

(Key and Solutions for AIMCAT1719)

Key

SECTION – I

1. C	8. B	15. D	22. C	29. 3
2. D	9. A	16. B	23. A	30. 1
3. A	10. D	17. C	24. D	31. 5
4. C	11. B	18. B	25. 41532	32. 4
5. B	12. C	19. C	26. 52413	33. C
6. D	13. C	20. B	27. 31524	34. D
7. D	14. A	21. D	28. 25413	

SECTION – II

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

SECTION – III

1. D	8. 15	15. 3	22. 60	29. 234
2. 701	9. C	16. 360	23. A	30. A
3. C	10. A	17. D	24. B	31. C
4. 7	11. B	18. D	25. A	32. B
5. B	12. 15	19. D	26. 1	33. 4
6. 880	13. C	20. 16	27. 480	34. D
7. 4	14. A	21. 36	28. A	

Solutions

SECTION – I

Solutions for questions 1 to 6:

Number of words and Explanatory notes for RC:

Number of words : 546

- The passage is a review of a paper notebook called Mead 100 which has 100 pages. The passage is filled with wit as the author tries to compare the features of this notebook with digital tablets such as iPad 2. This can be understood from the passage because the author says that the notebook comes equipped with "an embossed cardboard cover" and that it "is equipped with a metal spiral binding and 100 pages of chemically pulped memory, partitioned into standard college rule", i.e., 100 pages of paper.

Option A: The size of Mead 100 is indeed 11 inches. But the Mead 100 is not a tablet device. Hence, this option is incorrect.

Option B: The Mead 100 does not come with a keyboard and weighs 8 oz, according to the passage. However, it is not a notebook computer.

Option C: Refer to para 4. The Mead 100 is an ultraportable paper notebook with 100 pages of paper (100 pages of chemically pulped memory.....). Hence, this option is correct.

Option D: The Mead 100 is not a tablet device even though the author compares it to other tablet devices. Hence, this option is also incorrect.

Therefore, the correct answer is option C.

Choice (C)

- The authors were impressed with the boot time of Mead 100 and that it started up really quickly. However, the passage also states that "subsequent performance lagged as users struggled to find their last page of writing". Given that Mead 100 is a notebook, this can be interpreted to mean that the users found it time consuming because they had to find the last page of writing. An attached bookmark could have addressed this concern as it will help the user to find the last page of writing with little difficulty. Hence, the correct answer is option D. Choice B is not related to the question. The author only mentions that the display of Mead 100 is a bleached white post-recycled paper, which isn't as bright and welcoming to the eye as higher end acid-free displays, **but is acceptable for everyday use.**

Choice (D)

- The passage mentions the Mead 150 as an alternative for "power users" (para 4). Option A: The authors say that they found "100 pages suitable for typical use". Upgrading will imply that the Mead 150 will have 150 pages. Hence, this is the correct answer.

Option B: Since the Mead 100 and Mead 150 are both paper notebooks, we cannot infer that one will be 'faster' than the other. The passage does not talk about which (Mead 100 and Mead 150) was released first. Hence, we cannot infer that Mead 150 is the successor of Mead 100. So choice B is incorrect.

Option C: The passage does not mention the weight of Mead 150. It does not say that Mead 150 has a keyboard. So choice C is not the correct answer.

Option D: The passage does not mention the size of Mead 150. The passage only mentions the impressive boot time of Mead 100 and does not comment on the boot time of Mead 150. Hence, this option is also incorrect.

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

4. The passage mentions that the stylus can be used to operate Mead 100. However, since the Mead 100 is a paper notebook, the stylus can refer to a writing implement, i.e., either a pen or a pencil.

Option A: The stylus is a pen or a pencil and it cannot be a digital tool. Hence, this option is also incorrect.

Option B: The passage states that "the stylus is not included with the purchase of the notebook". Hence, this option is also incorrect as it states the opposite.

Option C: The author mentions that some testers "struggled with punctuation and poor handwriting". Also, since the stylus is just a pen, it will not enhance the handwriting capabilities or improve the punctuation. Hence, this option is the correct answer.

Option D: The passage mentions that "the stylus does become uncomfortable during such long stints". Hence, this option is also incorrect.

Therefore, the correct answer is option C.

Choice (C)

5. The passage compares the Mead 100 and iPad 2 at the beginning. The author mentions that the Mead 100 is "closer to the class of tablet devices such as the iPad 2 and the Samsung Galaxy Tab".

Option A: The size of Mead 100 is 11". However, the passage does not mention the size of iPad 2. Hence, we cannot conclude that the size of both these devices are similar.

Option B: According to the passage, because of the light weight of Mead 100, it can be positioned "closer to the class of tablet devices such as the iPad 2 and the Samsung Galaxy Tab". Hence, we can say that the Mead 100 and the iPad 2 have similar weights.

Option C: The display brightness of Mead 100 is mentioned in the passage as "a bleached white post-recycled paper". However, it does not talk about the display of iPad 2. Hence, this cannot be the correct answer.

Option D: The cost of Mead 100 is not compared to the cost of iPad 2 in the passage. Hence, this option is also incorrect.

Therefore, the correct answer is option B.

Choice (B)

6. The passage mentions that to keep the weight of Mead 100 low, there were certain sacrifices made. This is mentioned in the third paragraph of the passage (An ultraportable device **this light** sacrifices). According to the passage, "Mead has opted for the unusual choice of not including a keyboard". Hence, the keyboard is forfeited to keep the weight of Mead 100 low. 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 : 397

7. The passage mentions several reasons for buyers opting for car parking spaces.

Option A: According to the passage, buyers "grab the

spaces as investments expecting an increase in prices". Hence, this is one of the reasons for buying car parks.

Option B: Dorothy Chow states that "there was strong demand because of limited supply". Hence, this is also one of the reasons for buyer opting for car parks.

Option C: According to Thomas Lam, "Investing in office space needs a large lump sum. That makes some investors eye other investment targets such as car parking spaces." Hence, the low investment cost of car parks is also one of the reasons.

Option D: While the passage mentions that the residential property prices will decrease, it does not mention that the price of car parks will increase (or that it will not decrease as much). This reason is not mentioned in the passage as one of the reasons. Hence, this is the correct answer.

Choice (D)

8. Dorothy Chow states that "If the economy turns sour, what will you first to dispose of? It will not be your home, but your car."

Option A: The residential property prices might decrease in case of an economic downturn. But we cannot determine how fast it will fall and we cannot compare it to the fall in price of car parks. Hence, this option is incorrect.

Option B: According to Dorothy Chow, people will sell cars first before selling homes. We can infer from this that the demand for car parks will decrease before the demand for homes decreases. Hence, we can conclude that the price of car parks will decrease before the price of homes.

Option C: Dorothy Chow does not compare the increase in prices of car parks and homes in case of an economic downturn. She only says that demand for car parking space could drop as Hong Kong was expected to face an economic downturn and property slowdown. Hence, this option is incorrect.

Option D: While Dorothy Chow does say that people will dispose their cars, we cannot conclude from this that the number of vehicles will decrease. Selling cars will not reduce the number of vehicles in the country unless it is sold to a person outside the country. Hence, this option also cannot be inferred from the passage.

Therefore, the correct answer is option B.

Choice (B)

9. The passage mentions that UBS expects home prices "to fall 10 per cent to 15 per cent this year and another 5 per cent to 10 per cent in 2017". Dorothy Chow warns that between houses and cars, people will be more likely to sell their cars first. Hence, if house prices are decreasing, then car parking prices will also decrease. Therefore, the correct answer is option A.

Choice (A)

Solutions for questions 10 to 12:

Number of words and Explanatory notes for RC:

Number of words : 514

10. The features that companies that value innovation have in common are discussed in para 3 of the passage.

Option A: Choice A is negated by the last sentence of para 4 and the last sentence of the passage. "silos" here refers to hierarchy. The author states that structures and silos in the organization might be stifling the potential of the workplace.

Also "similar talent strategies" as given in choice A would amount to prizes reliability over risk-taking and striving to maintain the status quo – something that companies stressing on innovation should not do. Companies that believe in innovation will focus on creativity and the next breakthrough and they will encourage innovative thinking without focussing on hierarchical authority. So choice A is not the answer.

Option B: Companies that believe in innovation will emphasize on blue-sky thinking (creative or visionary ideas that are not limited by current thinking or beliefs). While it has been given in para 3 that companies which

believe in innovation are not averse to **taking** (calculated) **risks**, it is not true that they will take **unnecessary risks**. Also the second half of option B is incorrect. Companies will not reward all individuals equally for the work they do. Talent is recognised (not uniformly) for the individual value and strengths each one brings into the system (para 3). So choice B is incorrect.

Option C: Focussing on productivity and reliability above all else will be a mandate of the (other) work culture that does not focus on innovation. Refer to the last sentence of para 1. Also refer to the second paragraph: (sole) drive for productivity, culture that rejects failure, pushing numbers etc are features of a work culture that do not necessarily foster an innovative environment. So choice C is incorrect.

Option D: Choice D is true of companies that stress on an innovative environment at the workplace as discussed in the third paragraph.

Choice (D)

11. Refer to para 6 where the author makes a mention of 'coffee-houses' and the following paragraph which stresses the importance of leisure.

Option A: Choice A carries too positive an impression about coffee houses and hence it is extreme in scope. The given comparison between workplaces and coffee houses is unsubstantiated. So choice A is not the answer. Option B: Just as the Great Depression was characterized by a lot of exchange of thoughts in coffee houses by collective minds (.....led by a spirit of inquiry, reflection and collaboration to bring about intellectual, cultural, social and economic reform.....), so also leisure time and the correct environment can encourage people to think and collaborate creatively. Hence choice B is correct.

Option C: While the first part of choice C may be true, the second part cannot be inferred from the passage. In any case, choice C is not the reason for the question.

Option D: The passage clearly states in para 5 that innovation cannot be forced. Choice D is not a viewpoint expressed by the author in the passage.

Choice (B)

12. Option A: The structures and silos at the workplace can possibly stifle the potential of the workforce. But by encouraging an environment of creative thinking and collaboration, the organization can unleash the potential of the people. The passage does stress on creativity and people in the workforce throughout. So choice A is true and is not the answer.

Option B: Choice B can be gathered from the second sentence of para 3: While driving and enabling innovation is contingent upon – markets, economies, resources and a host of other variables – it is hinged heavily on people. The first sentence of para 3 also stresses on the diversity of knowledge or talent of the people in the organization. Hence choice B is not the answer.

Option C: Choice C is not true. Creativity bursts when the mind has time to rest and regenerate. Leisure time should be spent for rest and regeneration and not focussing on increasing productivity at the workplace.

Option D: This is true from the penultimate and last sentences of para 5: History tells us that new ideas and thoughts emerge out of necessity preserve its existence.

Choice (C)

Solutions for questions 13 to 18:

Number of words and Explanatory notes for RC:

Number of words : 580

13. The passage mentions the following symptoms of railway spine in para 2: 'back pain, arm pain, headaches, hearing problems, anxiety, insomnia, lowered sex drive, and memory problems'.

Option A: Arm pain has been mentioned as a symptom. So choice A is incorrect.

Option B: Hearing problem is also a symptom. So choice B is incorrect.

Option C: A symptom of railway spine is spinal pain. It is about pain and not numbness. So spinal numbness is incorrect. The answer is choice C.

Option D: Disorientation is a subset of anxiety. Loss of memory can also lead to disorientation. Anxiety and memory problems have been mentioned as symptoms of railway spine. So choice D is not the answer.

Choice (C)

14. The author starts the passage by talking about railway spines and its symptoms. He then leads the reader to whiplash injuries which are similar to railway spine.

Option A: The first two paragraphs talk about railway spine which is similar to whiplash injuries. This is the role that they play as the passage talks about both railway spine and whiplash injury in the subsequent paragraph. Hence, this is the correct answer.

Option B: The passage does not echo the sentiment that accidents have become prevalent due to railways and automobiles. Hence, this option is incorrect.

Option C: The antiquity of railways in the US has no bearing on what is being discussed in the passage. Hence, this option is also incorrect.

Option D: The passage talks about Richard Selcer to help the reader understand the symptoms of railway spine. Richard Selcer and his views are not central to the passage. Hence, this option is also incorrect.

Therefore, the correct answer is option A.

Choice (A)

15. According to Quebec Task Force, whiplash stems from "stem from an "acceleration-deceleration mechanism of energy transfer to the neck,"". The Quebec Task Force does not talk about rear-end auto collisions or about rail accidents and insomnia. Hence, the correct answer is Energy transfer to the neck, i.e., option D.

Choice (D)

16. Robert Ferrari writes that "railway spine" in fact bears a striking resemblance to whiplash – a condition also linked to rear-end collisions, but of the automotive kind".

Option A: The passage mentions that in railway spine there is a "jarring back and forth". This is similar to the energy transfer that happens in whiplash injuries. Hence, energy transfer does occur in railway spine. Also, Robert Ferrari does not talk about energy transfer in railway spine and whiplash injury. Hence, this option is incorrect.

Option B: Robert Ferrari mentions that whiplash injuries occur in collisions "of the automotive kind". Hence, we can say that this is one of the differences between railway spine and whiplash injuries, according to Robert Ferrari. Therefore, this option is correct.

Option C: Robert Ferrari does not talk about the spine not jarring back and forth in whiplash. Hence, this option is also incorrect.

Option D: The Mayo clinic mentions that "a whiplash injury "most often occurs during a rear-end auto accident, but the injury can also result from a sports accident, physical abuse, or other trauma."". Since Robert Ferrari does not make any mention of it, this cannot be the correct answer.

Hence, the correct answer is option B.

Choice (B)

17. Ferrari talks about the people who exaggerate their symptoms for the sake of their insurance claim in the case of whiplash injury. (Malingering means to pretend to be ill or sick)

Option A: Ferrari does not imply that most people are not smart enough to exaggerate the cost of the treatment. He implies that most people are not smart enough to fabricate symptoms. Also, according to Malleson, most claims are "greatly exaggerated". Hence, this option is incorrect.

Option B: Ferrari does not imply that people do not apply for insurance claims. Hence, this option is also incorrect.

Option C: Ferrari implies that most people are not smart enough to successfully fabricate injuries as he thinks that

"they'd be caught pretty quickly". Hence, this is the correct answer.

Option D: The passage does not talk about people lingering around the accident scene. Hence, this option is also incorrect.

Therefore, the correct answer is option C.

Choice (C)

18. The passage talks about various aspects of whiplash injury.

Option A: The passage mentions that there is no doubt that "people can experience neck, head, and back pain after a car accident". Hence, the question mentioned in this option is answered in the passage.

Option B: The passage states that "What is unclear is whether such an energy transfer can cause chronic, long-lasting pain, and if so, how". Hence, the passage does not answer this question as it is unclear. Therefore, this is the correct option.

Option C: The passage lists out the symptoms of whiplash injury – neck, head and back pain. Hence, this question is also answered.

Option D: The passage talks about the Quebec's task force recommendations for treating whiplash injury in the penultimate paragraph. Hence, this option is also incorrect.

Therefore, the correct answer is option B.

Choice (B)

Solutions for questions 19 to 24:

Number of words and Explanatory notes for RC:

Number of words : 567

19. The passage talks about Emerson's theory of photography in *Naturalistic Photography*.

Option A: According to the passage, Champney states that photography has acted as "an aid to science, as a recorder, as a duplicator". In the same paragraph, it is stated that ", more people came to believe that a modern art must evolve at a pace" similar to science and technology. However, Emerson does not talk about this in his *Naturalistic Photography*.

Option B: Emerson "derided works of the imagination as untrue". Hence, Emerson could not have mentioned that artist's imagination contributes to art photography. Therefore, this option is also incorrect.

Option C: The last paragraph of the passage mentions that he promoted "art photography as a cutting-edge application of recent science in his previous work". Hence, this option is correct.

Option D: The passage states that "Emerson denied that the camera could make art by merely transcribing physical reality". In addition, we are told that he desired that a photograph depicts what the eye sees, i.e. the principal subject in sharp focus, with less distinct images on the periphery. This, too, would not be an accurate reproduction of physical reality. Hence, accurately reproducing reality is not Emerson's idea of art photography.

Therefore, the correct answer is option C.

Choice (C)

20. The passage compares Emerson to James McNeill Whistler in the final paragraph.

Option A: The passage states that the works of Whistler were highly controversial but does not mention the eccentricity of Whistler. Hence, this option is incorrect.

Option B: According to the passage, Emerson's "ideas and work were highly controversial, like those of American painter James McNeill Whistler". Hence, we can infer that Whistler's works would have caused much controversy during his time. Therefore, this is the correct answer.

Option C: The passage does not mention Whistler's usage of science in his paintings. Hence, this option is also incorrect.

Option D: While Emerson advocated a style of photography and later cast it off, the passage does not mention that Whistler did the same. Hence, this option is also incorrect.

Therefore, the correct answer is option B.

Choice (B)

21. Statement I: The passage mentions that Zola "adopted the scientific method and outlook of the doctor Claude Bernard" and Emerson "seized on the ideas of German scientist Hermann von Helmholtz". Hence, we can infer that both of them attempted to align art with science. Hence, this is one of the similarities.

Statement II: While the passage mentions that Emerson was influenced by the ideas of Helmholtz, Zola need not have. Hence, this cannot be a similarity between Zola and Emerson.

Statement III: The passage does not talk about whether Zola had rejected science as the basis for art. Hence, this cannot be a similarity between the two. The passage does not discuss the art of Zola, only what he considered no longer important.

Statement IV: Since they both made remarks which stated that metaphysics is no longer important, we can infer that this is one of the similarities.

Therefore, Statement I and IV are the similarities.

Choice (D)

22. The passage talks about the article that Champney wrote on the occasion of photography's fiftieth anniversary.

Option A: Champney remarked that "As an aid to science, as a recorder, as a duplicator, photography has helped advance civilization". Hence, we cannot say that photography has had little influence on the advancement of science.

Option B: While it is true that photography has acted as an aid for advancing civilizations, we cannot say that photography itself has not shown any progress. The passage only states that there was a "lack of parallel progress in art photography" i.e., it has not progresses as fast. Hence, this option is also incorrect.

Option C: Champney states that "it has failed to occupy the place it may yet hold as a means for expressing original thought of a fine order". Hence, we can say that the advancements in photography have not yet enabled photography to evolve as a medium for expression of original thought. Hence, this option is correct.

Option D: While Champney mentions the role of photography in the advancement of science, he does not talk about the role of science in the advancement of photography. Hence, this option is incorrect.

Therefore, the correct answer is option C.

Choice (C)

23. The passage mentions that "the artist should translate exactly how the eye sees, concluding that the photographer should focus on the main subject of a scene, allowing the periphery and the distance to become indistinct". This is called selective focus.

Option A: Selective focus does not transcribe all the aspects of physical reality. Selective focus is presented as an alternative to accurately transcribing physical reality. Hence, this is not a feature.

Option B: In selective focus, only the subject will be in focus. Hence, only a part of the photograph will be in focus. This is one of the features of selective focus.

Option C: According to the passage, in selective focus, the artist "should translate exactly how the eye sees". Hence, this is also one of the features.

Option D: Since selective focus involves translating how the eye sees, the photographer must try to imitate the action of light upon the eye. Hence, this is also one of the features.

Therefore, option A is the correct answer.

Choice (A)

24. The reason for Emerson casting off his own theory is presented in the last paragraph of the passage.

Option A: According to the passage, "Emerson maintained that his early theory was based on a belief that tones in a photograph could be manipulated to a greater degree than chemists now proved possible". While this may have contributed to Emerson rejecting his own theory, this cannot be the primary reason. This can be a reason for Emerson proposing his theory in the first place but not a primary reason for casting it off.

Option B: Emerson does not talk about selective focus when talking about the reason for renouncing his theory. Hence, this option is incorrect.

Option C: While the passage mentions that Emerson was eccentric, this was not the reason that he cast off his theory. Hence, this option is incorrect.

Option D: According to the passage, Emerson cast off his own theory because "he saw it as limiting the individuality of the artist". Hence, this is the reason for Emerson casting off his own theory. Therefore, the correct answer is option D.

Choice (D)

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. Also it can be observed that sentence (5) and sentence (1) are connected and sentence (1) (necessary to unify General Relativity with Quantum Theory) has to precede sentence (5) (One consequence of such a unification). Also, it can be seen that sentence (5) is a consequence and sentence (2) is an implication. These should follow important facts or details. Sentence (4) has the keywords "Einstein's General Theory of Relativity" and "black holes" which link with "General Relativity with Quantum Theory" in sentence (1). Sentence (1) follows sentence (4). "Showed" (since it is more than 'theorised' or 'proposed') in 4 is what leads to 'result' in 1, which is then followed by 5. Sentences (1) and (5) form a mandatory pair. "necessary to unify General Relativity with Quantum Theory" links with "such a unification" in sentence (5). Sentence (3) ("this hypothesis") talks about another hypothesis about the universe. Sentence (2) follows as a conclusion. It is an implication of the hypothesis given in sentence (3). Sentences 3 and 2 have to come later in the flow, because if they had been part of the discussion in 4, then 1 could not have spoken of a 'result'. So 41532.

Ans: (41532)

26. On a careful reading of the sentences, it can be observed that sentence (5) is a general sentence that begins the paragraph. Our thoughts affect our immune system. Sentence (2) follows sentence 5. "Emotional states such as fear and sadness" in sentence (2) points to "thoughts" in sentence 5. Sentences (2) and (4) form a mandatory pair. "processed in the limbic system and hypothalamus" in sentence (2) is followed by "The limbic system and hypothalamus then send signals" in sentence (4). Sentence (1) follows sentence (4) as a summarizing point. "limbic system and hypothalamus then send signals to the body's immune system" in sentence (4) links with "communicated from the brain to cells of immune system" in sentence (1). Sentence (1) also mirrors the introduction sentence (5) (our thoughts affect our immune system). So, 5241. Sentences 1 and 3 form another mandatory pair. "mental image of a healthy body can be communicated from the brain to the immune system's cells" in sentence (1) is followed by "duplicate the mental image that was held in the mind" in sentence (3). "these cells" in sentence 3 refer to "cells of the immune system" given in sentence (1). Sentence (3) concludes the paragraph. So, 52413.

Ans: (52413)

27. On a careful reading of the sentences, it can be observed that sentence (3) which has the proper noun (Dr. APJ Abdul Kalam) is the introduction sentence of the paragraph. The other sentences need a precedent and more substantiation. Sentence (1) (..... humble beginnings as a newspaper boy) will follow sentence

(3) in sequence. Sentence (5) (.... elected India's 11th president) will follow next chronologically. So, 315. In telling us he was 'overwhelmingly' elected, sentence 5 tells us of what the nation knew about him. That is why sentence 2 begins with 'not many know'. (This contrasts with what many people do know about him). It can be inferred from a close reading of the sentences that sentence (2) (Not many people know teacher trail-blazers of tele-education and tele-medicine) and sentence (4) (That gave us a sense of his versatility) are linked. So sentence 5 is best followed by sentence 2 which is followed by sentence 4. Sentence 4 (That pretty muchversatility) concludes the paragraph and mirrors the introduction (..... in more ways than one, walking mission statement of India). So, 31524.

Ans: (31524)

28. On a careful reading of the sentences, it can be observed that sentence (2) is a general sentence that begins the paragraph. It provides the background: Market communication strategies change in the online world. Sentence (2) is followed by sentence (5). "online world" in sentence (2) refers to "the internet" in sentence (5) and "communicate a message" in sentence (5) links with "communication strategies" in sentence (2). Sentence (4) continues the discussion of the message being communicated. "However, it is harder for your message to be heard above the noise by your target audience" in sentence (4) contrasts "it is easier than ever to actually communicate a message to large numbers of people" in sentence (5). So, 254. Sentence (1) follows sentence (4). "this problem" in sentence (1) refers to "much harder for your message to be heard above the noise by your target audience" in sentence (4). Sentences (1) and (3) form a mandatory pair. "Various strategies" in sentence (1) points to "continual stream of new market communication strategies" in sentence (3). Sentence (1) talks about strategies for online marketing developed in the past and sentence (3) concludes by saying that new market communication strategies will emerge in the future. "new market communication strategies will emerge as the Internet medium evolves" in sentence (3) reiterates the introduction "Market communication strategies change dramatically in the online world". So, 25413.

Ans: (25413)

Solutions for questions 29 to 32:

29. On a careful reading of the sentences, it can be observed that sentence (4) is a general sentence that begins the paragraph. It best introduces the term 'genocides'. Sentence (4) is followed by sentence (1) which gives some details about the person who coined the term 'genocide' and his definition of 'genocide'. "Legally speaking" in sentence (4) points to "lawyer" in sentence (1). The pronoun 'it' in sentence (1) links to 'genocide' in sentence 4. Sentence (1) is followed by sentence (5). The "key phrase: co-ordinated....." in sentence 5 elaborates on the word "co-ordinated" mentioned in the definition of genocide as provided in sentence 1. So, 415. Sentences (5) and (2) form a mandatory pair. "co-ordinated which establishes intent and infrastructure geared to achieving the said crime" in sentence (5) is contrasted by "lack the evidence of "co-ordination" to display the intent to destroy people as part of original policy" in sentence (2). So "genocides" are different from deaths caused by famine, war, disease, expansionism. Hence 4152. Sentence 3 is the odd sentence out. It brings in a new concept "democide". It talks about people killed by governments which is clearly something other than genocides.

Ans: (3)

30. On a careful reading of the sentences, it can be seen that sentence (4) is a general sentence that begins the paragraph. It explains what an addiction is: a reaction to unresolved negative emotions. Sentences 5 and 2 form a mandatory pair. "these emotions self-defeat" in sentence 2 link with "self-defeating negative

emotions" in sentence 5. Sentence 4 follows sentence 2 as it further elaborates on the "inner conflict, suffering, and self-defeat" produced by *unresolved negative emotions*. Sentences 4 and 3 form a mandatory pair. "struggling with feelings of being deprived, refused, controlled" in sentence 4 links with "even when the addictive person is not actually being refused or controlled" in sentence 3. So 5243. Sentence 1 is the odd sentence out. Sentence 1 needs a precedent (In fact, we are) and further elaboration. There is a pronoun shift from "he" to "we".
Ans: (1)

31. On a careful reading of the sentences, it can be seen that sentence (3) is a general sentence that begins the paragraph. It points out a difference between short-fiction-film and feature film and introduces the topic. Sentence 1 follows sentence 3. "Former" and "latter" in sentence 1 refer to "short-fiction-film form" and "feature film" in sentence 3. Also "the three-act-structure and the monomyth" are the two approaches introduced in sentence 1 and further discussed in other sentences in the paragraph. Sentence 4 follows sentence 1 as it throws light on the three-act-structure in screenwriting. Sentence 2 explains the monomyth approach and concludes the paragraph. Hence, 3142. Sentence 5 is the odd sentence out. It needs a precedent and more substantiation. It is not related to the other sentences which expand on the difference between the short-fiction-film form and the feature film.
Ans: (5)
32. On a careful reading of the sentences, it can be inferred that sentence 2 is a general sentence that begins the paragraph. It tells us the main contribution of the Bretton Woods system of monetary management. Sentence 5 follows sentence 2 as it reiterates the point mentioned in sentence 2. "financial relations" in sentence 2 links with "govern monetary relations" in sentence 5. Sentence 1 continues the discussion about the main feature of the Bretton Woods system. Sentence 3 concludes the discussion about the role played by the Bretton Woods System. "prevent competitive devaluation of the currencies as well" in sentence 3 adds further to the role "bridge temporary imbalances of payments" in sentence 1. Hence 2513. Sentence 4 is the odd sentence out as it talks about the planning stage of Bretton Woods and the hope of the planners. It is not related to the remaining sentences and can be a part of another paragraph.
Ans: (4)

Solutions for questions 33 and 34:

33. The para explains the finding of a research and makes a strong case for vitamin D to be made the primary weapon in the fight against cancer. This is the central idea of the para and hence the conclusion is (ii). The para states that vitamin D is effective in treating cancer in various parts of the body and it is the single most effective medicine. The assumption is that cancer has to be curbed with the help of medicines. So statement (i) is an assumption. Vitamin D far outpaces the benefits of any cancer drug known to modern science. So we can infer that there are other drugs too which are used to fight cancer. So statement (iii) is an inference. Statement (iv) is irrelevant.
Choice (C)
34. The central idea of the para is stated in the first line itself. It is trying to tell us that rising gold imports show that the central bank's fight against inflation has been ineffective. So statement (iii) is the conclusion. The para talks about how gold imports have gone up. It does this by using statistics from The World Gold Council. If these aren't true, the argument stated in the para becomes weak. Hence it is an assumption made in the para that the Council's data is reliable. So statement (ii) is the assumption. Using the statistics given in the para, we can infer that gold imports dropped in 2015 compared to the figures from 2012. From the first sentence of the

paragraph (may be losing the battle to tame inflation, spurring investors to sell government bonds), we can say that statement (iv) is the inference.
Choice (D)

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

SECTION – II

Solutions for questions 1 to 4:

1. The population of Country C at the end of each of the five years is $70 \rightarrow 80.5 \rightarrow 72.45 \rightarrow 65.2 \rightarrow 71.7 \rightarrow 75.3$
The population of country B at the end of every year until 2012-13 is $40 \rightarrow 42 \rightarrow 46.2 \rightarrow 43.9$
Difference = $75.3 - 43.9 = 31.4$
Choice (B)
2. The population and forest cover in Country A at the end of each of the five years is
Population: $40 \rightarrow 44 \rightarrow 46.2 \rightarrow 53.13 \rightarrow 47.8 \rightarrow 43$
Forest Cover: $1200 \rightarrow 1140 \rightarrow 1254 \rightarrow 1065.9 \rightarrow 1119.2 \rightarrow 1231.1$
Of these five years, the per capita forest cover can be the highest only at the end of 2014-15 (It can also be the highest at the beginning of 2010-11 but that is outside the scope of this question).
Hence, the answer is 2014-15.
Choice (A)
3. Forest cover for the three countries are calculated below:
Country A: $1200 \rightarrow 1140 \rightarrow 1254 \rightarrow 1065.9 \rightarrow 1119.2 \rightarrow 1231.1$ (calculated in the previous question)
Country B: $1000 \rightarrow 1050 \rightarrow 1102.5 \rightarrow 1157.6 \rightarrow 1041.9 \rightarrow 989.8$
Country C: $1600 \rightarrow 1440 \rightarrow 1224 \rightarrow 1468.8 \rightarrow 1321.9 \rightarrow 1388$
Total forest cover across the three countries = 3608.9
Choice (D)
4. The per capita forest cover of Country A and Country B is given below:
Country A:

$$\frac{1200}{4} \rightarrow \frac{1140}{44} \rightarrow \frac{1254}{46.2} \rightarrow \frac{1065.9}{53.1} \rightarrow \frac{1119.2}{47.8} \rightarrow \frac{1231.1}{43}$$
Country B:

$$\frac{1000}{40} \rightarrow \frac{1050}{42} \rightarrow \frac{1102.5}{46.2} \rightarrow \frac{1157.6}{43.9} \rightarrow \frac{1041.9}{39.5} \rightarrow \frac{989.8}{41.5}$$
By observation, we can see that the per capita forest cover in A is greater than that in B at the end of 2010-11, 2011-12, 2014-15 while the per capita forest cover is greater in B for 2012-13.
For 2013-14, the denominator of B is less by approximately 16% while the numerator is less by less than 10%.
Hence, per capita forest cover in B is higher for 2013-14, 2012-13. The other three years, per capita forest cover in A was higher.
Ans: (3)

Solutions for questions 5 to 8:

Given that the number of employees in Alan Sorry is 3000. By observing the graph, we can see that 6 units of minor gridlines (width of the bubble) corresponds to 3000.

Hence, the number of employees in Kingfudger will be 2000 (4 units).

The number of employees in Daikun will be 1000 (2 units).

The number of employees in FedUp will be approximately 1200.

The number of employees in Sam Sing will be approximately 2500.

The number of employees in Flip The Cart will be 1500.

The number of employees in Peptin will be approximately 1800.

5. The required ratio for the companies is calculated below:

$$\text{Kingfudger: } \frac{400}{200} = \frac{1}{5}$$

$$\text{Daikun: } \frac{500}{100} = \frac{1}{2}$$

$$\text{FedUp: } \frac{100}{1200} = \frac{1}{12}$$

$$\text{Sam Sing: } \frac{200}{2500} = \frac{1}{12.5}$$

$$\text{Flip The Cart: } \frac{400}{1500} = \frac{1}{3.75}$$

$$\text{Peptin: } \frac{600}{1800} = \frac{1}{3}$$

Hence, the ratio is the highest for Daikun. Choice (C)

6. For the difference to be the highest, the difference between the number of people who joined and the number of people who left must be highest. This difference is the highest for Alan Sorry (600).

Choice (C)

7. The number of employees increased only for Daikun, Kingfudger, Flip The Cart and Alan Sorry. Percentage increase for these companies is calculated below:

$$\text{Daikun: } \frac{100}{1000} = \frac{1}{10}$$

$$\text{Kingfudger: } \frac{300}{2000} = \frac{1}{6.67}$$

$$\text{Flip The Cart: } \frac{100}{1500} = \frac{1}{15}$$

$$\text{Alan Sorry: } \frac{600}{3000} = \frac{1}{5}$$

Hence, the percentage is highest for Alan Sorry.

Choice (A)

8. The highest number of employees at the end of 2015 is in Alan Sorry which is 3600. The lowest number of employees at the end of 2015 is for FedUp which is approximately 800. Hence, the required value = 3600-800 = 2800

Choice (C)

Solutions for questions 9 to 12:

Since A has 10 points, it must have won 3 matches and drew 1 match (winning 2 and drawing 4 is not possible). B could have won 1 match and drew 2 matches or drew all 5 matches. From (i), B must have won 1 match and drew 2 matches. Since C has two losses, it must have won the remaining 3 matches for 9 points. D must have won 4 matches and lost 1 match and E must have won 1 match and lost 4 matches.

In Group 2, F could have 2 wins or 1 win and 3 draws. G can have 2 wins and 1 draw or 1 win and 4 draws. H must have 2 wins and 2 draws. I and J each can have 2 wins or 1 win and 3 draws.

The total number of draws that the teams in Group 2 can have is 3 (since the total number of draws in Group 1 is 3). Since H already has 2 draws, the only possibility is G having 2 wins and 1 draw.

Therefore, F, I and J each have 2 wins and 3 losses.

The following table presents this information:

Group 1					
Team	Played	Win	Loss	Draw	Points
A	5	3	1	1	10
B	5	1	2	2	5
C	5	3	2	0	9
D	5	4	1	0	12
E	5	1	4	0	3

Group 2					
Team	Played	Win	Loss	Draw	Points
F	5	2	3	0	6
G	5	2	2	1	7
H	5	2	1	2	8
I	5	2	3	0	6
J	5	2	3	0	6

Since A and B drew 3 matches and G and H also drew three matches, B must have drawn against both G and H while A must have drawn against H. Since D lost against F, it must have won all the remaining matches. Since A lost against J, it must have won against F, G and I.

G lost to A and D. Hence, it must have won against C and E. H lost to D. Hence, it must have won against C and E. Since C lost two matches, it must have won the matches against F, I and J. I must have won against B and E. The following table gives the results of the matches (with the team that won the match in each cell and '-' represents a draw).

	F	G	H	I	J
A	A	A	-	A	J
B	B/F	-	-	I	J/B
C	C	G	H	C	C
D	F	D	D	D	D
E	F/E	G	H	I	E/J

9. H drew the maximum number of matches. Choice (C)
10. G lost the matches against A and D. Choice (A)
11. The team that scored the least number of points is E. E could have won against F or J. Choice (D)
12. I lost three matches. Ans: (3)

Solutions for questions 13 to 16:

13. Since exactly two persons won a Nobel Prize every year, each person's contribution would be 0.5. Nobel Prizes won by persons born in Germany during 1901-25 is 8.5. This implies that a total of 17 persons won the Nobel Prize during the period. For the number of years in which a person born in Germany not winning a Nobel Prize to be minimum, the number of years in which these 17 persons won the Nobel Prize must be maximum. The 17 persons can win the Prize in 17 years. Hence, in 8 years, a person born in Germany would not have won the Nobel Prize. Ans: (8)
14. The number of Nobel Prizes won by citizens of U.K. during 1951-75 is 3.5. The number of Nobel Prizes won by citizens of U.S.A. is 12. Since every year, a citizen of U.K. won the Nobel Prize, a citizen from U.S.A. also won the prize, for 3 years, two citizens of U.K. and one citizen of U.S.A. won the Nobel Prize. For another 3 years, one citizen of UK and one citizen of USA won the Nobel Prize. The remaining Prizes for U.S.A. is $12 - 2.5 = 9.5$. The maximum possible number of years in which a citizen of U.S.A. is the only winner is 9 (since the 0.5 must be shared with someone else). Choice (C)

15. From 1976 to 2000, American citizens won the Nobel Prizes in $25 - 7 = 18$ years. The contribution of an American citizen(s) to each prize can be 1 or $2/3$ or $1/2$ or $1/3$. A contribution of $1/3$ implies that of the three winners of the prize, exactly one was a citizen of U.S.A. Similar interpretations are to be drawn for other contributions.

Let a, b, c and d be the number of years in which the contribution of each citizen is 1, $2/3$, $1/2$ or $1/3$.
 $\therefore a + b + c + d = 18$

Given $a + c = b + d \Rightarrow a + c = 9$ and $b + d = 9$

Total number of prizes won by citizens of U.S.A. from 1976 to 2000 = $33.67 - 19.5 = 14.17$

$$\therefore a(1) + b\left(\frac{2}{3}\right) + c\left(\frac{1}{2}\right) + d\left(\frac{1}{3}\right) = 14.17$$

$$\Rightarrow \frac{2a+c}{2} + \frac{2b+d}{3} = 14.17$$

$$\Rightarrow \frac{a+9}{2} + \frac{b+9}{3} = 14.17$$

$$\Rightarrow 3a + 2b = 40$$

Since $a \leq 9$ and $b \leq 9$, we get the only possible integral solution as $a = b = 8$.

Hence, number of years in which only citizens of U.S.A. won the Nobel Prize = $a = 8$. Choice (B)

16. (I). From 1951-75, the minimum and maximum number of prize winners born in U.S.A. is 9 (8+1) and 25 (i.e. $8 \times 3 + 1$)

In the same period, those born in Germany are at least 4 and at most 10.

Therefore, this statement is not always true.

(II). The maximum number of people who were born in Germany and won the prize during 1976-2000 is 11. The minimum number of U.S.A. citizens who won the prize during 1951-75 is 12.

Therefore, II is definitely true.

(III). From 1926-50, minimum number of U.K. citizens who won the prize is 7.

Therefore, III is also definitely true.

Hence, only II and III are true. Choice (D)

Solutions for questions 17 to 20:

From (i), B arrived after E and A. From (iv), B must have arrived after F because F was the first person to leave (i.e., before E left).

From (ii), C must have arrived at the station after B. Since B, E, A and F arrived before C, C must have arrived fifth and B fourth. D must be the sixth person to arrive.

F was the first person to leave. E must be the second and A must have been the third. From (v), A could not have been the first to arrive. Hence, E must have arrived first and A, second.

From (v), B could not have been the fourth person to leave. Hence, C must have been the fourth person to leave and B must have been the fifth person to leave. D was the last to arrive after F, E and A left. From (iii), D must have arrived before B and C left. Also, since no one else was there when D boarded his train, D must have been the last to leave.

The following table gives the sequence in which the six people arrived and left:

- (i) E arrived.
- (ii) A arrived.
- (iii) F arrived.
- (iv) F left.
- (v) E left.
- (vi) B arrived.
- (vii) A left.
- (viii) C arrived.
- (ix) D arrived.
- (x) C left.
- (xi) B left.
- (xii) D left.

17. E was the second person to leave the station. Choice (C)

18. D was the last person to arrive. Choice (D)

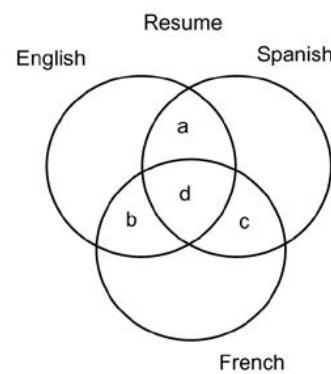
19. When C left, two persons, D and B, were at the station. Choice (B)

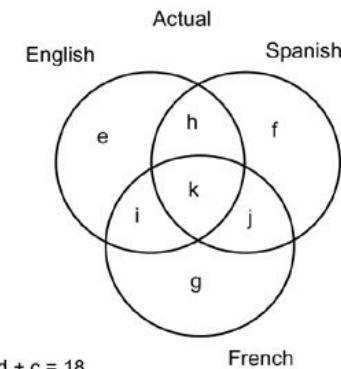
20. When F arrived, there were 2 people at the station (E and A). When B arrived at the station, only A was present at the station. When C arrived at the station, only B was present at the station. When A arrived at the station, only E was present. Hence, the maximum number of people were present at the station when F arrived.

Choice (A)

Solutions for questions 21 to 24:

Let the following Venn diagrams represent the languages mentioned by the candidates in the resume and the languages that they are actually fluent in. From (ii), a few variables can be omitted from the first venn diagram.





From (i), $d + c = 18$
 $a = 15$

From (iii), $k = 4$ and $d = 8$
Hence, $c = 10 \Rightarrow b = 17$

From (iv), $h + i + j + k = 14 \Rightarrow h + i + j = 10$
 $f + h + j + k = 21 \Rightarrow f + h + j = 17$

From (v), $g + i = 19$
 $g = 14 \Rightarrow i = 5$
 $h + j = 5$ and $f = 12$
 $e = 50 - f - h - k - i - j - g = 50 - 12 - 5 - 4 - 5 - 14 = 10$

21. The number of candidates actually fluent only in Spanish = 12.
Ans: (12)

22. The candidates represented by e, f and g definitely lied on their resume. The candidates represented by h, i and j need not have lied. The 4 candidates who speak all three languages ($k = 4$) also did not lie. Hence, the total number of candidates who definitely lied on their resume = $10 + 12 + 14 = 36$
Ans: (36)

23. Given $j = 3 \Rightarrow h = 2$. Number of candidates who actually speak English and Spanish = $h + k = 2 + 4 = 6$.
Ans: (6)

24. The candidates who speak all three languages could not have lied. Also, among the candidates represented by h, i and j, at most four people could have lied since the difference between the number of people who actually speak three languages and the number of people who mentioned three languages in their resume is 4. Therefore, among 10 people ($h + i + j$), 4 could have lied and 6 definitely did not lie.
Total number of candidates who did not lie = $4 + 6 = 10$
Ans: (10)

Solutions for questions 25 to 28:

The hour hand takes 1.5 hours to move from one division to the next. Let 1 to 8 represent the positions on the watch in the clockwise direction as shown in the figure.

From (i), the letter D and F must be at position 1 and 4 in any order.

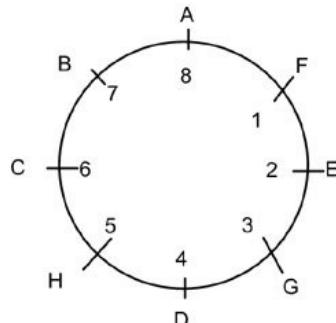
At 5:15, only the minute hand will be exactly on a division. Also, the minute hand will be pointing exactly at 5. Hence, H will be at 5. Since H and F are not adjacent, F will be at 1 and D will be at 4.

From (iv), C and E can be at 2 and 6 or at 3 and 7 in any order. If C is at either 3 or 7, A has to be at 5 or 1 (since it takes three hours to travel from C to A). Since this is not possible, C and E cannot be at 3 and 7 in any order.

If C is at 2, A must be at 4 which is also not possible. Hence, C must be at 6 and A must be at 8. E must be at 2.

B and G must be at 7 and 3 in any order. But from (ii), if B is at 3, to travel from A to B will take only 4.5 hours. Hence, B must be at 7 and G at 3.

Thus we get the watch designed by Tissot babu as



25. Note that in order to answer this question, it is sufficient if one understands the behaviour of the short and long hands of the watch and one need not actually solve for the arrangement of the letters around the face of the clock. The angle between hour hand and minute hand in a normal watch at 4:00 will be 120° . The angle between the short hand and the long hand at 3:00 will be 90° . In 1.5 hour the short hand will move 45° and in one hour, it will move 30° . Similarly in one hour, the long hand will move 240° . Therefore, the angle between the two hands will be 120° .
Choice (C)

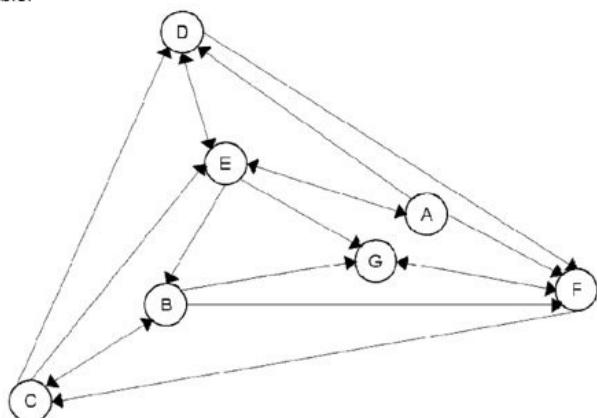
26. When the hour hand has is exactly on C, the time will be 7:30. If the minute is on A, it would have been $7 \times 11.25 = 78.75$ minutes after 7:30. Hence, the time will be approximately 8:49.
Choice (A)

27. The hour hand will take 4.5 hours to move from B to E.
Choice (D)

28. A and D are opposite each other.
Choice (B)

Solutions for questions 29 to 32:

The following diagram presents the roads mentioned in the table:



29. The longest possible rout is DFCEA. Hence, the person can pass through a maximum of three cities.
Choice (B)

30. He will have to pass through a minimum of two cities – F and C.
Choice (B)

31. A is accessible only through a two-way route from E. If all the two-way routes are closed, A will not be accessible.
Choice (A)
32. Option A: A person can go from B to E using the route BCE. Hence, this is false.
Option B: A person can go from G to A using the route GFCEA. Hence, this is false.
Option C: A person can go from D to C using the route DFC. Hence, this is false.
Option D: If anyone has to travel to A, he has to pass through E. Hence, this option is true.

Choice (D)

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

SECTION – III

Solutions for questions 1 to 34:

1. Let $f(x) = x + x^5 + x^9 + x^{13} + x^{17}$

$$\frac{f(x)}{x(x+1)} = \frac{x(1+x^4+x^8+x^{12}+x^{16})}{x(x+1)}$$

Now, $1+x^4+x^8+x^{12}+x^{16}$ divided by $(x+1)$, will leave a remainder of $1+(-1)^4+(-1)^8+(-1)^{12}+(-1)^{16}$, i.e., 5.
Therefore the remainder when $f(x)$ is divided by x^2+x is $x \times 5 = 5x$.
Choice (D)

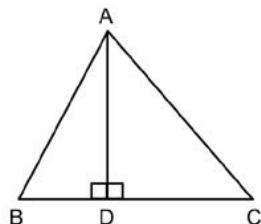
2. L.H.S = $1+3+5+\dots+(2n-1)$, i.e., the sum of the first 'n' odd numbers, which is equal to n^2 .
Since $m = 25$, R.H.S = $1+25.26.27.28 = 491401$
Hence, $n^2 = 491401$ and $n = \sqrt{491401} = 701$ (The on-screen calculator be used for the calculations)

Alternative Solution:

$$\begin{aligned} m(m+1)(m+2)(m+3) \\ = m(m+3)(m+1)(m+2) \\ = [m^2+3m][m^2+3m+2] \\ = [m^2+3m+1-1][m^2+3m+1+1] \\ = (m^2+3m+1)^2 - 1 \\ \Rightarrow 1+m(m+1)(m+2)(m+3) = (m^2+3m+1)^2 \\ \text{Given } m = 25, \text{ we get } [25^2+3(25)+1]^2 = 701^2. \\ \text{Now } 1+3+5+\dots+(2n-1) = n^2 \\ \text{Now, } n^2 = 701^2 \\ \Rightarrow n = 701 \end{aligned}$$

Ans: (701)

- 3.



Given $\frac{AD}{BD} = \frac{DC}{AD}$, and $\angle ADB = \angle ADC = 90^\circ$

Now, in $\triangle ADC$, $\frac{AD}{DC} = \tan \angle ACD$

and in $\triangle ADB$, $\frac{BD}{AD} = \tan \angle BAD$

$\Rightarrow \tan \angle ACD = \tan \angle BAD$, i.e., $\angle ACD = \angle BAD$
Also, since, $\triangle ADB$ and $\triangle ADC$ are right angled,
we get $\angle DAC = \angle ABD = 90^\circ - \angle BAD$.
Therefore, $\angle BAC = \angle BAD + \angle DAC$
 $= \angle BAD + (90^\circ - \angle BAD) = 90^\circ$.

Alternative Solution:

Due to side-angle-side rule of similarity,

(i.e., $\frac{AD}{DC} = \frac{BD}{AD}$ and $\angle ADC = \angle ADB = 90^\circ$),

we get $\triangle ABD \sim \triangle CDA$, i.e., $\angle DAC = \angle ABD = 90^\circ - \angle BAD$ (in $\triangle ABD$).

Hence, $\angle BAC = \angle BAD + \angle DAC = \angle BAD + (90^\circ - \angle BAD) = 90^\circ$.
Choice (C)

4. If there are n persons in all, (including the spouses) then the total number of handshakes = ${}^n C_2 = 903$

$$\frac{n(n-1)}{2} = 903$$

$$\Rightarrow n = 43.$$

Therefore, the number of persons who brought their spouses = $43 - 25 = 18$
Hence the number of persons who did not bring their spouses = $25 - 18 = 7$.
Ans: (7)

5. We observe that, it is an AP series

$$a_8 = a+7d = 46 \text{ and}$$

$$a_5 = a+4d = 28$$

solving, we get $d = 6$ and $a = 4$

$$\therefore a_{10} = 4+9(6) = 58$$

Choice (B)

6. The distance covered by the cart = Circumference of a wheel \times No of revolutions made by it
The distance covered by the cart would be the same irrespective of the wheels.

Let the number of revolutions made by the front and rear wheels be n_f and n_r respectively.
 $2\pi(2)n_f = 2\pi(5)n_r$ = Distance covered the cart.

$$\frac{n_f}{n_r} = \frac{5}{2} \text{ if } n_r = 5k, \text{ then } n_f = 2k.$$

Total no. of revolutions = $7k = 98 \Rightarrow k = 14$

$$\therefore \text{the distance covered by the cart} = 2 \times \frac{22}{7} (2) (70)$$

= 880 feet.
Ans: (880)

7. Given $4x = 25 - 3y$

$$\Rightarrow x = \frac{25 - 3y}{4}$$

Now, substituting the value of x in the equation of the circle, we get

$$\frac{(25-3y)^2}{4} + y^2 = 25$$

$$625 - 150y + 9y^2 + 16y^2 = 400$$

$$25y^2 - 150y + 225 = 0$$

$$y^2 - 6y + 9 = 0 \Rightarrow y = 3$$

$$\therefore x = \frac{25 - 3y}{4} = \frac{25 - 9}{4} = 4$$

Therefore the curves $x^2 + y^2 = 25$ and $4x + 3y = 25$ meet at exactly one point whose coordinates are (3, 4).

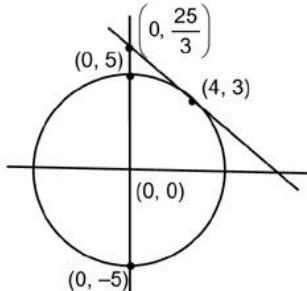
Again, the graphs of $4x + 3y = 25$ and $x = 0$ intersect at one point i.e., (y-intercept) at $\left(0, \frac{25}{3}\right)$ whereas $x^2 + y^2 = 25$

$= 25$
and $x = 0$ intersect at two points i.e., (0, 5) and (0, -5).
Hence, there are a total of four distinct points at which any two of the three given graphs meet.

Alternate solution:

By observation $4x + 3y = 25$, is a straight line and $x^2 + y^2 = 25$ is a circle with centre (0, 0). Now, the perpendicular

distance of the centre $(0, 0)$ from the straight line $4x + 3y - 25 = 0$ is $\frac{|4(0) + 3(0) - 25|}{\sqrt{4^2 + 3^2}} = 5$. Since this is equal to the radius of the circle, the straight line is tangent to the circle. Hence, we get a total of four distinct points (as explained in the above solution).



Ans: (4)

8. Let the total work be 60 units and let the outputs per day for A, B and C be a units, b units and c units respectively.

Given the days worked:

$$20a + 20b = 60 \Rightarrow (a + b) = 3$$

$$30b + 30c = 60 \Rightarrow (b + c) = 2$$

and

$$8a + 18b + 26c = 60$$

$$\Rightarrow 8(a + b) + 10(b + c) + 16c = 60$$

$$\Rightarrow 8(3) + 10(2) + 16c = 60$$

$$\Rightarrow c = 1.$$

$$\text{output per day} = (a + b) + c = 3 + 1 = 4$$

Therefore A, B and C together will take $\frac{60}{4} = 15$ days

Ans: (15)

9. Let the cost price of each shirt be ₹100

Final marked up price of each shirt = $(100 \times 1.2) \times 1.5 = ₹180$

Customer pays for 3 shirts and takes 5 shirts

CP of 5 shirts = ₹500

SP those 5 shirts = $3 \times ₹180 = ₹540$

$$\text{Profit \%} = \frac{40}{500} \times 100 = 8\%$$

Choice (C)

$$10. g(x) = \frac{1}{(3x^2)^2} = \frac{1}{9x^4}$$

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

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

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

Choice (A)

11. Let m and n be the roots of the quadratic equation. It is given that

$$m + n = m n$$

Dividing both sides by $m n$, we get

$$\frac{m+n}{mn} = 1$$

$$\frac{1}{n} + \frac{1}{m} = 1$$

Alternative Solution:

Since sum of roots = product of roots

$$\frac{-b}{a} = \frac{c}{a} \rightarrow (1)$$

The quadratic equation whose roots are reciprocals of the roots of the given equation is $cx^2 + bx + a = 0$ and

$$\text{sum of its roots} = \frac{-b}{c} = 1 \text{ (from (1)).} \quad \text{Choice (B)}$$

12. Speed of A > Speed of B

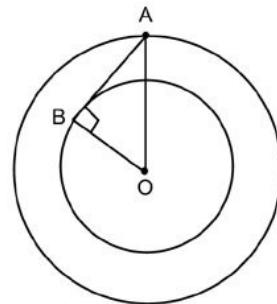
On a circular track, starting simultaneously and moving in the same direction, two bodies meet for the first time when the faster body takes a lead of one complete lap over the slower body.

Number of laps	B	A	Total
	5	6	11

Together they complete 11 laps in 15 minutes. When moving in opposite directions, they will meet every time they together complete one lap. Therefore 11th meeting will take place when they together complete 11 laps, i.e., after 15 mins.

Ans: (15)

- 13.



In $\triangle OBA$,

$$OB = \sqrt{OA^2 - AB^2}$$

$$\text{It is given that } AB = \frac{1}{3} OA$$

$$\therefore OB = \sqrt{(3AB)^2 - (AB)^2} = 2\sqrt{2} AB.$$

$$\text{Therefore the ratio of } \frac{OB}{OA} = \frac{AB2\sqrt{2}}{3AB} = \frac{2\sqrt{2}}{3}$$

Choice (C)

14. Let the share of C = c

$$\Rightarrow \text{Share of B} = 2c$$

Let share of D = d .

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

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

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

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

Choice (A)

15. $x^2 - 24x + N = 0$.

Sum of the roots = 24

Since, both the roots are prime numbers, there are three possibilities i.e., (7,17) (5,19) and (11,13), and N will assume a distinct value in each case.

Ans: (3)

16. The fruits needs to be divided into 3 groups consisting of 3, 2 and 1 fruits respectively.

This can be done in ${}^6C_3 \times {}^3C_2 \times {}^1C_1 = 60$ ways.

Now these 3 groups can be distributed among the 3 boys in $3!$ ways.

$$\therefore \text{The total number of ways} = 60 \times 6 = 360.$$

Ans: (360)

17. Using the given information it is possible to find the ratio of the total salary of all male employees and the total salary of all female employees. However, it is not

possible to find anything about the number of male and female employees, unless some further information is provided regarding the salaries of male and female employees.
Choice (D)

18. $2^x 3^y 5^z = 2^x 3^1 5^1 (2^{x-2} 3^{y-1} 5^{z-1})$
 $= 60(2^{x-2} 3^{y-1} 5^{z-1})$
 No of factors of $2^x 3^y 5^z$ which are divisible by 60 is equal to the number of factors of $2^{x-2} 3^{y-1} 5^{z-1}$, which is $(x-1)(y)(z) = xyz - yz$

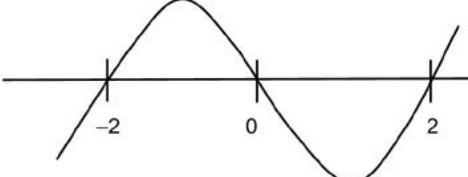
Alternative Solution:

Inspect the options for $x = 2, y = 1, z = 1$ (when the number becomes 60 itself). In this case, the number of factors divisible by 60 should be 1. Observing the choices, options A and B are eliminated. Now, consider $x = 2, y = 2$ and $z = 1$ (the number becomes 180). In this case, the number of factors divisible by 60 should be 2. Now, only option D satisfies.
Choice (D)

$$19. \frac{1}{x-2} > \frac{1}{2x}$$
 $\Rightarrow \frac{1}{x-2} - \frac{1}{2x} > 0$
 $\frac{2x-x+2}{(x-2)2x} > 0$
 $\Rightarrow \frac{x+2}{x(x-2)} > 0$

Multiplying both Numerator and Denominator by $x(x-2)$, we get $\frac{(x+2)(x)(x-2)}{x^2(x-2)^2} > 0$.

The denominator is a positive quantity and so it can be ignored.
 $\therefore (x+2)(x)(x-2) > 0$.



Therefore the solution for the above inequality is
 $-2 < x < 0$ or $x > 2$

i.e., $x \in (-2, 0) \cup (2, \infty)$ Choice (D)

20. The sum of all the exterior angles of any convex polygon is 360° .

Let the number of sides of the polygon be n

Sum of all the interior angles = $(n-2) 180^\circ$

It is given that $(n-2) 180^\circ = 7 (360^\circ)$

$\Rightarrow n-2 = 14$

$\Rightarrow n = 16.$

Ans: (16)

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

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

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

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

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

Ans: (36)

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

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

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

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

$= N - \frac{11}{15} N$
 $= \frac{4}{15} N$

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

$\Rightarrow N = 60$

Ans: (60)

23. Let the quantities of sugar and water be denoted by k and $5k$ respectively.

Sugar	water	Total
k	$5k$	$6k = 720$
		$k = 120$

Sugar	water
120	600

After 100 gm of water is evaporated, the ratio of sugar and water in the remaining solution is
 $120 : 500 = 6 : 25$ Choice (A)

24. The tenth toss is an independent event and so, the probability of a tail turning up will be the same as for any toss, i.e., $\frac{1}{2}$. Choice (B)

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

Rajesh needs to eat at least 7 more gulabjamuns to beat Thomas.
 To eat 7 more gulabjamuns Rajesh would take another $\frac{7}{6}$ minutes. Therefore Rajesh should keep eating for a

total of $3 + \frac{7}{6} = 4 \frac{1}{6}$ minutes to ensure that he wins the bet. Choice (A)

26. $x + \frac{1}{x} = 1$
- $\Rightarrow x^2 + 1 = x$
- $\Rightarrow x^2 = x - 1$
- $\therefore x^3 = x(x^2) = x(x-1) = x^2 - x = x - 1 - x = -1$
- $\therefore x^6 = (-1)^2 = 1$
- $x^9 = (x^3)^3 = (-1)^3 = -1$
- $x^{12} = (x^3)^4 = (-1)^4 = 1$
- $x^{12} + x^9 + x^6 + x^3 + 1 = 1 - 1 + 1 - 1 + 1 = 1$

Ans: (1)

27. It is given that, $d_1 + d_2 = 68$ and $d_1 - d_2 = 28$

$\text{Area of the rhombus} = \frac{d_1 d_2}{2}$
 $= \frac{(d_1 + d_2)^2 - (d_1 - d_2)^2}{8}$
 $= \frac{68^2 - 28^2}{8} = 480$

Ans: (480)

28. Let the total surface area of cube B be 100

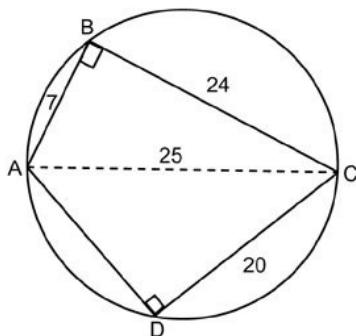
Thus the total surface area of cube A = 64

Total surface area of a cube α (side) 2 .

	Cube B	Cube A
Total surface Area	100	64
Ratio of surface Area	10^2	8^2
Ratio of the sides	10	8
Sides of the cubes	10 k	8k

Therefore the side cube B is more than the side of cube A by $\frac{2k}{8k} \times 100 = 25\%$. Choice (A)

29.



Since AC is the diameter, $\angle ABC = 90^\circ$
Therefore $\angle ADC = 90^\circ$
(\because opposite angles in a cyclic quadrilateral are supplementary)

$$\therefore AD = \sqrt{25^2 - 20^2} = 15$$

$$\begin{aligned} \text{Area of the quadrilateral} &= \text{Area of } \triangle ABC + \text{Area of } \triangle ADC \\ &= \frac{1}{2}(7 \times 24) + \frac{1}{2}(20 \times 15) \\ &= 84 + 150 = 234 \end{aligned}$$

Ans: (234)

30. $a = \log_3 12 = \log_3 3 \times 4 = \log_3^3 + \log_3^4 = 1 + 2\log_3^2$
 $b = \log_8 72 = \log_8 8 \times 9 = \log_8^8 + \log_8^9 = 1 + \frac{2}{3}\log_2^3$
 $\therefore (a-1) = 2\log_3^2$ and $b-1 = \frac{2}{3}\log_2^3$
 $\therefore (a-1)(b-1) = \frac{4}{3}\log_3^2 \log_2^3 = \frac{4}{3}$

Alternative Solution:

We can calculate the values of \log_3^{12} and \log_8^{72} by using the calculator provided.

$$a = \log_3^{12} = \frac{\log 12}{\log 3} \approx 2.262$$

$$\text{and } b = \log_8^{72} = \frac{\log 72}{\log 8} \approx 2.056$$

$$\begin{aligned} \text{Therefore } (a-1)(b-1) &\approx (1.262)(1.056) \\ &\approx 1.333 \end{aligned}$$

Now, calculating each choice, we can conclude that
Choice (A) is the answer.

Ans: (A)

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

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

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

Therefore the percentage discount

$$= \frac{10k - 8k}{10} \times 100 = 20\% \quad \text{Ans: (C)}$$

32. Let the speeds of A and C be k and $4k$ respectively.
Since C caught up with A after 400 m from the start, despite giving A a head start of 300 s, we get the eq.

$$\frac{400}{4k} + 300 = \frac{400}{k}$$

[Time taken by each of A and C to cover 400 m] $\Rightarrow k = 1$.

Similarly, for A and B,

$$\text{we get } \frac{300}{1} + 200 = \frac{300}{V_B}$$

[where V_B is the speed of B and speed of A = $k = 1$]

$$\Rightarrow V_B = \frac{3}{5}$$

\therefore The required ratio is $1 : \frac{3}{5} : 4$, i.e., $5 : 3 : 20$.

Alternative Solution:

Let the speeds of A, B and C be a , b and c respectively.
Head start of B over A = 200 m

$$\text{Time taken by A to catch up with B} = \frac{200}{a-b}$$

Distance covered by A while trying to catch up with B

$$= \frac{200b}{a-b} \times a = 300 \quad \text{---(1)}$$

Similarly, distance covered by C while trying to catch up with A

$$= \frac{300a}{c-a} \times c = 400 \quad \text{---(2)}$$

Given $a : c = 1 : 4$. Let $a = k$ and $c = 4k$. Substituting this (2),

$$300 \times \frac{k}{3k} \times 4k = 400 \Rightarrow k = 1$$

Hence, the speed of A = 1 m/s and the speed of C = 4 m/s

Substituting value of a in (1),

$$\frac{200b}{1-b} = 300 \Rightarrow b = 0.6 \text{ m/s}$$

Required ratio = $1 : 0.6 : 4 = 5 : 3 : 20$

Ans: (B)

33. The remainder when a number in base 8 is divided by 9 i.e., $(11)_8$ is the difference between the sum of the digits in the odd places and those in the even places when divided by 9.

So $(1\ 2\ 3\ 4\ 5\ 6\ 7)_8$

$$(1+3+5+7) - (2+4+6) = 4$$

Hence, the remainder when divided by 9 is 4.

Ans: (4)

34. Let the principal be P and the ratio of interest be $R\%$ per annum. Let $r = \frac{R}{100}$.

Now, the given difference for 2 years

$$= [P(1+r)^2 - P] - 2Pr = ₹120$$

$$\Rightarrow Pr^2 = 120 \quad \text{--- (1)}$$

and the difference for 3 years

$$= [P(1+r)^3 - P] - 3Pr = ₹384$$

$$\Rightarrow Pr^3 + 3Pr^2 = 384 \quad \text{--- (2)}$$

(1) in (2) gives

$$Pr^3 + 360 = 384$$

$$\Rightarrow Pr^3 = 24 \quad \text{--- (3)}$$

$$(3) + (1) \text{ gives } r = 0.2, \text{ i.e., } R = 20\%$$

Ans: (D)

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