

(Key and Solutions for AIMCAT1723)

Key

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Solutions

SECTION – I

Solutions for questions 1 to 3:

Number of words and Explanatory notes for RC:

Number of words : 549

1. The passage highlights the problems of the Knasaimos people, living in the Indonesian province of Papua, due to the destruction of forest cover.

Option A: The passage only talks about the natives i.e. Knasaimos people doing the traditional work in the forest. There is no mention of them aspiring for permanent jobs in the village and there is no indication that the company has offered them these jobs. So 'training facilities' and the 'lure of permanent jobs in the village' is suspect. So choice A is incorrect.

Option B: It is mentioned in the fourth paragraph, sixth sentence that Knasaimos people got attracted to the wood company because the company promised them money. Hence choice B is the answer.

Option C: While it is true that the merbau logging was carried out by one company which was backed by a formidable military officer, there is no indication in the passage that he had promised them education. So choice C is incorrect.

Option D: Choice D is more of an effect (consequence,

over a period of time) of people getting attracted to the wood company and is not the cause. So choice D is not the answer.
Choice (B)

2. Frederick Sagisolo is the main protagonist in this passage. Option A: From the first paragraph of the passage, we cannot infer that Frederick Sagisolo is the editor of the Green Room. He contributed an article to the series which runs weekly on BBS website. Hence, Choice A is incorrect.

Option B: Frederick Sagisolo cannot be the owner of the wood company as he criticizes the working of the wood company in the passage. Choice B is incorrect.

Option C: It can be deduced that Frederick Sagisolo is the traditional chief of the Knasaimos people. It is mentioned in the fifth paragraph that the narrator – i.e. Frederick Sagisolo – is the head of the tribal council of the Knasaimos. Choice C is the answer.

Option D: We cannot infer from the passage that Frederick Sagisolo is a political activist though he has recounted his experience of illegal logging. Choice D is incorrect.

Choice (C)

3. One will have to look at various parts of the passage to evaluate the veracity of the choices.

Option A: Rattan, bamboo and other woods were used for housing. Damar was used for lighting fires. Gaharu trees were used for trade. So choice A is incorrect.

Option B: From the second sentence of para 2 (It started in

1999 with meranti wood being taken, and once that was finished in 2002 they started to cut merbau trees), choice B is negated.

Option C: Choice C is far-fetched. We do not know of similar problems in other tropical rainforests or temperate rainforests, forested areas etc.

Option D: From the last two sentences of para 5, choice D can be inferred to be true.

Choice (D)

Solutions for questions 4 to 6:

Number of words and Explanatory notes for RC:

Number of words : 447

4. The passage talks about the way Nadal approaches the sport. It describes what drives him when he plays tennis.

Statement I: According to the passage, Nadal has bounded intensity. It is also mentioned that he pursues "victory as a form of absolution". Also, author mentions that he wasn't like Nadal and that he "wanted to enjoy it too." Hence, we can infer that Nadal was more focused on winning rather than on enjoying the game.

Statement II: The passage also mentions that Nadal is haunted by a "relentless sense of inferiority" and that he feels that Federer and Djokovic are better players than him. Hence, this is also a reason for the author mentioning that Nadal's career is "more admirable than enviable".

Statement III: We cannot infer from the passage that he struggled to get to the top. We also cannot conclude that he is at the top of the game. Hence, this statement is incorrect.

Statement IV: The passage does not talk about Nadal trying to better his game. Hence, this is not the correct answer.

Therefore, the correct answer is option A, only I and II.

Choice (A)

5. The passage mentions that 2012-13 was the *annus mirabilis* for Murray. He won the Olympic gold and US open in 2012. Hence, we can say that the year was extraordinary for Murray. Therefore, the answer is a year which was extraordinary i.e., option A.

Choice (A)

6. The passage mentions that after Moya won the French Open in 1998, there was a gradual decline. Murray also "struggled to discover new sources of inspiration" after he won the Wimbledon and he "slid down the rankings".

Option A: While Moya won the French Open at the age 21, we do not know the age of Murray from the passage when he won the Wimbledon. Hence, this statement also cannot be inferred.

Option B: Murray's performance declined after he won the Wimbledon and not after he won his first grand slam (which was US Open). This can be inferred from the passage because the passage mentions that Murray won the US Open "breaking the 76-year British grand-slam duck". Hence, this option is incorrect.

Option C: Both Moya and Murray were more focussed on being happy than on being successful. This can be inferred about the career of Moya as the passage mentions that "Moya later reflected that ... never be so easily satisfied" and about the career of Murray from "No one would call Andy Murray a frivolous hedonist. But..." They were both satisfied after they achieved success and hence, we cannot conclude that they valued success more than happiness. Hence, this option is not correct.

Option D: Both Moya and Murray were at the peak of their career having won French Open and Wimbledon respectively. But after this, there was a decline in the performance of both the players. Hence, this is the correct answer.

Choice (D)

Solutions for questions 7 to 12:

Number of words and Explanatory notes for RC:

Number of words : 534

7. The response of the media (Calgary Herald, Globe and Mail and Guardian) towards the crowning of 'selfie' as the Word of 2013 by the Oxford Dictionaries has been

described in the first paragraph. For Andrew Cohen, "selfie culture" was synonymous to selfish entitlement; for Navneet Alang, selfies were equivalent to a means of self-expression; for Jonathan Freedland, the selfie represented both 'narcissism' and 'the human need to connect'.

Option A: Navneet Alang's reaction can be said to be positive. But choice A fails to include the reactions of Andrew Cohen and Jonathan Freedland. Hence choice A is not correct.

Option B: Andrew Cohen's reaction can be said to be strongly negative. But there is nothing in the first paragraph to suggest that the reaction could have been one of skepticism, which is an attitude of doubting the truth of something (such as a claim or statement). Further choice B excludes the reaction of Navneet Alang which has a negative connotation and the mixed reaction of Jonathan Freedland. So choice B is incorrect.

Option C: This choice correctly captures the range of reactions of Andrew Cohen (negative), Navneet Alang (positive) and Jonathan Freedland (both positive and negative).

Option D: "Guarded appreciation to great fascination" is an increasing positive range of reactions. Great fascination is a positive extreme. So choice D provides only one arm of the spectrum of reactions, so to speak. Choice D ignores the negative and mixed reactions of the media. Hence Choice D is incorrect.

Choice(C)

8. "No you did not read that right" is the sentence (the first sentence of the third para) which has to be considered for this question. The sentence actually makes the reader pause and review the previous sentence and what follows later. So choice B is correct. The sentence does not have any specific content. So the other choices do not work here.

Choice (B)

9. Charles Baudelaire is almost in agreement with d'Aurevilly when he says that a dandy remains splendidly aloof, unaffected by others or by the world at large. A dandy has the pleasure of causing surprise (and emotion and passion) in others, and the proud satisfaction of never showing any oneself. (He remains entirely insensible and immune). A dandy may be 'blase' which means uninterested because of frequent exposure or indulgence.

Option A: A dandy evokes emotions in others but remains entirely insensible or immune himself. He may even suffer pain and keep smiling. So choice A can be inferred and is not the answer.

Option B: A dandy tries to create surprise by remaining impassive. He will never show any surprise or emotions himself. Hence choice B can be inferred and is not the answer.

Option C: 'masochistic' refers to the deriving of pleasure, or the tendency to derive pleasure, from being humiliated or mistreated, either by another or by oneself. We cannot infer from the relevant lines in the passage that a dandy enjoys inflicting pain on himself. So choice C cannot be inferred and is the answer.

Option D: A dandy remains splendidly aloof, unaffected by others or by the world at large. 'nonchalant' means uninterested or unconcerned. 'Stoicism' means indifference to pleasure or pain; impassiveness. Hence choice D can be inferred and is not the answer.

Choice (C)

10. The author projects views on self-creation through the example of 19th century dandysim.

Option A: A true dandy produces an effect (of surprise, emotion and passion in others) to which he alone remains immune. So choice A is not correct.

Option B: According to d'Aurevilly, dandysim was about more than mere sartorial (tailored clothing) elegance. According to Baudelaire, clothes and material are no more than the symbol of the aristocratic superiority of a dandy's mind. The popular trappings of dandysim – "clothes and material elegance" – are secondary to the philosophy underpinning them A dandy exists in the world as a kind of subject, ever operating, never operated upon. A

dandy remains insensible himself and produces a 'self-fashioning' effect to which he remains immune. Further, it is not given in the passage that a dandy will worry about how he "thinks". A dandy will not be cautious and concerned just about how he looks and dresses but he goes beyond in creating a public persona. So choice B does not adequately describe a "true dandy".

Option C: From the penultimate paragraph, we gather that a dandy exists in opposition to the masses. From the last paragraph, we know that a dandy does unpredictable things. He cannot be 'predictable' to the common man. So choice C is also not true.

Option D: It has been mentioned in the passage that every element of a dandy's identity is constructed for maximum effect. For the perfect dandy clothes and material elegance are no more than the symbol of the aristocratic superiority of his mind; they are useful not for themselves but for the role they play in creating a public persona.

Hence choice D is the answer.

Choice (D)

11. Option A: The passage correlates 'selfie' with 'dandyism'. From the last sentence of the last paragraph of the passage, (A dandy is less a human being than an artistic rendering of one: a selfie in three dimensions), we gather that the main concern of the author is not so much to explain about dandyism (which he does from para 4 onwards) but to tell us that 'selfie culture' is not a concept of our time but had its origin in 19th century dandyism. The passage highlights on 'self-creation' as it existed through the ages. So choice A would be a fitting title to the passage. Option B: Selfie Culture is not a "self-creation" phenomenon of today's time. Choice B is incorrect as a title and it does not encompass the whole passage. It does not take into account 'dandyism' which has been explained by the author.

Option C: This would run tangent to the discussion in the passage. Dandyism is not a long lost practice. Dandyism is a way of consciously existing in the world. We cannot infer that dandyism which existed in 19th century Paris is no longer in vogue. So choice C can be eliminated.

Option D: From the last two paras, we can infer that a dandy is inherently superior to the "masses" and exists in opposition to the masses. The common man cannot create his own identity. such power is granted only to a privileged few. Hence "Dandyism: Extending from aristocracy to commonality" would be incorrect.

Choice (A)

12. Option A: The point mentioned in choice A is not the primary focus of the author. The author only states in the last two paras that dandyism existed in opposition to the masses. So the "egalitarian take" or "democratised dandy" relationship with the "selfie" as given in choice A cannot be inferred.

Option B: Choice B is the primary concern of the author. The author's opinion is stated in the third paragraph and substantiated in the remaining paragraphs. He draws a relationship between 'selfie' and 'dandyism'.

Option C: The author only mentions media's views of 'selfie' such as: narcissistic act of superiority and a human expression to connect. He does not subscribe to the point mentioned in choice C. So choice C cannot be inferred.

Option D: While the characteristics of a dandy are being discussed, this part of the discussion is limited to the latter half of the passage. In the fourth para, the author says that it may seem like a stretch to mention selfie artists like Kim Kardashian or James Franco in the same breath as Barbeyd'Aurevilly but that is just mentioned as a detail. "every era gets its dandy it deserves" is not what the author emphasizes. Choice D is not the main focus of the author.

Choice (B)

Solutions for questions 13 to 18:

Number of words and Explanatory notes for RC:

Number of words : 515

13. According to the passage, Google "Ngram" Viewer "shows the frequency of words and phrases among the hundreds

of billions of words in the books scanned by Google, spanning centuries".

Option A: The passage says that the word "gossiping" is followed by the word "old" and "gossiping old" is followed by "women" etc. Hence, we cannot say from this result that old women were involved in gossiping.

Option B: The Google Ngram Viewer scans the literature for words. From this we cannot say that old people were predominantly involved in gossiping. We can only say that old people were portrayed as gossips in the last few centuries. Hence, this is not the correct answer.

Option C: The literature in the last few centuries used "gossiping" and "old" together. From this we can say that old people were associated the most with gossiping in the literature written in the last few centuries. Hence, this is the correct answer.

Option D: The literature does portray old female characters as gossips. But we can infer this from the next result mentioned in the passage that "the most common words to follow "gossiping old" are, in this order: "women", "woman", "men", "lady" and "ladies"". Hence, this cannot be inferred from the result mentioned in the question.

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

14. The passage mentions that the feisty is generally thought to mean "spirited" but is often heard by women "as carrying a whiff of surprise that a woman would show such spirit".

Option A: The passage does not imply that one of the meanings is an "actual" meaning and the other is "inaccurate". It only mentions that the word connotes different meanings for different people.

Option B: The meaning of the word does not vary with the speaker (the one who uses it). Instead, it varies with the gender of the person to whom it is addressed. Hence, this option is incorrect.

Option C: While the literal meaning of the word means "passionate", the passage mentions that the meaning varies with context. Hence, this is not the correct answer.

Option D: The passage mentions that the word is often heard by women to mean "as carrying a whiff of surprise that a woman would show such spirit". The passage also states that calling a man as feisty implies that the speaker is belittling and feminising him at the same time. Hence, a man perceives the meaning of the word differently as compared to a woman.

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

15. The passage defines microaggressions as "too small for the speaker to notice, yet too big for the hearer to ignore". It also provides an example of microaggression in which the insult is "clearly real".

Option A: This option describes a situation which is discriminatory in nature. This cannot be termed as an act "too small for the speaker to notice". Hence, this is not the correct answer.

Option B: This option also describes a discriminatory practice and cannot be called microaggression.

Option C: This option describes a government imposing rule for applying for a post. This also cannot be called microaggression and it is highly unlikely that it qualifies as discrimination.

Option D: This option describes a situation similar to the one mentioned in the passage. We can infer that the insult in this case is also real (even though it need not be to qualify as an act of microaggression). Hence, this is the right answer.

Choice (D)

16. According to Pinker, "1) All words have more than one meaning. 2) Mature adults resist taking pointless offence."

Option A: Pinker does not imply that mature adults do not pay heed to acts of microaggression. They resist taking "pointless offence". Microaggression sometimes involves real insult. In such case, mature adults may pay heed to it. Hence, this is not the correct answer.

Option B: Mature adults need not necessarily be aware of the multiple meanings of words. Pinker makes two statements and it is not necessary that the two are related.

Hence, this is not the right answer.

Option C: Mature adults don't take pointless offence. When insult is intended, they may take offence. Hence, this is the correct option.

Option D: Pinker does not imply that mature adults are aware of the multiple meanings of words and neither does he state that they take care not to insult others (irrespective of the kind of words they choose to use). Hence, this is not the correct answer.

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

17. According to the passage, Harvard is considering renaming the title of "house masters" as it "reminds some of slavery".

Option A: The passage does not mention about the past of Harvard. Hence, we cannot infer from the passage whether there were slaves at Harvard in the past. Therefore, this is not the correct answer.

Option B: The passage mentions that "a "culture of victimhood" is replacing the "culture of dignity"" and according to Pinker, people are not acting mature because they are taking pointless offence. Hence, we can say that the author has mentioned the example of Harvard to illustrate this culture of victimhood. Hence, this is the correct answer.

Option C: While the title of "house masters" may or may not be an act of microaggression, we cannot infer from the passage that it was perpetrated by the faculty members at Harvard. Hence, this is incorrect.

Option D: We cannot infer from the passage that Harvard was associated with slavery in the past. Hence, this option is also incorrect.

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

18. The final paragraph of the passage mentions that because of the debate on microaggression, people are trying to avoid words which have negative connotations. Using such language is termed as "lazy" by the author.

Option A: Harvard renaming its title is not mentioned in the passage as necessarily a good thing. Hence, this is not the right answer.

Option B: We cannot infer that people will not take offense at acts of microaggressions. This option is also incorrect.

Option C: According to the passage, "It makes speakers and writers scour their minds for original and arresting language – a good thing in itself". Hence, this will result in the usage of creative language by the speakers. Therefore, this is the correct option.

Option D: Irrespective of whether the debate ends in favour of microaggression or not, "it always pays to choose words well". However, this option implies that the debate will end in the favour of microaggression and because of this people will stop using words with negative connotation. Hence, this is not the correct answer.

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

Solutions for questions 19 to 24:

Number of words and Explanatory notes for RC:

Number of words : 641

19. The passage presents the opinion of Fox on various factors which are responsible for the decrease in the importance of pretension in our society.

Option A: The passage mentions that Fox "lays the blame on the French Revolution" for the loss of pretensions. Hence, this is not the correct answer.

Option B: Karl Marx's philosophy is also mentioned in the passage for promoting "authenticity" which is the opposite of pretension. Karl Marx insisted that "proletariat find "an authentic self"". Hence, this is not the correct answer.

Option C: According to the passage, Capitalism "deified the "true" nature of the individual". Hence, Capitalism was also responsible for the reduction in the importance of pretension.

Option D: David Bowie dressing up as an intergalactic peacock was pretentious. He was finding out "what it would be like to be otherwise". This could not have reduced the

importance of pretension in our society. Hence, this is the correct answer.

Choice (D)

20. In the passage, Fox mentions the different ways different countries/societies view pretension. In Britain, a pretentious person is someone who behaves in a way unwarranted for his "experience or economic status". In America, anything unfamiliar is considered pretentious.

Option A: While in America, a British accent is considered pretentious (because of its unfamiliarity), the reverse is not true. Hence, this option is incorrect.

Option B: In Britain, pretention is not identified as unfamiliar behaviour for their experience or economic status. It is unqualified behaviours for their experience or economic class. Also, trying to be something that a person is not is a very broad definition of pretention and is not restricted only to America. Hence, this is not the correct answer.

Option C: In Britain, being pretentious means to act in an unqualified manner or behaviour which is considered unacceptable for their economic class or experience. The passage also mentions that in Britain it acts as an "an informal tool of class surveillance". In America, "the word is as much a synonym for what is unfamiliar as for what is false". Hence, this is the correct answer.

Option D: Acting informally does not necessarily mean that a person will be considered pretentious in Britain. And having a different accent does not always imply that one will be considered pretentious in America. Hence, this is incorrect. Therefore, option C is the correct answer. Choice (C)

21. Fox mentions multiple features of pretensions throughout the passage.

Option A: The passage states that "calling someone pretentious often reveals more about the accuser than the accused". Hence, this is not the correct answer.

Option B: The passage does not talk about pretending in order to hide (keep under wraps) our true intentions. Hence, this is the correct answer.

Option C: The passage mentions that "Knowing what it is like to be someone else is an essential part not just of cultural creation but of empathy itself". Generating empathy is also a feature of pretension mentioned in the passage. Hence, this is not the correct answer.

Option D: The passage mentions that calling someone pretentious reveals, "our society's "insecurities, prejudices and unquestioned assumptions"". Hence, this is also a feature of pretension mentioned in the passage.

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

22. According to Fox, pretension is a "primeval activity" and children always pretend when they play. However, after they pass a certain age, such activities are not considered playful anymore.

Option A: This is not the context in which Fox makes the statement that "play curdles into pretension". While he mentions that pretension is primeval, he does not specifically talk about pretension in ancient Greek civilization. Hence, this is not the correct answer.

Option B: It can be inferred from the passage that when one is a child, pretension is considered essential and endearing but when as an adult, it is considered "abhorrent". When the author says that "play curdles into pretension", he is emphasizing that what is considered endearing for a child is not so for an adult. Hence, this is the correct answer.

Option C: The passage does not mention that sometimes children pretending are considered adorable and at other times they are considered abhorrent. Hence, this is not the right answer.

Option D: The passage mentions that "dressing up in costume and reciting odes to one's teddy bear while shaking a tambourine" is considered adorable in children. hence, this is not the correct answer.

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

23. The passage states that "pretentiousness has become a go-to bogeyman and a peculiarly virulent put-down". While virulent can take the meaning of "contagious", in the

passage, it is used to mean "malicious" or "vitriolic" as it is used to define a put-down (i.e., criticism or insult). Vehement is merely being "passionate" or "fervent" and has no negative connotation whatsoever. Hence, the answer is "vitriolic".

Choice (D)

24. According to the passage, French revolution overthrew "carefully constructed social roles". Because of French Revolution, there was a loss in the "pleasing illusions which made power gentle and obedience liberal".

Option A: Because of French revolution, there was a loss in power being gentle and obedience liberal. It did not make powerful people gentle and obedient people liberal. Hence, this is not the correct answer.

Option B: Edward Burke laments that there was a loss in the "pleasing illusions which made power gentle and obedience liberal". Hence, we can say that French Revolution destroyed the pretension of people – the pretensions through which they considered power gentle (i.e., kind) and obedience liberal (i.e., by choice). Hence, this is the correct answer.

Option C: While it may be true that French Revolution led to the increase in the popularity of authenticity, this is not related to the lament of Edward Burke. Also, without pretensions, power was not perceived as gentle and obedience, not considered liberal. However, the option states the opposite. Hence, this is not the correct answer.

Option D: We cannot infer from the passage that French revolution diminished the need for power and obedience, as such. Hence, this is not the correct answer.

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

Solutions for questions 25 to 28:

25. 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 context or background: distraction – the key to wasting time. Sentence 3 follows as sentence 3 provides a reason for the point mentioned in sentence 5. Sentence 3 tells us why distractions are important. It can be inferred on a closer reading of the sentences that sentences 1, 2 and 4 are logically connected and are related to an experiment. Sentence 1 follows sentence 3. "how dependent you've become on distractions" in sentence 1 is linked with "without distractions it's obvious" in sentence 3. Sentence 1 reiterates the point about distraction being the important key to wasting time. So 531. Sentences 1 and 4 form a mandatory pair. "set aside a chunk of time on a weekend and sit alone and think" in sentence 1 is linked with "you can have a notebook to write your thoughts down in, but nothing else" in sentence 4. Sentence 2 concludes the paragraph by mentioning the result of the experiment. Hence 53142.

Ans: (53142)

26. 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 concept of "gravitational waves". Sentence 3 follows with background information about when gravitational waves were predicted. Sentences 3 and 1 form a mandatory pair since "His mathematics" in sentence 1 refers to "Albert Einstein" in sentence 3. So, 431. Sentence 5 further explains the process discussed in sentence 1. "This would be done..." in sentence 5 refers to the "disrupting of space-time" by "massive accelerating objects" mentioned in sentence 1. Also, "ripples would travel" in sentence 2 will follow "waves...would radiate from the source" (i.e., emanation would precede transmission). Therefore, sentence 2 concludes the paragraph with "Furthermore". Hence 43152.

Ans: (43152)

27. On a careful reading of the sentences, it can be observed that sentence 3 is a general sentence that begins the paragraph. It is a standalone sentence with a quip or quotation of Ogden Nash and is introductory in nature. Sentences 3 and 1 form a mandatory pair. "this is becoming the ruling principle of modern society" in sentence 1 refers

to the quip of Ogden Nash mentioned in sentence 3. Sentence 4 follows. "we continue to wear rumpus-room clothing, watch cartoons and play video games" in sentence 4 refers to "you can stay immature indefinitely" mentioned earlier in sentence 3. So 314. Sentence 5 provides another opinion on *Juvenescence*, so sentence 5 follows sentence 4. "continue to wear rumpus-room clothing, watch cartoons and play video games" in sentence 4 links with "everything young and fresh is idolised" in sentence 5. Sentence 2 concludes the paragraph. "Yet this youthful or juvenescent culture is not actually doing worried young people any favours" in sentence 2 contrasts "everything young and fresh is idolised" in sentence 5. "being cut off from the past" in sentence 2 links with "we have lost our historical grounding: everything that speaks of time and tradition has become detached from its context" in sentence 5. Hence 31452.

Ans: (31452)

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 Phaistos disk, mentions the Greek island of Crete and says that it has been deciphered by an archaeologist. Sentence 1 follows sentence 4 as it provides the original view and the current belief of the archaeologist with reference to the individual that the Phaistos disk referred to. Sentences 1 and 3 form a mandatory pair. "he now believes that the individual is a pregnant goddess" in sentence 1 links with "additionally, it's not just any goddess but Astarte" in sentence 3. Sentence 3 introduces Astarte. So 413. It can also be seen that sentence 5 has to precede sentence 2. "The two sides of the disk" in sentence 5 has to precede "(one aspect) – pregnant goddess" and "while the reverse is dedicated to the Minoan version of Astarte....." in sentence 2. Sentence 2 concludes the paragraph. "incarnation that would be known as Venus" in sentence 2 echoes with "associated with the planet Venus" mentioned earlier in sentence 3. Hence 41352.

Ans: (41352)

Solutions for questions 29 to 31:

29. On a careful reading of the sentences, it can be observed that sentence 2 is the general sentence which begins the paragraph. It provides the theme: use of poisons and the time (period) reference: dawn of civilization. Sentence 5 follows sentence 2 with the conjunctive adverb 'however'. "offered new prospects for those interested in biological weapons" in sentence 5 contrasts "ever since the dawn of civilization" in sentence 2. Sentences 5 and 1 form a mandatory pair. "These dangers" in sentence 1 refers to "it (microbiology) allowed agents to be chosen and designed on a rational basis" in sentence 5. So 251. Sentences 1 and 4 form another mandatory pair. "two international declarations" in sentence 1 is linked to "these treaties" in sentence 4. Also "prohibited the use of poisoned weapons" in sentence 1 contrasts with "however, they contained no means of control, and so failed to prevent interested parties from developing biological weapons" in sentence 4. Hence 2514. Sentence 3 ("...the US...was also pressed... such research") needs a precedent and can be a part of another paragraph.

Ans: (3)

30. On a careful reading of the sentences, it can be observed that sentence 3 is a topic sentence or opening sentence of the paragraph. It explains the primary meaning of "landed gentry". Sentence 2 follows: It was an informal designation refers to the definition of "landed gentry" given in sentence 3. Sentence 5 continues as it expands on another qualification required to belong to the 'gentry'. Sentence 1 contrasts the point made in sentence 5 by using 'however'. "This expectation" in sentence 1 refers to "was expected to sever financial ties cleanse his family of the taint of trade" in sentence 5. Hence 3251. Sentence 4 is the odd man out as it needs both a precedent and more substantiation. It talks about examples of people who

belonged to the 'upper class' while the remaining sentences refer to the 'gentry'.
Ans: (4)

31. On a careful reading of the sentences, it can be observed that sentence 5 is a topic sentence or opening sentence of the paragraph. It explains what the Fregoli delusion is. Sentence 4 adds further details about the disorder and hence follows sentence 5. Sentences 4 and 3 form a mandatory pair. "this can be explained by associative nodes" in sentence 4 links with "The associative nodes serve as a biological link of information" in sentence 3. Sentence 1 takes the thought-flow forward and concludes the paragraph. Hence 5431. Sentence 2 talks about Levodopa treatment and experimental studies on the drug and can be a part of a subsequent paragraph. Sentence is the odd sentence out and is the answer.

Ans: (2)

Solutions for questions 32 to 34:

32. The paragraph appreciates Bjork's singing. Thus the ending part of the paragraph needs to be in the same appreciative tone.

Choice A is not specific to Bjork's voice or singing and does not connect with the penultimate sentence.

Choice B is not laudatory but finds holes or gaps or faults in the music.

Between C and D, choice C is better as the first part of the sentence talked about polarities. The penultimate sentence uses "her voice is deployed". Also an example of 'polarities' has been provided in the paragraph towards the end: breathy and girlish, clear and sultry in the beginning then almost shattering. Choice C also mirrors the first few introductory lines of the paragraph: contrasts or dualities child and woman, naïf and sophisticate, lone individual and elemental force.

In choice D, "does not find any contrasts" runs tangent to the para which highlights contrasts and "spectra of vocal sounds like percussive, crystalline pure etc." would need further elaboration.

Choice (C)

33. The paragraph exemplifies on the fact that time is money, that it is a valuable commodity and a limited resource. The exemplifying practices mentioned in the paragraph have arisen in modern times and affect our day to day activities. We act bearing in mind the given concepts of time discussed in the paragraph. "We act we conceive of time" links with "we understand and experience time...." given in choice B. Choice B best concludes the paragraph with 'thus' and completes the thought-flow (concept of time related to our daily actions).

Choice A does not complete the thought-flow and it runs tangent to the topic. It does not connect with the penultimate sentence. The paragraph explains about time and how we act in the given time. Appreciation of time can be a part of a separate paragraph.

Choice C suddenly changes the pronoun reference from 'we' to 'you' and does not fit in with 'we act as if' and 'we conceive of time' given in the penultimate sentence.

The penultimate sentence of the paragraph and choice D concentrate only on "time is a valuable commodity limited resource valuable commodity". But "Time is metaphorical concepts" is a new perspective and needs more substantiation. Choice D cannot complete the paragraph. It does not quite expand on 'we act as if' given in the penultimate sentence.

Choice (B)

34. The paragraph states that humans are not separate from nature. Humans are capable of changing the environment. Change is natural and so is fighting against change. Conservation and stability are also required.

Choice A shifts focus abruptly from the broad and open ended "...wanting to manipulate, preserve, or destroy parts" to a very specific "...avoid 'large-scale' changes for very long stretches of time". So choice A cannot appropriately complete the paragraph.

Choice B (..... a natural desire to **preserve** biodiversity and ecosystems) with the contrast conjunction 'but' does not gel well with the penultimate sentence of the paragraph which also talks about 'preserving' the natural world. This sentence can come in a paragraph preceding the given paragraph.

Choice C runs tangent to the topic as it does not discuss about humans changing nature. "bombastic collisions, dynamic transitions and atonal weirdness" may seem to emphasize "destroy parts of the natural world" given in the last but one sentence but the rest of the choice does not carry the thought-flow forward. So choice C cannot complete the paragraph.

Choice D best completes the paragraph. "also natural" in choice D reiterates "perfectly 'natural'" given in the penultimate sentence. It emphasizes the point 'Fighting against change is also in the nature of things' mentioned in the middle of the paragraph.

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

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

SECTION – II

Solutions for questions 35 to 38:

35. The maximum number of courses that Tarun can select is 8 – Marketing, Consumer Behaviour, Information Technology, Strategic Management, Business Law, Operations and two among Finance, Business French, Macroeconomics, and Individual Dynamics. Choice (B)

36. From the previous question, if he wants to attend the maximum number of classes, he must select Finance (since it has three classes in a week). Hence, he cannot select Individual Dynamics. He has to select one course among Macroeconomics and Business French. In either of the cases, he will have classes on Saturday 9:00 AM, Friday 10:30 AM and Wednesday 9:00 AM. Hence, he need not have any class on Thursday 9:00 AM.

Choice (A)

37. Tarun can attend twelve classes in a week (Marketing, Consumer Behaviour, Information Technology, Strategic Management, Business Law, Operations). Choice (A)

38. If Tarun wants to attend the maximum number of classes, he must select Marketing, Consumer Behaviour and Information Technology. If he selects Organization Dynamics or Microeconomics, he will have a lower number of classes at 10:30. From the options, the answer is Microeconomics.

Choice (C)

Solutions for questions 39 to 42:

39. For any food to meet any component of the daily requirement (DNR), we need to find the ratio of the value of that component in daily requirement to that in the food.

For example, for chocolate to meet the daily requirement of calories, Ratan has to consume $2080/240 * 100$ gm of chocolate. We need to estimate these ratios for each of the five components (for each type of food given in the choices) and for each type of food, Ratan has to consume a quantity of $(100\text{gm}) \times (\text{the maximum of these ratios})$ of that type of food.

For chocolate, maximum ratio is for Fibre = $30/0.7 = 42.86$

For Samosa the maximum ratio is for Carbohydrates

$$= 310/25.2 \cong 12$$

For Cashew Nuts, the maximum ratio is for Carbohydrates
= 310/18.8 $\cong 16.5$ (all other values are greater than 10% of DNR)

For White Bread, the maximum ratio is for Fat = 70/1.2
= 58.335 (all other values are greater than 10% of DNR)
If Ratan is to consume the minimum quantity of food, he has to consume approximately $12*100$ gm i.e., 1.2 kg of Samosa.
Choice (B)

40. If he consumes 1000 gm of Whole Milk, he will meet the daily requirement for only Protein and Fat.

If he consumes 1000 gm of Banana, he will meet the daily requirement for none of the components.

If he consumes 1000 gm of Chocolate, he will meet the daily requirement for Calories, Carbohydrates, Proteins and Fats.

If he consumes 1000 gm of Samosa, he will meet the daily requirement for Calories, Fat and Fibre.

Hence, the answer is Chocolate. Choice (C)

41. Adding all the components across the foods, we get that for 1000 gm Ratan will consume 2058.5 kCal, 203.9 gm of Carbohydrates, 62.4 gm of Protein, 109.3 gm of Fat and 16.7 gm of Fibre.

Since the proportion (as a percentage of requirement) of Fibre consumed is the least, he must consume $30/16.7$ times the food.

Hence, the total fat consumed by him will be

$$\frac{30}{16.7} \times 109.3 \text{ gm} \cong 200 \text{ gm}$$

From the options, the answer is 196.3 gm. Choice (A)

42. If Ratan is to consume only Bananas, he will have to consume $70/0.2*100$ gm i.e., $350*100$ gm of bananas (to meet the requirement of Fat – this is the highest ratio among all components for bananas).

Now, the quantity of food that he needs to consume will be the maximum if he selects a food which has low quantity of Fat. From the options, Vegetable Salad has the lowest among all the options. Hence, the answer is Vegetable Salad.

Choice (D)

Solutions for questions 43 to 46:

We need to calculate the printing cost per copy for each book presented in the table above.

Book Title	Days Left	Printing Cost Per Page	Printing Cost Per Copy
Vanished with the Zephyr	13	0.42	525.00
Epic of the Dyadic Boroughs	17	0.34	357.00
Slavery of Homosapiens	14	0.41	348.50
Voyage to the Center of Sublunary World	9	0.5	550.00
A Female in a Prestidigitative Terrain	8	0.51	484.50
The Fortune Cay	18*	0.33	346.50

*(February in 2008 has 29 days)

43. The lowest printing cost per copy is for 'The Fortune Cay' - (₹346.50). Choice (B)

44. Let the Royalty (R) as a percentage of Selling Price be x%
Let the Printing Cost (PC) of the book a percentage of Selling Price be p%

We know that $x + p = 50$, i.e., $p = 50 - x$

Hence, the royalty earned by an author per copy of his

$$\text{book sold is Royalty} = \frac{x}{50-x} \times \text{PC}$$

The value of $\frac{x}{50-x}$ (= 9) is the highest for 'Slavery of Homosapiens'.

While the next highest value is 4, the difference in PC is not that high. Hence, the royalty will be the highest for 'Slavery of Homosapiens'.

$$\text{Royalty} = \frac{40}{50-45} \times 348.5 = 3136.5 \quad \text{Choice (A)}$$

45. PC will be not less than the royalty paid if $x \leq 25\%$. Only two books satisfy this condition. Choice (C)

46. Printing Cost as a percentage of Selling Price = $50-x$
This value is the highest for A Female in Prestidigitative Terrain. Choice (D)

Solutions for questions 47 to 50:

Given that the PIN number of B has less than 3 distinct digits. It cannot have only one distinct digit (since no digit occurs 4 times). Hence, the PIN of B must be a multiple of 5 (i.e., end in a 0 or a 5) and have 2 distinct digits, i.e., be of the form

(aaab/abbb) OR (aabb). Hence, $3a + b = 8$ (for which the only possibility is $a = 1$ and $b = 5$, since 0 appears only twice) OR $2a + 2b = 8$ (for which there is no possibility, since 4 does not appear even once and at least one of a, b must be 0 or 5). Hence, only 1115 is possible.

The PIN of C is a multiple of PIN of B. Multiples of 1115 with four digits are 2230, 3345, 4460, 5575, 6690, 7805 and 8920. Of these only 6690 is possible (8920 and 7805 are not possible because the PIN of A should have three digits which are not in anyone else's PIN i.e., the PIN of A should have three digits from 2, 7, 8 and 9).

Since 9 is present in PIN of C, A should have 2, 7, 8 and 5/0. The PIN of D will have the digits 3, 3, 5 and 5/0. But if there are two 5's in PIN of D, it will not have at least three distinct digits. Hence, the PIN of D will have the digits 3, 3, 5 and 0 and the PIN of A will be either 2785 or 2875.

From (v), $2785 + 500 = 3285$ and $2875 + 500 = 3375$. The PIN of D should lie between 3285 and 3475. The only possible values for PIN of D are 3350 and 3305. Since both these values are less than 3375, the PIN of A cannot be 2875. Therefore, the PIN of A must be 2785 and the PIN of D can be 3350 or 3305.

47. The PIN number of B is 1115. Ans: (1115)

48. Only PIN of C is a multiple of 3. Ans: (1)

49. The sum of the PIN numbers of A and C is 9475. Ans: (9475)

50. The PIN number of D must be 3350. Ans: (3350)

Solutions for questions 51 to 54:

Given that Raju wore the same shirt on all Mondays, the same shirt on all Tuesdays etc. Hence, we need to determine the shirts that Raju wore on the first week i.e., from 1st March to 7th March and we will know the shirt that he wore on each day during the month.

From (i), since Raju wore a Green shirt on 23rd March, he must have worn a Green shirt on 2nd March.

Similarly, from (ii), he must have worn a Black shirt on 3rd March. From (iv), Sunday could only be on 2nd March or 3rd March (since there must be 5 Saturdays and 5 Sundays). If Sunday is on 2nd March, Monday will be on 3rd March. Since he wore a black shirt on 3rd March, this violates condition (ii).

Hence, Sunday must be on 3rd March. The remaining days will be 4 – Monday, 5 – Tuesday, 6 – Wednesday, 7 – Thursday, 1 – Friday, 2 – Saturday.

From (iii), he could have worn a Blue shirt and a White shirt on 4th and 7th or 1st and 4th or 1st and 5th.

From (v), he must have worn Grey and Yellow shirts on 4th and 5th or 5th and 6th or 6th and 7th or 7th and 1st. He could not have worn these shirts on 4th and 5th as it will not leave any possible case for wearing Blue shirt and White shirt (from (iii)). He could not have worn Grey and Yellow on 1st and 7th for the same reason. He could not have worn Grey and Yellow on 6th and 7th because 7th is a Thursday. Hence, he could have worn Grey and Yellow only on 5th and 6th.

He could have worn Blue and White only 4th and 7th. He could not have worn Blue and White on 1st and 4th because from (i), he did not wear Blue on 1st and he did not wear Blue on 4th, which is a Monday. Hence, on 4th he must have worn White and on 7th he must have worn Blue. On 1st he must have worn Red.

The following table provides this information:

Date	Day	Colour
1,8,15,22,29	Friday	Red
2,9,16,23,30	Saturday	Green
3,10,17,24,31	Sunday	Black
4,11,18,25	Monday	White
5,12,19,26	Tuesday	Grey/Yellow
6,13,20,27	Wednesday	Yellow/Grey
7,14,21,28	Thursday	Blue

51. Raju wore a Black shirt on Sundays. Choice (A)
52. Raju wore a White shirt on 11th March. Choice (B)
53. Raju wore a Red shirt for 5 days. Choice (A)
54. Only the statement in Option C is definitely true. Choice (C)

Solutions for questions 55 to 58:

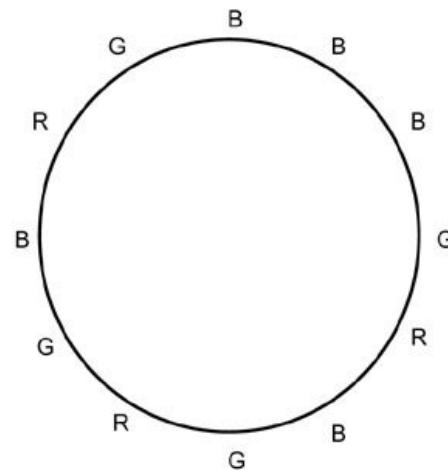
Let the beads be present around a circle and their positions be denoted by the position of numbers on a clock face (from 12 to 11). Let three blue beads be at 12, 1 and 2. From (v), between two blue beads, there must be three beads each of a different colour. If the two blue beads are not from the three blue beads at 12, 1 and 2, there cannot be another blue bead between them (since there are only five blue beads). Therefore, there must be three beads of different colours between the blue bead at 1 and another blue bead which can be either at 9 or at 5.

If the blue bead is at 9:

The red beads which are opposite each other can be only at 10 and 4 or 11 and 5. If the red beads are at 11 and 5, at 10 there must be a green bead. The Green-Red-Green arrangement mentioned in (iii) can only be at 6, 7 and 8. In this case, the blue bead at 9 will have green beads on either side (at 8 and at 10). Hence, this is not possible.

If the red beads are at 10 and 4, there cannot be a red bead at 3 (since Green-Red-Green will not be possible). From (ii), there cannot be a Blue bead at 3. Hence, there must be a green bead at 3. Another blue bead cannot be at 6, 7 or 8 (as it will be opposite blue beads at 12, 1 or 2). Therefore, a blue bead must be at 5. The Green-Red-Green arrangement must be at 6, 7 and 8. Another green bead must be at 11.

The other case in which the blue bead is at 5 is also covered in this case as the blue beads are at 9 and 5. (This can also be cross verified by starting with blue bead at 5). Hence, only one arrangement is possible as shown below:



55. The blue beads at 12, 2, 5 and 9 are all opposite green beads.
Ans: (4)
56. Three beads of different colours are next to each other at $i = 2, 3, 4, 5, 7, 8, 9$ and 10.
Ans: (8)
57. Even if the green beads are replaced with red beads, there will only be one pair of red beads opposite each other.
Choice (B)
58. No red bead is opposite a green bead. Only statement C is true.
Choice (C)

Solutions for questions 59 to 62:

Tabulating the information in the conditions,

Item	Person	Order of Shipping	Order of Arrival
Watch	Dharma		
Shoe		1	
Laptop			1
Shirt	Bhim		
Book			

The shirt arrived before the watch and the watch was not the last to arrive. Therefore, the watch could have arrived 3rd or 4th and the shirt could have arrived 2nd or 3rd. The shoe was also not the last item to arrive. This means that the book has to be the last item to arrive.

Exactly 2 items arrived before Arjun's item. This means that Arjun's item cannot be the laptop and it also cannot be the book. Hence, Arjun's item has to be the shoe and the shoe must be the 3rd to arrive. If the shoe is the 3rd to arrive, the watch must be the 4th and the shirt must be the 2nd to arrive.

The shirt was shipped after the watch and was not the last to be shipped. Therefore, the shirt could have been shipped either 3rd or 4th and the watch would have been shipped either 2nd or 3rd. Since the book was not the last item to be shipped, the last item to be shipped must be laptop. Repopulating the above table,

Item	Person	Order of Shipping	Order of Arrival
Watch	Dharma	2/3	4
Shoe	Arjun	1	3
Laptop	Nakul/Sahadev	5	1
Shirt	Bhim	3/4	2
Book	Sahadev/Nakul	2/3/4	5

59. The laptop would have arrived quickest because it was shipped last and arrived first. Choice (A)

Solutions for questions 63 to 66:

The following table provides the information given in the question.

Order of reaching Bangalore	1	2	3	4	5
Transport	Plane		Bus		Bike
Food		Peanuts			Sandwich
Person			Tarun		

Qureshi could only have 4th from the above table.

Pavan would have reached Bangalore 5th or 2nd since he arrived after Rohit. Rohit would have reached Bangalore 1st or 2nd.

Suman also could not have been the 5th to reach Bangalore because he was not travelling by bike. Therefore, Pavan has to be the last to reach Bangalore and would have travelled by bike. From condition(v), Pavan had Sandwich to eat on the way. The following table includes this information.

Order of reaching Bangalore	1	2	3	4	5
Transport	Plane	Car	Bus	Train	Bike
Food	Nothing	Peanuts	Samosa	Fried Rice	Sandwich
Person	Suman/Rohit	Rohit/Suman	Tarun	Qureshi	Pavan

63. The second person to reach Bangalore would have travelled by Car. Choice (C)
 64. The last to reach Bangalore was Pavan. Choice (B)
 65. Tarun had Samosas during the journey. Choice (A)
 66. If Suman had Peanuts, he would have travelled by Car. So, Rohit would have travelled by Plane and would have had nothing. Choice (B)

Hence, the range of k is $\left(-\frac{4}{9}, \infty\right)$.

Alternative Solution:

This question can also be solved by graphically visualising the two equations as two straight lines in the co-ordinate plane. The first line has a slope of $\frac{2}{9}$ and a y-intercept of

$-\frac{10}{9}$. The slope of the second line is $-\frac{k}{2}$ and its y-intercept is $\frac{15}{2}$.

For the x-coordinate of the intersection to be positive the slope of the second line can be at most (i.e., less than) $\frac{2}{9}$,

i.e., parallel to the first line, and a minimum of $-\infty$, i.e., almost vertical (but negative slope).

Hence, $-\infty < -\frac{k}{2} < \frac{2}{9} \Rightarrow k \in \left(-\frac{4}{9}, \infty\right)$. Choice (A)

$$68. \log_a \left(\frac{\sqrt[4]{a^3 b^2}}{\sqrt[3]{a^2 b^2}} \right) = \log_a \left(a^{12} b^{-\frac{1}{6}} \right) = \frac{1}{12} - \frac{1}{6} \log_a b$$

Similarly,

SECTION – III

Solutions for questions 67 to 70:

$$67. \text{ Given that } 2x - 9y = 10 \Rightarrow \frac{4}{9}x - 2y = \frac{20}{9}$$

Also, $kx + 2y = 15$

Adding the two equations, we get

$$\frac{4+9k}{9}x = \frac{155}{9} \Rightarrow x = \frac{155}{4+9k}$$

Since x is positive, $4 + 9k > 0 \Rightarrow k > -\frac{4}{9}$

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

Sum of the two terms

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

Let $\log_b(a)$ be x .

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

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

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

Choice (C)

69. The number can be represented as

$$7a + 6 = 8b + 7 = 9c + 1$$

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

Now, clearly 55 also happens to be of the form $9c + 1$.

Hence, the required answer = $5 + 5 = 10$.

Alternative Solution:

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

Choice (C)

70. Let the price of an eraser be e and the price of a pencil be p .

Given that $p = e + 3$

$2e + 6p$ can be either 30 or 15. However, it cannot be 15 because the price of the eraser will become negative in this case.

Hence, $2e + 6p = 30$

$e = 1.5$ and $p = 4.5$

The price of 2 erasers and 9 pencils = ₹43.50

Choice (B)

Solutions for question 71:

71. Then number of questions on English, Mathematics and Reasoning can be represented as $2e$, $6e$ and $21e$ respectively. Now, Roopa would have attempted $2e + 3e + 7e = 12e$ questions, which is given as equal to 36. If $12e = 36$, the total number of questions = $2e + 6e + 21e = 29e$ will be $29 \times 36/12 = 87$.

Ans: (87)

Solutions for questions 72 and 73:

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

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

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

Hence, the profit percentage that he makes

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

Choice (C)

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

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

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

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

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

Choice (B)

Solutions for questions 74 and 75:

74. Since $f(x) = g(x)$

$$-2x^2 - 2|x| = 3x^2 - 3|x|$$

$$\Rightarrow 5x^2 = |x|$$

∴ x can be 0 or 1/5 or -1/5.

Hence, x can assume three values, i.e., $f(x)$ and $g(x)$ will intersect at three points.

Ans: (3)

75. Given $\sqrt{28 + \sqrt{720}} = \sqrt{a} + \sqrt{b}$

Squaring on both sides,

$$28 + \sqrt{720} = a + b + \sqrt{4ab}$$

$$a + b = 28 \text{ and } ab = 180$$

Solving for a and b , $a = 10$ and $b = 18$ (since $a < b$)

$$\therefore a^2 + 2b = 136.$$

Ans: (136)

Solutions for questions 76 to 78:

76. Given that the ratio is $2 : 5$ ($5 - 2 = 3$) and the difference between the roots is 12 (4×3).

Hence, the roots must be 2×4 and 5×4 i.e., 8 and 20 or -20 and -8.

$$\text{Sum of the roots} = -\frac{a}{2} = 28 \text{ or } -28 \Rightarrow a = 56 \text{ or } -56$$

$$\text{Product of the roots} = \frac{b}{2} = 160 \Rightarrow b = 320$$

Hence, $a + b = -56 + 320$ OR $56 + 320$, i.e., 264 OR 376.

∴ The value of $a + b$ cannot be uniquely determined.

Choice (D)

77. From Wilson's theorem, $(29 - 1)! + 1$ is divisible by 29. From Fermat's little theorem, $(27^{(29-1)} - 1)$ is divisible by 29. Hence, $(29-1)! + 27^{28}$ is divisible by 29. Therefore, the required remainder will be 0.

Choice (A)

78. $(6 \Psi 13) = 78 - 19 + 1 = 60$

$$(12 \Lambda 3) = \frac{36}{15} = \frac{12}{5}$$

$$60 \pi \frac{12}{5} = \frac{\left[\frac{\text{LCM}(60, 12)}{\text{HCF}(1, 5)}\right]}{60} = 1$$

Choice (A)

Solutions for question 79:

79. $(40)_8 = (32)_{10}$

$$\Rightarrow (x)_{10} = (320)_{10}$$

$$\Rightarrow (x)_6 = (1252)_6$$

Ans: (1252)

Solutions for question 80:

80. Principal after five years

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

Choice (B)

Solutions for question 81:

81. Let the marks of the students in decreasing order be a, b, c, d and e .

$$a + b + c + d + e = 134 \times 5 = 670$$

$$a + b + c = (134 + 23) \times 3 = 471$$

$$c + d + e = (134 - 16) \times 3 = 354$$

$$c = 471 + 354 - 670 = 155.$$

Ans: (155)

Solutions for questions 82 and 83:

82. The maximum value of the expression $ax^2 + bx + c$ is

$$\frac{4ac - b^2}{4a}$$
 and it occurs at $-\frac{b}{2a}$ if $a < 0$.

$$\text{Given } \frac{b}{10} = -4 \Rightarrow b = -40.$$

$$\text{Also, } \frac{-20c - 1600}{-20} = 15 \Rightarrow c = -65.$$

$$\therefore b + c = -105.$$

Alternative Solution:

We can recast the given expression as $-5(x - k)^2 + \ell$, which will have a maximum value of ℓ at $x = k$.

Given $k = -4$ and $\ell = 15$, we get $-5(x + 4)^2 + 15$, i.e., the given expression is $-5x^2 - 40x - 65$.

Comparing co-efficients $b = -40$ and $c = -65$.

Hence, $b + c = -105$. Choice (B)

83. The last term of the progression = $584 - 525 = 59$

First term of the progression = $584 - 570 = 14$

Sum of the progression =

$$\frac{n}{2}(a + 1) = \frac{n}{2}(59 + 14) = 584 \Rightarrow n = 16$$

$$\text{Last term} = 14 + 15d = 59 \Rightarrow d = 3.$$

$$\therefore \text{Fifth term} = 14 + 4 \times 3 = 26 \quad \text{Choice (C)}$$

Solutions for question 84:

84. The number 256 can be written as

$$256^1 \text{ or } 16^2 \text{ or } 4^4 \text{ or } 4^2 \text{ or } 2^8 \text{ or } 2^2^3$$

The sum $a + b + c$ is minimum for 2^2^3 , i.e., $2 + 2 + 3 = 7$.

Ans: (7)

Solutions for question 85:

85. Let his initial speed be a m/s.

His speed for every subsequent 100 m will be $1.1a$, $(1.1)^2a$, $(1.1)^3a$ and $(1.1)^4a$.

Time taken to finish the race

$$= \frac{100}{a} + \frac{100}{1.1a} + \frac{100}{(1.1^2)a} + \dots + \frac{100}{(1.1^4)a}$$

$$= \frac{100}{a} \left(1 + \frac{1}{1.1} + \frac{1}{1.1^2} + \frac{1}{1.1^3} + \frac{1}{1.1^4} \right)$$

$$= \frac{100}{a} \times \left[1 \left(1 - \left(\frac{1}{1.1} \right)^5 \right) \right] \left(\text{using sum to } n \text{ terms in GP} \right)$$

$$= \frac{100}{a} \times \left(\frac{0.379}{0.091} \right) = \frac{100}{a} (4.165)$$

Given, the time is 194 seconds.

$$\frac{100}{a} (4.165) = 194$$

$$\Rightarrow a = 2.147 \text{ m/s, i.e., } 2.147 \times \frac{18}{5} = 7.73 \text{ kmph.}$$

Choice (A)

Solutions for question 86:

86. Let the cost of a pen be p and the cost of a pencil be e .

$$2p + 4e = 56$$

$$p + 6e = 44$$

Solving the two equations, we get $e = 4$ and $p = 20$. Hence, the cost of 1 pen and 1 pencil is 24. Ans: (24)

Solutions for question 87:

87. Let the numbers in octal system be $8x + y$ and $8y + x$.

$$\text{Given that } \frac{8x + y}{8y + x} = \frac{4}{5}$$

$$\Rightarrow \frac{x}{y} = \frac{27}{36} = \frac{3}{4}.$$

Hence, x and y can only be 3 and 4, because for higher multiples of 4 the number cannot be in octal system.

\therefore The numbers are $(34)_8$ and $(43)_8$ and their sum = $(77)_8$

Sum of the two numbers in decimal system = $7 \times 8 + 7 = 63$

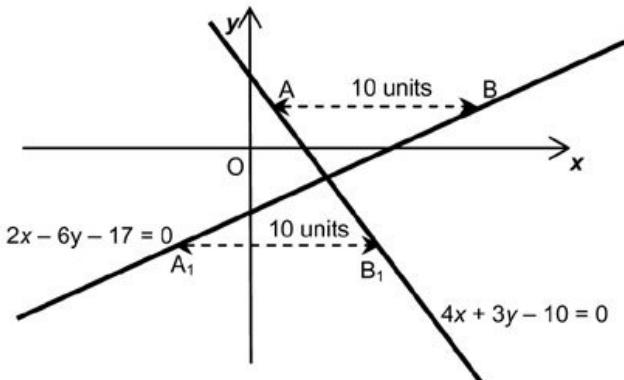
Choice (B)

Solutions for question 88:

88. The locus of points satisfying $(4x + 3y - 10)(2x - 6y - 17) = 0$ is nothing but the two straight lines represented by the individual factors of the product on the LHS of the equation above, i.e., $4x + 3y - 10 = 0$ and $2x - 6y - 17 = 0$.

We can see that neither of the two lines is parallel to the x -axis nor are the two lines parallel to each other. Since they intersect, it can be easily observed that there will be two pairs of points (in each pair, taking one point on each line, as shown in the figure below) which are exactly 10 units apart and when joined will form a line segment parallel to the x -axis.

In the below figure, A and B are one pair of points (above the point of intersection of the two lines) and A_1 and B_1 are another pair of points (below the point of intersection), such that both pairs are 10 units apart and form line segments that are parallel to the x -axis when joined together.



There will be no other pairs of points possible which will satisfy both the criteria (of length 10 cm and being parallel

to x -axis), since keeping \overline{AB} (or $\overline{A_1B_1}$) parallel to x -axis and moving it vertically upwards or downwards will automatically increase or decrease the length of the line segment.

Ans: (2)

Solutions for questions 89 and 90:

89. The planes land after 0, 35, 70, 105... ($35 \times n$) minutes from 8:00 AM.

The planes take off after 5, 25, 45, 65... ($20k + 5$) minutes from 8:00 AM.

The instances when a landing and a take off can occur at the same time will be first at 105 (35×3 , $20 \times 5 + 5$) and then, after every 140 minutes.

The number of minutes between 8:00 AM and 9:30PM = 810 minutes.

Hence, the planes will get delayed at 105 min, 245 min, 385 min, 525 min, 665 min and 805 min. Hence, a total of 6 planes will get delayed.

Choice (D)

90. Since Ram left the business after x months, the profits will

$$\text{be split in the ratio, } \frac{3 \times 12}{4x} = \frac{3}{2} \Rightarrow x = 6.$$

Choice (A)

Solutions for questions 91 and 92:

91. $8x^2 + 6x - 27 < 0$ can be written as $\left(x - \frac{3}{2}\right)\left(x + \frac{9}{4}\right) < 0$
 $\Rightarrow x < \frac{3}{2}$ and $x > -\frac{9}{4}$
 $-x^2 + 11x + 80 > 0$ can be written as $(16 - x)(x + 5) > 0$
 $\Rightarrow x < 16$ and $x > -5$
Hence, x can assume only four integral values:
-2, -1, 0 and 1. Ans: (4)

92. Let n be the number of boys at the camp.
For the number of girls to be the maximum, n must be minimum.
To minimize n , we need to ensure that the average weight of all the n boys equal exactly 22 kg, while meeting the given criteria. Hence, we can take 10 (i.e., the least possible number) boys to have a weight of almost (but slightly above) 26 kg and all the remaining boys to have a weight of at least 15 kg.
 $\therefore 26 \times 10 + (n - 10) \times 15 = 22n \Rightarrow n \geq 15.7$ (since each of the 10 boys weighs more than 26 kg)
Hence, there should be at least 16 boys at the camp and the maximum number of girls at the camp will be $50 - 16 = 34$. Ans: (34)

Solutions for questions 93 to 95:

93. Let the price of the stock be x .
Price of the stock at the end of February = $1.15 \times 1.22 \times x = 1.403x$
The value of the stock should become x at the end of March.

$$\text{Percentage decrease} = \frac{0.403}{1.403} = 28.72\% \quad \text{Choice (B)}$$

94. Percentage of Kerosene in vessel A = $\frac{4}{7} \times 100 = 57.14\%$

$$\text{Percentage of Kerosene in vessel B} = \frac{8}{19} \times 100 = 42.1\%$$

Any mixture formed from these mixtures will always have Kerosene in the range 42.1% to 57.14%.

Considering the choices given, the percentage of kerosene in

$$\text{Choice (A)} = \frac{13}{30} \times 100 \approx 43.3\%$$

$$\text{Choice (B)} = \frac{11}{20} \times 100 = 55\%$$

$$\text{Choice (C)} = \frac{10}{17} \times 100 \approx 58.8\%$$

$$\text{Choice (D)} = \frac{7}{16} \times 100 = 43.75\%$$

The ratio given in Choice(C) is not possible.

Choice (C)

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

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

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

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

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

$\therefore x$ must be less than 20.

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

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

From the options, x can only be 4.

Choice (A)

Solutions for question 96:

96. Since the width of the paper is the same, to make equal pieces, John has to cut along the length of the paper (we might safely ignore the width of the paper for further calculations). If the number of cuts made is to be the minimum, he has to maximize the length of each piece. The maximum length of each piece will be the HCF of the lengths of the two sheets.

$$\text{HCF}(1254, 3705) = 57.$$

$1254/57 = 22$ and $3705/57 = 65$, i.e., there will be a total of $65 + 22 = 87$ pieces. However, the number of cuts required for making 22 pieces = $22 - 1 = 21$, and similarly, we need 64 cuts for making 65 pieces.

Hence, total number cuts required = $21 + 64 = 85$.

Ans: (85)

Solutions for questions 97 to 99:

97. $6^{40} = 6 \times 216^{13}$

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

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

98. If the Cost price for the manufacturer is CP, the Purchase Price for the customer = $1.23 \times 1.35 \times 1.21 \times CP = 95$

$$\Rightarrow CP = \frac{95}{1.23 \times 1.35 \times 1.21} \approx 47.28. \quad \text{Choice (B)}$$

99. If ab is to be maximum, a and b should be the maximum possible. Working backwards, starting from 99 (the largest two-digit no.), we find that the maximum possible values can be 99 and 96. Hence, the answer is $99 \times 96 = 9504$. The next highest combination is 98 and 96, the product of which will definitely be lower than 9504.

Alternative Solution:

Starting from the maximum number given among the options, i.e., 9900, we can see that it cannot be the product of two two-digit number. The next highest among the options is 9702, which is not divisible by 12. The next highest number is 9696, which is divisible by 12 but cannot be equal the product of two two-digit numbers, (since clearly $9696 = (96)(101)$). Hence by elimination, 9504 must be the answer, ($9504 = 96 \times 99$, and is divisible by 12).

Choice (A)

Solutions for question 100:

100. The last two digits of powers of 49 will be 49, 01, 49, 01...
Hence, the last two digits of 849^{23} will be 49.

The last two digits of powers of 21 will be 21, 41, 61, 81, 01, 21...

Hence, the last two digits of 521^{63} will be 61.

The last two digits of the sum will be $49 + 61 = 110 \equiv 10$

Ans: (10)

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