is $r(r+2R)$.

$$= 4(4+20) = 96$$

Alternative Solution:

Since $r = 4$ and $R = 10$, the hypotenuse = 20. By observation, one could try the Pythagorean triplet (12, 16, 20). It can be seen that (12, 16, 20) works by using the formula $r = \frac{(a+b-c)}{2}$.

$$\text{Hence, area} = \frac{1}{2}ab = \frac{1}{2}(12)(16) = 96.$$

Ans: (96)

7. Let the number of ₹2 and ₹5 coins used be denoted by x and y respectively

Now $2x + 5y = 120$. Where $x, y \geq 0$
The solutions are

x	60	55	50	0
y	0	2	4	24

Thus, there are 13 ways in all.

Ans: (13)

8. Let the length of the shortest piece be x .

∴ the length of the longest piece = $5x$

Sum of the length of the remaining two pieces = $(x + 5x) 2 = 72$
∴ the length of the rope = $(x + 5x) 2 = 72$
 $\Rightarrow x = 6$

Therefore, the length of the longest piece is $5x$, i.e., $5(6) = 30$ m
Choice (B)

9. Let the ages of A and B in 2010 be 'a' years and 'b' years respectively.

It is given that, $\frac{a}{b} = \frac{3}{5}$.

$$\text{Now, } \frac{a+6}{b+6} > \frac{a}{b} \left(\because \frac{a}{b} < 1 \right)$$

Of the given options, only option (A) satisfies this criterion
Choice (A)

10. It is given that, $\frac{A+B}{2} = 23$

$$\Rightarrow A + B = 46 \quad \text{--- (1)}$$

$$\text{Again, } \frac{A+B+C}{3} = 21$$

$$\Rightarrow A+B+C = 63 \quad \text{--- (2)}$$

Subtracting equation (1) from equation (2), we get
 $C = 17$.

Therefore the age of C is 17 years
Choice (C)

11. For any triangle, the sides are inversely proportional to corresponding the altitudes.

From statement I,

$$\text{The ratio of the sides of the triangle ABC} = \frac{1}{2} : \frac{1}{5} : \frac{1}{6}$$

$$= 30 : 12 : 10$$

This is not possible as the sum of any two sides in a triangle must be greater than the third side and $10 + 12 \nless 30$

From statement II,

$$\text{The ratio of the sides of the triangle DEF} = \frac{1}{3} : \frac{1}{4} : \frac{1}{8}$$

$$= 32 : 24 : 12$$

This is possible as it satisfies the triangle inequality
Choice (B)

12. Let us denote the n^{th} term in the series by T_n .

Now, $T_{59} = 15$

$$T_{60} = \frac{20}{T_{59}} = \frac{20}{15} = \frac{4}{3}$$

$$T_{61} = \frac{20}{T_{60}} = \frac{20}{\frac{4}{3}} = 15$$

∴ Each odd term is 15 and each even term is $\frac{4}{3}$.

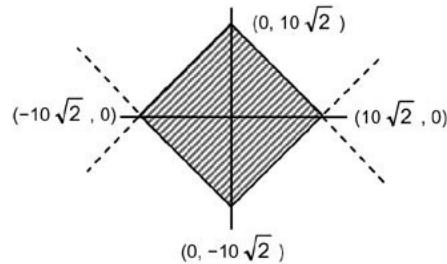
Thus, the required sum, from 278th term to 378th term =

$$S = \text{sum of 51 even terms} + \text{sum of 50 odd terms}$$

$$= 51 \times \frac{4}{3} + 50 \times 15 = 68 + 750 = 818.$$

$$\therefore 300S = 818 \times 300 = 245400. \quad \text{Ans: (245400)}$$

13. The area enclosed by the graph, when plotted, will be as follows:



The maximum distance between any two points lying in this area will be the distance between the extremities of any diagonal, i.e., $2 \times 10\sqrt{2} = 20\sqrt{2}$.
Choice (D)

14. Let the breadth of the rectangle be denoted by b .

∴ The length of the rectangle = $3b$.

∴ The perimeter of the rectangle = $2(b + 3b) = 8b$

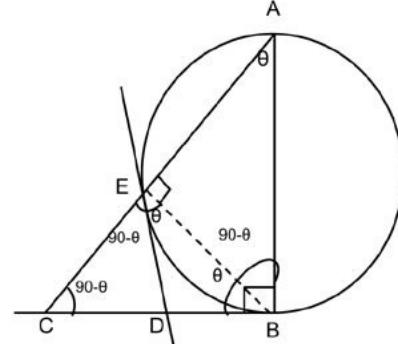
Perimeter of the square = $8b$

∴ Side of the square = $2b$.

$$\therefore \frac{\text{Area of the rectangle}}{\text{Area of the square}} = \frac{(3b)b}{(2b)^2} = \frac{3}{4}$$

Choice (B)

- 15.



As BC is a tangent, $\angle ABC = 90^\circ$

We join BE

Now $\angle AEB = 90^\circ$ (Angle in a semi circle)

Let $\angle BAE = \theta$

∴ $\angle DBE = \angle DEB = \theta$

[∴ DB and DE are tangents to the same circle and $\angle DEB$ and $\angle BAE$ are angles in alternate segments]
Thus, $DB = DE$

∴ $\angle DEC = 90 - \theta$ [∴ $\angle BEC = 90^\circ$]

Again, in $\triangle ABC$, $\angle ECD = 90 - \theta$

∴ $\angle DEC = \angle ECD = 90 - \theta$

∴ DC = ED

$$\therefore DC = DB = \frac{1}{2} (BC) = 8$$

$$\therefore DE = 8 \text{ cm.}$$

Alternative Solution:

In order to try and simplify the problem, we could move point C (to the left) to a place (on BC) such that E is then the midpoint of arc AEB. Then ED will be parallel to AB and both $\triangle CDE$ and $\triangle ABC$ will be right angled isosceles triangles.

$$\text{Now it can easily be observed that } ED = \frac{1}{2} AB = \frac{1}{2} BC \\ = 8 \text{ cm.}$$

Ans: (8)

16. The quadratic equation whose roots are half the roots of the equation $f(x) = 0$ is $f(2x) = 0$.

$$\begin{aligned} \text{The required equation is} \\ (2x)^2 + 5(2x) + 3 = 0 \\ \Rightarrow 4x^2 + 10x + 3 = 0 \end{aligned}$$

Choice (D)

17. $N = Dq_1 + r \rightarrow (1)$

$$\therefore D > r$$

$$\begin{aligned} \text{It is also given that } 5N = 2Dq_2 + 3r \\ \therefore 2D > 3r \end{aligned}$$

$$D > \frac{3r}{2}$$

Multiplying Equation (1) by 5, we get

$$5N = 5Dq_1 + 5r$$

Now, equating 5N, we get

$$2Dq_2 + 3r = 5Dq_1 + 5r$$

$$D(2q_2 - 5q_1) = 2r$$

$\therefore D$ is a factor of $2r$

$$\text{As } D > \frac{3r}{2}, D \text{ must be equal to } 2r.$$

Choice (B)

18. Let the age of the teacher be T years.

$$\text{Total age of the students} = 59 \times 22$$

$$\text{Total age of the class with the teacher} = 59 \times 22 + T$$

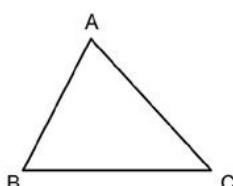
$$\text{Total age of the class with the teacher} = 60 \times 22 \frac{1}{3}$$

$$59 \times 22 + T = 60 \times \frac{67}{3}$$

$$\therefore T = 1340 - 1298 = 42 \text{ years.}$$

Ans: (42)

- 19.



Using the sine rule,

$$\frac{AC}{\sin B} = \frac{BC}{\sin A}$$

$$\therefore AC = \frac{\sin B}{\sin A} (BC)$$

$$\text{It is given that } \frac{\sin B - \sin A}{\sin B + \sin A} = \frac{1}{4}$$

$$4\sin B - 4\sin A = \sin B + \sin A$$

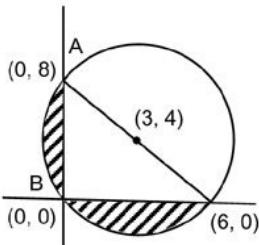
$$3\sin B = 5\sin A$$

$$\Rightarrow \frac{\sin B}{\sin A} = \frac{5}{3}$$

$$\therefore AC = \frac{5}{3} (BC) = \frac{5}{3} (24) = 40$$

Ans: (40)

- 20.



$$x^2 + y^2 - 6x - 8y = 0$$

adding 25 to both sides

$$\Rightarrow x^2 - 6x + 9 + y^2 - 8y + 16 = 25$$

$(x - 3)^2 + (y - 4)^2 = 5^2$ is the equation of a circle with the centre at (3, 4) and radius 5, as shown above.

We need to find the area of the shaded region ($xy < 0$).

= Area of the semicircle – Area of $\triangle ABC$

$$\begin{aligned} &= \frac{\frac{22}{7}(5)^2}{2} - \frac{1}{2}(6)(8) = \frac{11 \times 25}{7} - 24 \\ &= \frac{275 - 168}{7} = \frac{107}{7} = 15 \frac{2}{7} \text{ square units} \end{aligned}$$

Choice (C)

21. Let the marked price, the selling price and the cost price of the article be denoted by M, S and C respectively.

It is given that $M - S = 3(S - C)$ and $M = 2C$

$$\therefore 2C - S = 3S - 3C$$

$$\Rightarrow 5C = 4S$$

$$\Rightarrow S = 1.25C$$

Hence, the profit made was 25%.

Choice (C)

22. Since the mean of the two new observations, 21 and 59, is 40, i.e., same as the mean of the initial set, the mean of the set remains unchanged.

Median is the middle value. With the inclusion of the two new observations the median will also not change, as the two observations lie on either side of 45.

Therefore, both the mean and the median remain the same.

Choice (C)

23. $f(x) = ax^2 + bx + c$

$$f(4) = 16a + 4b + c$$

$$f(1) = a + b + c$$

It is given that $f(4) = 4f(1)$

$$16a + 4b + c = 4(a + b + c)$$

$$12a = 3c$$

$$\Rightarrow c = 4a$$

\therefore The product of the roots of the quadratic equation

$$ax^2 + bx + c = 0 \text{ is } \frac{c}{a} = 4.$$

Since 2 is given to be one of the roots of $ax^2 + bx + c = 0$

$$\text{the other root will be } \frac{4}{2} = 2.$$

Alternative Solution:

Let $f(x) = k(x - 2)(x - a)$

Given, $k(4 - 2)(4 - a) = 4k(1 - 2)(1 - a)$ [$\because f(4) = 4f(1)$]

$$\Rightarrow 8 - 2a = -4 + 4a$$

$$\Rightarrow a = 2.$$

Ans: (2)

24. Let the selling price of the product be 100.

$$\Rightarrow \text{Discount} = 10$$

and Profit = 10

$$\therefore \text{MP} = 110 \text{ and CP} = 90.$$

$$\Rightarrow \text{Mark up percentage} = \frac{110 - 90}{90} = 22 \frac{2}{9} \%$$

Choice (B)

25. $(7+4\sqrt{3})^{20} = 7^{20} + 20C_1 7^{19}(4\sqrt{3})^1 + 20C_2 7^{18}(4\sqrt{3})^2 + \dots + 20C_{19} 7(4\sqrt{3})^{19} + (4\sqrt{3})^{20}$
 $(7-4\sqrt{3})^{20} = 7^{20} - 20C_1 7^{19}(4\sqrt{3})^1 + 20C_2 7^{18}(4\sqrt{3})^2 + \dots - 20C_{19} 7(4\sqrt{3})^{19} + (4\sqrt{3})^{20}$
 $\therefore (7+4\sqrt{3})^{20} + (7-4\sqrt{3})^{20} = 2[7^{20} + 20C_2 7^{18}(4\sqrt{3})^2 + \dots + (4\sqrt{3})^{20}]$

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

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

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)

26. $10x + 6y = 136 \Rightarrow 5x + 3y = 68$

Now $\begin{array}{r} 3x + 5y = 76 \\ 5x + 3y = 68 \\ \hline \end{array}$

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

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

$$\Rightarrow x + y = 18$$

Ans: (18)

27. We compare the squares of the terms as

whichever term is greater, its square will also be greater.

$$a^2 = 25 + 2\sqrt{136}$$

$$b^2 = 25 + 2\sqrt{154}$$

$$c^2 = 25 + 2\sqrt{144}$$

$$d^2 = 25 + 2\sqrt{156}$$

Now, $\sqrt{156} > \sqrt{154} > \sqrt{144} > \sqrt{136}$

$$\therefore d^2 > b^2 > c^2 > a^2$$

$$\therefore d > b > c > a$$

Choice (B)

Note: In general, for positive real numbers, where $x + y = \text{constant}$, the product (xy) is maximum when $x = y$, or x is as close to y as possible. This property alone is sufficient to arrive at the appropriate order of the given surds.

28. Let the first term and the common ratio of the GP be a and r respectively. Now,

Sum of first n terms = $(a + ar + ar^2 + \dots + ar^{n-1}) = P$. [Sum of the first N terms]

Sum of next n terms = $(ar^n + ar^{n+1} + \dots + ar^{2n-1}) = r^n(a + ar + \dots + ar^{n-1}) = r^n P$

It is given that Sum of the first $2n$ terms = $(a + ar + ar^2 + \dots + ar^{2n-1}) = 9P$.

$\therefore (a + ar + \dots + ar^{n-1}) + (ar^n + ar^{n+1} + \dots + ar^{2n-1}) = 9P$

$$(a + ar + \dots + ar^{n-1})(1 + r^n) = 9P$$

$$P(1 + r^n) = 9P$$

$$\Rightarrow r^n = 8$$

Now, Sum of the next n terms = $ar^{2n} + ar^{2n+1} + \dots + ar^{3n-1} = r^{2n}(a + ar + \dots + ar^{n-1})$

$$= (r^n)^2 P$$

$$= 8^2 P$$

$$= 64P$$

\therefore Sum of first $3n$ terms = $(a + ar + \dots + ar^{n-1}) + (ar^n + ar^{n+1} + \dots + ar^{2n-1}) + (ar^{2n} + ar^{2n+1} + \dots + ar^{3n-1})$

$$= P + 8P + 64P$$

$$= 73P \Rightarrow k = 73$$

Note: In a G.P, the sum of the first n terms, the next n terms, the n terms after that, and so on, are also in G.P (with a common ratio of r^n).

Alternative Solution:

Let $n = 1$

\Rightarrow First term = P and sum of first two terms = $9P$

\Rightarrow Second term = $9P - P = 8P$

\Rightarrow common ratio = 8 and third term = $64P$.

Hence, required sum = $P + 8P + 64P = 73P$.

Ans: (73)

29. The drain pipe can empty one-third of the capacity of the tank in 15 minutes.

$$\therefore \text{In 10 minutes it emptied } \frac{10}{15} \left(\frac{1}{3} V \right) = \frac{2}{9} V$$

Volume of water pumped into the tank in 10 minutes

$$= V - \left(\frac{1}{3} V - \frac{2}{9} V \right) = \frac{8}{9} V$$

Therefore the pumping rate is $\left(\frac{8}{9} \right) : \left(\frac{2}{9} \right)$, i.e., 4 times the draining rate.

Choice (B)

30. 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)

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

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

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

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

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)

32. $3\phi(2\phi 1) = 3\phi(2 - 2^1) = 3\phi 0 = 3 \times 0 - 3^0 = -1$

Ans: (-1)

33. No of diagonals of a polygon of n sides = ${}^n C_2 - n$

Now, ${}^n C_2 - n = \frac{3}{2} n$

$$\frac{n(n-1)}{2} = \frac{3}{2} n + n$$

$$n^2 - n = 5n$$

$$n(n-6) = 0$$

since $n \neq 0$, so $n = 6$

Sum of all the interior angles of a hexagon

$$= (6 - 2) 180^\circ = 720^\circ$$

Ans: (720)

34. Let efficiency (i.e., work done per day) of $Q = 1$

\Rightarrow efficiency of $P = 1.3$

P alone takes 46 days.

That is, it takes 46 days to complete the work with an efficiency of 1.3.

Hence, it will take $46 \times \frac{(1.3)}{(1+1.3)} = 26$ days to complete

the work when both P and Q work together.

Ans: (26)

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