

(Key and Solutions for AIMCAT1811)

Key**SECTION – I**

1. C	8. C	15. 1	22. 3	29. C
2. B	9. B	16. C	23. 2	30. 5
3. A	10. 256	17. B	24. C	31. 4
4. 42531	11. D	18. C	25. B	32. B
5. 254163	12. B	19. A	26. D	33. C
6. 53142	13. A	20. D	27. B	34. 24
7. 625431	14. 25	21. D	28. D	

SECTION – II

1. 5	8. C	15. C	22. B	29. A
2. 6	9. C	16. B	23. C	30. A
3. 6	10. B	17. B	24. 4	31. C
4. A	11. C	18. C	25. 45	32. D
5. A	12. A	19. B	26. 26	
6. D	13. D	20. C	27. 42	
7. B	14. B	21. D	28. 26	

SECTION – III

1. 25	8. D	15. B	22. D	29. 19
2. A	9. C	16. 18	23. 45	30. A
3. A	10. 110	17. C	24. C	31. 32
4. C	11. B	18. 696	25. 3033	32. C
5. D	12. 308	19. 2	26. D	33. D
6. B	13. B	20. A	27. C	34. C
7. A	14. 0.25	21. B	28. B	

Solutions**SECTION – I****Solutions for questions 1 to 3:****Number of words and Explanatory notes for RC:**

Number of words: 351

1. Refer to para 2 where the words in quote occur. Two themes predominate: economic rationality and social injustice. Mr Sen approaches them alike. He can, when he wants, theorise without oxygen at any height. But he believes that theory, to be of use, must keep its feet on the ground.

Option A: "beyond limits" in choice A is out of scope.

Option B: "always" in choice B renders it extreme.

Option C: 'concoct' in choice C corresponds to the idiom 'out of thin air', which is a virtual translation of 'without oxygen at any height' mentioned in the passage. When the author mentions "Modern theorists in his view have drifted too far from the actual world", we can infer that Amartya Sen would want them to base their theories on reality. The penultimate sentence (keep its feet on the ground) in para 2 also suggests this. Hence the sentence given in quotes in the question (which is prior to the sentence having the contrast conjunction 'but') suggests that Amartya Sen can,

when he wants, concoct theories which are far-fetched. Choice C is the answer.

Option D: As explained in Choice C, we can say that Amartya Sen can theorize without basis in reality. But we cannot infer from para 2 that his theories have no basis in Economics or Philosophy as there is no reference to these specific areas in para 2. We can also infer from the author's intent that a person may formulate high-level theories in Philosophy or Economics and yet be divorced from reality. Choice D is not the answer.

Choice (C)

2. The Rawlsian project of trying to describe ideally just institutions is a distracting and fruitless way to think about social injustice, Mr Sen complains.

Option A: Rawls held that social justice depended on having just institutions, whereas Mr Sen thinks that good social outcomes are what matter. The practical brunt of Mr Sen's criticism, however, is that just institutions do not ensure social justice. While the first part of choice A is true, the second part cannot be deduced.

Option B: Rawlsianism, though laudable in spirit, is too theoretical, and has distracted political philosophers from corrigible ills in the actual world. Rawls held that social justice depended on having just institutions, whereas Mr Sen thinks that good social outcomes are what matter. Hence choice B is the correct answer.

Option C: While the first part of choice C is true, the second part (have made a crucial contribution to the political philosophy that will influence future generations ...) is far-fetched. Also Amartya Sen and John Rawls mainly differ over the concept of 'social justice'. Choice C cannot be inferred from the passage.

Option D: Choice D cannot be inferred from the passage. Choice D carries some pretty strong language. There is not enough in the passage to justify that strength.

Choice (B)

3. Option A: Choice A is negated by the second sentence of para 4: Well-being's diverse elements (freedom from hunger, disease, indignity and discrimination) are generally observable and, he believes, measurable. Choice A is the answer.

Option B: The Rawlsian project of trying to describe ideally just institutions is a distracting and fruitless way to think about social injustice, Mr Sen complains. The practical brunt of Mr Sen's criticism, however, is that just institutions do not ensure social justice. So choice B can be inferred and is not the answer.

Option C: Well-being, finally, has no single measure and is not inscrutable to others. Its elements are many and do not boil down to "utility" or some cash-value equivalent. So choice C is correct and is not the answer.

Option D: You can, in addition, recognize social injustices without knowing how a perfectly fair society would arrange or justify itself. Choice D is true and is not the answer.

Choice (A)

Solutions for question 4:

4. On a careful reading of the sentences, it can be observed that sentence 4 is a general sentence that begins the para. It introduces another problem at Yahoo: A second problem concerned dealmaking. Sentence 2 is the only positive sentence and it follows sentence 4. It tells us that some of Yahoo's purchases paid off. Sentences 2 and 5 form a mandatory pair. "Some of its purchases paid off" in sentence 2 links with "others flopped" in sentence 5. Also, "even though it was about to run out of money" in sentence 5 contrasts "was worth far more than its own internet properties" in sentence 2. So, 425. Sentences 2 and 5 give examples of the deals that Yahoo made. Sentence 3 follows sentence 5. Sentence 3 introduces another point of view: But success depends deals that Yahoo did not do. Sentence 3 is followed by sentence 1. "deals it did not do" in sentence 3 links with "transactions that should not have been passed up" in sentence 1. Sentence 1 concludes the para. Sentence 1 gives examples of the deals that Yahoo did not do. Hence, 42531.

Ans: (42531)

Solutions for question 5:

5. On a careful reading of the sentences, it can be observed that sentence 2 is a general sentence that begins the para. It tells us how Greeks described events in the "mythos" stage of development. Sentences 2 and 5 form a mandatory pair. "multitude of clashing personalities – the "gods"" in sentence 2 links with "gods for natural phenomena and human activities" in sentence 5. Sentence 5 follows sentence 2. Sentence 5 is followed by sentence 4. "these superhuman personalities" in sentence 4 links with "gods for natural phenomena and human activities" in sentence 5. Sentence 4 tells us about the primary mode of explanation of reality in the distant past. So, 254. "However, as time went on" in sentence 1 contrasts the situation given in the earlier sentences and so sentence 1 follows sentence 4. Sentences 1 and 6 form a mandatory pair. "alternative explanations of natural phenomena" in sentence 1 links with "natural phenomena were explained not by invisible superhuman persons, but by impersonal natural causes" in sentence 6. Sentence 3 serves as a contradiction to the discussion of the transition from mythos to logos. Sentence 3 ends the para. So, 254163.

Ans: (254163)

Solutions for question 6:

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6. On a careful reading of the sentences, it can be observed that sentence 5 is a general sentence that begins the para. It introduces the view that Japan is not a boastful country. 'bombast' in sentence 5 means "high-sounding language with little meaning, used to impress people." Sentences 5 and 3 form a mandatory pair. "its opportunities for bombast have shrunk" in sentence 5 links with "Japan's economic pride has suffered many years of deflation" in sentence 3. It can be inferred that sentences 2 and 4 have some reference to 'robots' in them. Sentence 3 is followed by sentence 1. The contrast conjunction 'however' in sentence 1 separates the negative sentence 3 ("its economic pride has suffered") from the positive sentences 2 and 4. So sentence 3 is followed by sentence 1. "Japan's economic pride has suffered" in sentence 3 links with "Japan still allows itself some swagger" in sentence 1. Sentence 4 follows sentence 1. "dream robot suit" made by Cyberdyne as a prime example of the country's technological advances" in sentence 4 links with "for example, happy to describe itself as a "robotics superpower"" in sentence 1. Sentence 2 expands on the point mentioned in sentence 4 and concludes the para. "robotic exoskeleton" in sentence 2 links with "dream robot suit" made by Cyberdyne" given in sentence 4. So, 53142.

Ans: (53142)

Solutions for question 7:

7. On a careful reading of the sentences, it can be observed that sentence 6 is a general sentence that begins the para. It introduces the view that "the man today is still recognizably a man." Sentence 6 is followed by sentence 2. "still recognizably a man" in sentence 6 links with "The inanimate part of his body is still relatively unimportant" as given in sentence 2. Sentence 5, which has the contrast conjunction 'but' contrasts sentence 2. "what happens to his awareness of self, his inner experience?" in sentence 5 contrasts "inanimate part of his body is still relatively unimportant for his consciousness" as given in sentence 2. Also "proportion of machine components rises" in sentence 5 links with the point "the man with a pacemaker or a plastic aorta" given earlier in sentence 6. Sentence 4 which states an assumption follows sentence 5 which raises a question. "brain is the seat of consciousness and intelligence, and that no other part of the body affects personality or self" in sentence 4 links with "body is still relatively unimportant in terms of his personality and consciousness" given earlier in sentence 2. Sentences 4 and 3 form a mandatory pair. "Then it is possible" in sentence 3 links with "let us assume" in sentence 4. "brain is the seat of consciousness and intelligence" in sentence 4 links with "conceive of a disembodied brain" in sentence 3. "affects personality or self very much" in sentence 4 links with "as a self, a personality, an embodiment of awareness" in sentence 3. Sentences 3 and 1 form another mandatory pair. "It may then become possible" in sentence 1 follows "Then it is possible to" in sentence 3. "disembodied brain – a brain without arms, legs, spinal cord or other equipment" in sentence 3 links with "combine the human brain with a whole set of artificial sensors, receptors and effectors" in sentence 1. So, 625431.

Ans: (625431)

Solutions for questions 8 to 13:

Number of words and Explanatory notes for RC:

Number of words: 671

8. The biologist Soojin Yi's team at Georgia Institute of Technology in Atlanta analysed the DNA to look at what evolutionary biologists call the molecular clock, the rate at which an animal's genetic code evolves. The rate of human and chimp molecular evolution was extremely similar, differing by only 3%, and much slower than gorillas and orangutan. So, molecular evolution refers to the changes that occur over time at the genetic level. Choice C is the answer.

Choice (C)

9. Scientists have proof that chimpanzees are more closely related to humans than other great apes.

Option A: Chimps (not gorillas) should be classified as members of the human family. Choice A is incorrect. {We used to think that apes shared one generation time, but that's not true. There's a lot more variation. In our study, we found that the chimpanzee's generation time is a lot closer to that of humans than it is to other apes."

Option B: The rate of human and chimp molecular evolution was extremely similar, differing by only 3%, and much slower than gorillas and orang-utans. The chimpanzee's generation time is a lot closer to that of humans than it is to other apes. The results also confirm that there is very little difference in the alignable regions of the human and chimp genomes. We not only share extremely similar genomes, we share similar generation time. scrap the long-used chimp genus "Pan" and reclassify the animals as members of the human family. The move would give chimps a new place in creation's pecking order alongside humans, the only survivor of the genus Homo. Hence choice B is the correct answer. "I think we can say that this study provides further support for the hypothesis that humans and chimpanzees should be in one genus, rather than two different genera because we not only share extremely similar genomes, we share similar generation time," said Yi.

Option C: The finding adds weight to a controversial proposal to scrap the long-used chimp genus "Pan" and reclassify the animals as members of the human family. Choice C is reversed.

Option D: Choice D is not a controversial hypothesis. Most biologists believe that humans and chimpanzees had a common ancestor before the evolutionary lines diverged about 5-7 million years ago. The cause-effect sequence in choice D is unjustified. Choice D is not the answer.

Choice (B)

10. (1): The finding adds weight to a controversial proposal to scrap the long-used chimp genus "Pan" and reclassify the animals as members of the human family. The move would give chimps a new place in creation's pecking order alongside humans. Hence (1) is correct and is not the answer

(2): The rate of human and chimp molecular evolution was extremely similar, differing by only 3%, and much slower than gorillas and orang-utans. So while the first part of sentence (2) is correct, the second part cannot be inferred from the passage. (2) is the answer to the question.

(3): The rate of human and chimp molecular evolution was extremely similar, differing by only 3%, and much slower than gorillas and orang-utans. The chimpanzee's generation time is a lot closer to that of humans than it is to other apes. The results also confirm that there is very little difference in the alignable regions of the human and chimp genomes. We not only share extremely similar genomes, we share similar generation time So (3) is also correct but is not the answer.

(4): The rate of human and chimp molecular evolution was extremely similar, differing by only 3%, and much slower than gorillas and orang-utans, with the evolution of humans being the slowest of all. So (4) is true and is not the answer

(5): The human molecular clock is only 3 percent slower than the molecular clock of the chimp, while it has slowed down 11 percent from the gorilla's molecular clock. Therefore (5) is not correct and is the answer to the question.

(6): The amount of time between parents and offspring is longer in humans than apes. (6) cannot be deduced from the passage and is the answer to the question.

Ans: (256)

11. Option A: "A long generation time is an important trait that separates humans from their evolutionary relatives," said Navin Elango. "We used to think that apes shared one

generation time, but that's not true. There's a lot more variation. In our study, we found that the chimpanzee's generation time is a lot closer to that of humans than it is to other apes. Choice A is true.

Option B: The speed of the molecular clock shows how the span of a generation has changed over the millennia. The slow down in the molecular clock correlates with a longer generation time because substitutions need to be passed to the next generation in order to have any lasting effect on the species. Choice B is also correct.

Option C: They studied the rate at which the base pairs that define the differences between species were incorrectly paired due to errors in the genetic encoding process, an occurrence known as substitution. A longer generation time because substitutions need to be passed to the next generation in order to have any lasting effect on the species. So choice C also applies.

So, choices A, B and C are correct.

Choice (D)

12. Option A: If we look at the whole genome, maybe it's a different story, but there is evidence in the fossil record that this change in generation time occurred very recently, so the genetic evidence and the fossil data seem to fit together quite well so far. Choice A is too general and does not serve as the main purpose of the author of the passage.

Option B: Humans and chimpanzees may be more closely related to each other than chimps are to the other two species of great apes – gorillas and orangutans. The passage is about the evolution of humans compared to the rate of evolution of the chimps. The rate of human and chimp molecular evolution was extremely similar, differing by only 3%, and much slower than gorillas and orangutans. The chimpanzee's generation time is a lot closer to that of humans than it is to other apes. The results also confirm that there is very little difference in the alignable regions of the human and chimp genomes. We not only share extremely similar genomes, we share similar generation time. Choice B is the answer.

Option C: Choice C (human beings and chimpanzees are very different) is out of scope. The part "Genetic studies indicate otherwise" is correct. "it would be improper to draw comparisons" in choice C is again incorrect. Choice C is not the answer.

Option D: Choice D is incorrect. There is no complexity involved in equating the evolution of man with that of the chimpanzee.

Choice (B)

13. Option A: Certain human-specific traits, like generation time, began to evolve one million years ago – very recently in terms of evolution. Choice A is correct and is the answer.

Option B: While the second part of choice B is correct, the first part (genetic analysis of the whole genomes of humans and chimpanzees) is not. Even though the 63 million base pairs they studied is a large sample, it's still a small part of the genome. Yi said. "If we look at the whole genome, maybe it's a different story Choice B is not the answer.

Option C: Humans and chimpanzees had a common ancestor before the evolutionary lines diverged about 5-7 million years ago. The molecular clock in the evolutionary line that became modern humans began to slow down 1 million years ago. Today, the human molecular clock is only 3 percent slower than the molecular clock of the chimp, while it has slowed down 11 percent from the gorilla's molecular clock. Choice C is distorted.

Option D: Choice D is far-fetched. The passage only says that this study provides further support for the hypothesis that humans and chimpanzees should be in one genus, rather than two different genera.

Choice (A)

Solutions for questions 14 and 15:

14. 'Bluff' essentially refers to an attempt to deceive someone into believing that one can or is going to do something. Sentences 2 and 5 have an incorrect usage of the word 'bluff'. In sentence 2, the usage should be: When we called his bluff.... 'called his bluff' is an idiom which indicates 'to expose an act or instance of misleading' or 'to challenge someone's statement or threat because it is not believed'.

In sentence 5, 'bluffed bow' is incorrect. One should say 'bluff bow'. Here 'bluff' means having a broad, steep front. Sentences 1, 3 and 4 have the correct usage of the word 'bluff'.

'bluff one's way out of anything' in sentence 1 means 'mislead by display of false strength or confidence'.

'bluff' in sentence 3 means direct in speech or behaviour but in a good-natured way; good naturally blunt or outspoken.

'bluff' in sentence 4 refers to a steep cliff.

So, 2 and 5 are the answers.

Ans: (25)

15. Sentence 1 has an incorrect usage of the word 'chronicle'. Sentence 1 should read "usually narrated in chronological order." 'chronological' means "in the order of time/chronology".

The remaining sentences have a correct usage of the word 'chronicle'. In sentences 2 and 4, the word 'chronicle' means a detailed narrative record or report or register of events (in a factual way).

In sentence 3, the word 'chronicle' means to show a series of events them in broadcasts in the order in which they happened.

In sentence 5, the word 'chronicle' is used as a noun (the name of the book).

Ans: (1)

Solutions for questions 16 to 21:

Number of words and Explanatory notes for RC:

Number of words: 745

16. Refer to the beginning of the first para. Productive techniques for answering questions about nature vs nurture involved looking at adopted children, whose genes were provided by one set of parents and whose environment was provided by a different set. Another method involved finding identical twins separated at birth: same genes, different environments. A third involved comparisons between identical twins and fraternal twins reared in the same family (identical twins have the same genes; fraternal twins are genetically as different as ordinary siblings). Other research designs made use of the genetic differences between ordinary siblings, half-siblings, and step or adoptive siblings raised in the same family. So all statements except statement (f) apply. "Fitting in and standing out" are functions of two modules of the brain viz the socialization system and the status system discussed in para 3 of the passage. Statement (f) does not answer the question.

Choice (C)

17. Choices A, C and D are mentioned in para 5. Hence they are all true. Choice B is not a reason. It's more a restatement of the question statement.

Option A: He acquires the local language, behaviours, customs and beliefs. He then figures out how others in his social category behave and adjusts his behaviour accordingly. Children acquire the accent of their peers rather than that of their parents. So choice A is true and is not the answer.

Option C: Based on an understanding of their own strengths and weaknesses and those of other children with whom they compete, children work out their own strategy of behaviour. Hence choice C is true and is not the answer.

Option D: Based on their understanding of their own strengths and weaknesses, children work out their own individual strategy of behaviour. Therefore choice D is true and is not the answer.

Choice (B)

18. Option A: For some, the socialisation system generally takes priority; for others, the status system often gains the upper hand. But these differences become visible only when the two goals – fitting in or standing out – conflict. At other times the two goals can peacefully coexist. So choice A is true and is not the answer.

Option B: Refer to the first para – third sentence from the end. But researchers still haven't been able to pin down which aspects of the environment are important. All they've

been able to determine is which aspects of the environment are not important. Hence choice B is correct and is not the answer.

Option C: The child who grows up in the orderly (well-run) home is, on average, no more conscientious as an adult than the one who grows up in the messy one. So choice C contradicts the ideas of the author. Choice C is the answer.

Option D: The status system makes us want to stand out – to be better than our peers. We can see these motivations in people of all ages. The socialisation system and the status system are organs of the mind. They are found in all neurologically normal human beings. But, they vary somewhat from one individual to another. For some the socialisation system generally takes priority; for others, the status system often gains the upper hand. Choice D is true and is not the answer.

Choice (C)

19. In the last para, the author says, "Asking parents children's lives" And this is the only reason mentioned by the author as to why the query may not yield definite results. Asking their parents is even less likely to be profitable, because parents see only one part of their children's lives. In the long run, it is what happens to them outside the parental home that makes children turn out the way they do. After all, outside the parental home is where they are destined to spend their adult lives

Choice (A)

20. In the second para, the writer asks, "Why do identical twins reared in the same family differ in personality?" And then offers an explanation based on modularity. While "fraternal twins", "ordinary siblings", "half-siblings", and "step or adoptive siblings" are mentioned in para 1 (productive techniques for answering questions about nature vs nurture), choices A, B and C are not the answers. They are out of context (of the discussion of the modularity of the mind).

Choice (D)

21. Refer to the last para. The relationship system motivates us to form new relationships and to maintain existing ones.

Option D: Splitter would mean splitting or identifying individual traits. Lumper would mean putting together in one group. Choice D says that the relationship system helps us to find out the disparities, hence it is a splitter.

Option A: Choice A contradicts the author's statements as he says 'it is not a lumper'.

Option B: Choice B is the consequence of the relationship system yet it does not bring out the meaning of the given sentence. The relationship system motivates us to form new relationships and to maintain existing ones. The urge to learn new facts gradually declines as we get older, but we never lose our curiosity about people. Gossip is a popular sport even in the old people's home.

Option C: Choice C is the consequence of the relationship system yet it does not bring out the meaning of the given sentence. It is the relationship system that fuels our hunger for biographies and novels, and makes us want to look at photos of movie actors and sports stars.

The correct answer is choice D.

Choice (D)

Solutions for questions 22 and 23:

22. On a careful reading of the sentences, it can be observed that sentence 4 is the general sentence that can begin the paragraph. Sentence 4 cannot be placed anywhere else in the thoughtflow but at the start of the paragraph. Sentence 4 begins to give a description of the approaching vehicle (car). Sentence 4 (A beam of light hit them) is followed by sentence 2 (They had not heard the approach of the car). Sentence 2 is followed by sentence 5. "they had not heard the approach of the car that swept out of the side road" in sentence 2 links with and contrasts "They were not in the car's path, yet they heard the screech of brakes behind the two headlights" in sentence 5. So, 425. Sentence 1 follows sentence 5. "It was a police car" in sentence 1 describes "(pulling) an invisible shape to a stop" in sentence 5. Sentence 1 concludes the para. So, 4251. Sentence 3 is

the odd sentence out as it does not discuss the approaching car. It can come later in the thoughtflow as it needs a precedent and more substantiation.

Ans: (3)

23. On a careful reading of the sentences, it can be observed that sentence 5 is the general sentence that can begin the paragraph. It introduces the Rosetta Stone to us. Sentence 5 is followed by sentence 3. It tells us that the Rosetta Stone was inscribed with three versions of a decree. Sentence 4 follows sentence 3. Sentence 4 tells us that the decree appears in three scripts: Ancient Egyptian hieroglyphs, Demotic script and Ancient Greek. Sentence 1 tells us that the same text appear in all three scripts, providing a key to the understanding of Egyptian hieroglyphs. Sentence 1 concludes the para. So, 5341. Sentence 2 sounds like the introductory sentence of a paragraph. It can come later in the thoughtflow. It will need further substantiation

Ans: (2)

Solutions for questions 24 to 29:

Number of words and Explanatory notes for RC:

Number of words: 685

24. Refer to para 1.

Option A: Para 1 begins with "The question of the scope of human knowledge has been a longstanding preoccupation of philosophy." But the second part of choice A is not specific. Choice A is incomplete as a summary.

Option B: We cannot get beyond the specific kinds of data and modes of inference that characterise our knowledge-acquiring systems – however paltry these may be. The question has been, not whether this is correct as a general thesis Can we, indeed, come to understand the workings of our own epistemic capacities? The questions are not rhetorical in intent. They outline the scope of philosophical enquiry into the functioning of the human intellect. Choice B is wrong because it indicates 'will help us in our quest for knowledge', and this goes beyond the discussion in the para.

Option C: That speck also has its own specific cognitive orientation, its own distinctive architecture. The human mind conforms to certain principles in forming concepts and beliefs and theories, originally given, and these constrain the range of knowledge to which we have access. How limited are we, and what explains the extent and quality of our limits? Can we, indeed, come to understand the workings of our own epistemic capacities? Hence choice C serves as an apt summary.

Option D: "that result from our contingent position in the world" in the first sentence of choice D is contradicted by "It is not merely that we are a tiny speck in a vast cosmos; that speck also has its own specific cognitive orientation, its own distinctive architecture." So the first sentence of choice D does not form the crux of the para and it is also incorrect. We cannot get beyond the specific kinds of data and modes of inference that characterise our knowledge-acquiring systems. The words 'traditional ways' in the second sentence of choice D is unnecessary and inapt. Choice D does not discuss the role of the human mind in constraining the range of knowledge to which we have access.

Choice (C)

25. Refer to para 1.

Option A: We cannot get beyond the specific kinds of data and modes of inference that characterise our knowledge-acquiring systems. So 'mere agreement with the predetermined principles' is not a limitation. Choice A is incomplete.

Option B: The human mind conforms to certain principles in forming concepts and beliefs and theories, originally given, and these constrain the range of knowledge to which we have access. Choice B is the answer.

Option C: How limited are we, and what explains the extent and quality of our limits? Can we, indeed, come to understand the workings of our own epistemic capacities?

So it is not so much about limitations inherent in 'the' knowledge-gathering process. We run up against the limits of our own understanding in some deep way. Choice C is not the answer.

Option D: Choice D does not seem to be a likely answer and there is no mention of choice D (certain anxiety) in the passage. The question of the scope of human knowledge has been a longstanding preoccupation of philosophy.

Choice (B)

26. Refer to para 2.

Option A: The mind is a biologically given system, organized into discrete (though interacting) subsystems or modules, which function as special-purpose cognitive devices, variously structured and scheduled, and which confer certain epistemic powers and limits on their possessors. The language faculty is one such module: innately based and specifically structured, it comes into operation early in human life. So choice A is true and is not the answer.

Option B: .. this being made possible by the antecedent presence of the principles of universal grammar in its initial design. So choice B is true and is not the answer.

Option C: Language permits the acquisition, or emergence, of an intricate cognitive system (the human mind) in a spectacularly short time. The human mind is so adapted that it yields this knowledge with comparative ease - somewhat as we effortlessly develop a complex physiological structure in a pre-programmed way. Hence choice C is true and is not the answer.

Option D: This faculty is poorly adapted to picking up conceivable languages distinct in grammatical structure from that characteristic of human speech. Its strength is thus also its weakness; in fact, it could not be strong in one way without being weak in another. Therefore choice D is not true and is the answer.

Choice (D)

27. Refer to the second half of para 2.

Option A: ... somewhat as we effortlessly develop a complex physiological structure in a pre-programmed way. Choice A is true but it is not comprehensive and specific to the question.

Option B: Chomsky observes, the knowledge so generated is no simpler, by any plausible objective standard, than knowledge of advanced mathematics or physics; but the human mind is so adapted that it yields this knowledge with comparative ease – somewhat as we effortlessly develop a complex physiological structure in a pre-programmed way. The author introduces Chomsky's idea that the language faculty is a module of the mind, then mentions its complex processes. He compares this to the development of complex physiological structure, citing the example of the working of the visual system as a parallel. Hence choice B is the answer.

Option C: (Compare the ease with which our visual system converts two-dimensional arrays into three-dimensional percepts, but the difficulty we have in making even simple two-dimensional drawings on the basis of our three-dimensional visual experience.) As a corollary, however, this language faculty is poorly adapted to picking up conceivable languages distinct in grammatical structure from that characteristic of human speech. Choice C is a distortion. The comparison is not to done to relate the limitations of three-dimensional visual experience with those inherent in the language module. Choice C is not the answer.

Option D: Its strength is thus also its weakness; in fact, it could not be strong in one way without being weak in another. This is true of language modules and not the visual system. So the last sentence of choice D is incorrect.

Choice (B)

28. As Charles Sanders Peirce argued, "Man's mind has a natural adaptation to imagining correct theories of some kinds....If man had not the gift of a mind adapted to his requirements, he could not have acquired any knowledge".

Option A: These theories might be so remote in an accessibility ordering of admissible hypotheses that they cannot be constructed under actual empirical conditions, though for a differently structured mind they might be easily accessible. Choice A is true. Heuristic means enabling a person to discover or learn something for themselves. (*heuristic*, is any approach to problem solving, learning, or discovery that employs a practical method not guaranteed to be optimal or perfect, but sufficient for the immediate goals.)

Option B: We seem able to develop adequate theories of linguistic competence, i.e. grammars, but when it comes to actual performance our theoretical insights are meagre or nonexistent. And this is a reflection of the contingencies of our theoretical capacities. Choice B is correct.

Option C: The same properties of mind that provide admissible hypotheses may well exclude other successful theories as unintelligible to humans. Some theories might simply not be among the admissible hypotheses determined by the specific properties of mind that adapt us "to imagining theories of some kinds". Choice C is also correct.

Therefore Choice D is the answer. Choice (D)

29. Refer to the last paragraph. "Man's mind has a natural adaptation to imagining correct theories of some kinds."

Option A: If man had not the gift of a mind adapted to his requirements, he could not have acquired any knowledge. But 'gift of a mind' is not enough. We seem able to develop adequate theories of linguistic competence, i.e. grammars, but when it comes to actual performance our theoretical insights are meagre or nonexistent. And this is a reflection of the contingencies of our theoretical capacities, rather than an indication of objective intransigence.

Option B: Choice B does not apply.

Option C: The fact that "admissible hypotheses" are available to this specific biological system accounts for its ability to construct rich and complex explanatory theories. But the same properties of mind that provide admissible hypotheses may well exclude other successful theories as unintelligible to humans. Hence choice C is the answer.

Option D: Among the theories that he thinks may not be accessible to human intelligence, in virtue of its specific slant, Chomsky includes the correct theory of free creative action, particularly the ordinary use of language. So choice D is not the answer.

Choice (C)

Solutions for questions 30 and 31:

30. In part 1, "the president of Ukraine then" is incorrect. One needs to say: "then the president of Ukraine" OR "the then president of Ukraine".

In part 2, "European Union" needs to be preceded by the definite article 'the'. Also the preposition 'of' is not required before "negotiation". One can just say: had spent six years negotiating.

In part 3, the plural pronoun "themselves" is incorrectly used. One needs to use the singular pronoun "itself". There are singular nouns used: "country's", "gangster state", "democracy". Hence one should say: "transforming itself". Also 'order' is incorrect in "order democracy". The adjective 'orderly' is required to describe 'democracy'.

Part 4 has errors related to phrasal verb usage. One needs to say: "set up camp" and "touching off a cycle of protest". Part 5 is error-free and is the answer.

Ans: (5)

31. In part 1, "fired up" is incorrect usage. One needs to say: "fired his imagination". "Fired up" is a phrasal verb which means: to arouse the emotions of; make enthusiastic or ardent. Here 'fire' is used to indicate the liveliness and vivacity of imagination; brilliance.

In part 2, the plural 'buildings' needs to be used: "as one of the first civic buildings". Also "swelling industrial town" needs to be preceded with the article 'a'.

In part 3, the comparison is incorrectly mentioned. "as much as an information service for the poor as a books repository" is incorrect. This needs to be replaced with "as

much an information service for the poor as a books repository."

Part 4 is error free.

Part 5 has errors of punctuation. There needs to be a semicolon and not a comma after the word 'worry'. There is a new thought or idea: its main benefactor, the city, is one of America's poorest after the first part: Paying for the library is a constant worry. Sentence 5 needs to read as: Paying for the library is a constant worry; its main benefactor, the city, is one of America's poorest.

Ans: (4)

Solutions for questions 32 to 34:

Number of words and Explanatory notes for RC:

Number of words: 429

32. The author of the passage begins to explain details of the Euro crisis but quickly moves to a review of the book "The Euro and the Battle of Ideas", by Markus Brunnermeier, Harold James, and Jean-Pierre Landau.

Option A: As discussed in the passage, the book mentions ideological clashes between France and Germany but does not talk about the reconciling of differences in economic ideologies between the two countries, France and Germany, to ensure Europe's survival after the crisis. Hence choice A is not the answer.

Option B: The authors find the roots of these failings not in stupidity but in clashing economic ideas. Simplifying a bit, they focus on Germany and France. Examples of such ideological clashes run throughout the book. a reaction explained by the resurgence of the battle of economic ideas: rules vs. discretion, liability vs. solidarity, solvency vs. liquidity, austerity vs. stimulus. Hence choice B is the answer.

Options C and D: Choices C and D are out of scope.

Choice (B)

33. Option A: Fiscal austerity is seen as a solution to the Euro crisis by German politicians because they believe that the main culprits of the Greek bailout were fiscal profligacy and excessive public debt and not the design flaws in the single currency design. Hence choice A is not the answer. {Many politicians, especially German ones, think the main culprits were not the design flaws but fiscal profligacy and excessive public debt. That meant the only cure was fiscal austerity.}

Option B: Choice B cannot be inferred from the passage.

Option C: Such differences in ideas are not party-political nor, interestingly, are they fixed forever in history: in the 19th century, and even more in the 1930s, it was France, not Germany, that favoured rigid rules, big surpluses and the discipline of the gold standard. Only after 1945 did that change. Choice C is the answer.

Option D: France has a centralized system of government and her policy makers are mostly economists while Germany has regional governments and the policy makers in Germany are lawyers. Choice D is not correct.

Choice (C)

34. (1): The Germans fret about the moral hazard created by bail-outs. The French worry about the lack of a mutualised debt instrument. So (1) is not entirely correct with respect to the German camp.

(2): Throughout the crisis the French tended to see bank or national-debt woes as cases of illiquidity whereas the Germans usually viewed them as signs of insolvency. So (2) applies to the German camp and is the answer.

(3): Germany, a federal state with strong regional governments, saw the Maastricht Treaty, the framework for the Euro, as a set of rules. France, on the other hand, with a more centralized system of government, saw the framework as flexible, to be overseen by governments. (3) does not apply to the German camp and is not the answer.

- (4): In the 19th century, and even more in the 1930s, it was France, not Germany, that favoured rigid rules, big surpluses and the discipline of the gold standard. Only after 1945 did that change. So (4) applies to the German camp and is the answer.
- (5): Similar divides have emerged in rows over Eurobonds (backed by France, opposed by Germany) and over accountability and democratic control at supranational level (backed by federal Germany but not by centralised France). So (5) is not the view of the German camp.

Ans: (24)

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

SECTION – II

Solutions for questions 1 to 4:

Given that the four actresses acted in 18 films by the end of 2014 and 35 films by the end of 2016. Hence, they must have acted in a total of 17 films during 2015 and 2016.

Let the number of films in which Charlotte acted during 2015 be x . From (i), Amy must also have acted in x films during 2016.

From (iv), Nicole must have acted in 2x films during each of 2015 and 2016. From (ii), Nicole acted in 5 films by the end of 2014. Hence, Nicole must have acted in $5 + 2x$ films by the end of 2015 and $5 + 4x$ films by the end of 2016.

From (iii), Denise, Amy and Nicole must all have acted in $5 + 4x$ films by the end of 2016.

We know that the total number of films that the five of them acted in by the end of 2016 was 35. The three actresses above acted in $15 + 12x$ films. We also know that x must be at least 1 (from (i) and (iii)).

If $x = 1$, the three of them would have acted in 27 films.

If $x \geq 2$, the three of them would have acted in more than 35 films, which is not possible.

Hence, $x = 1$. By the end of 2016, Denise, Amy and Nicole would have acted in 27 films. Charlotte must have acted in 8 films.

From (ii), Amy and Nicole acted in 3 and 5 films by the end of 2014. Hence, Charlotte and Denise must have acted in 10 films by the end of 2014.

Let Denise act in y films by the end of 2014. Hence, Charlotte must have acted in $10 - y$ films by the end of 2014. Since Charlotte acted in 1 film during 2015, she must have acted in $11 - y$ films by the end of 2015. Since Charlotte acted in 8 films by the end of 2016, she must have acted in $y - 3$ films during 2016.

Denise acted in 9 films by the end of 2015 (as she did not act in any film in 2016). Hence, she must have acted in $9 - y$ films during 2015.

The following table provides partial information about the number of films that they acted in:

Actress	2014		2015		2016	
	End	During	End	During	End	
Amy	3	5	8	1	9	
Charlotte	$10 - y$	1	$11 - y$	$y - 3$	8	
Denise	y	$9 - y$	9	0	9	
Nicole	5	2	7	2	9	

From (v), $9 - y = y - 3 \Rightarrow y = 6$

Hence, we can find the number of films that each actress acted in for each year. This is provided in the following table:

Actress	2014		2015		2016	
	End	During	End	During	End	
Amy	3	5	8	1	9	
Charlotte	4	1	5	3	8	
Denise	6	3	9	0	9	
Nicole	5	2	7	2	9	

1. Amy acted in 5 films during 2015.

Ans: (5)

2. The four actresses acted in 6 films during 2016.

Ans: (6)

3. Denise acted in 6 films by the end of 2014.

Ans: (6)

4. Charlotte acted in the highest number of films during 2016.

Choice (A)

Solutions for questions 5 to 8:

Let the seats around the table be represented as 1 through 6 in the clockwise direction.

Since (ii) and (iv) talk about Parthiv, and (i) and (iv) talk about Larry, we can start with condition (iv) (as these points are linked, it will become easier to fix some positions using these points).

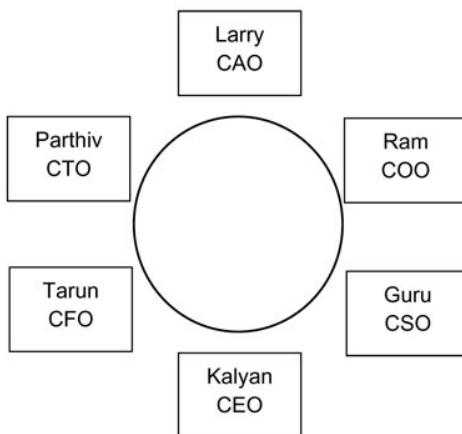
From (iv), Larry was sitting to the left of Parthiv. Let Larry be at 1. Parthiv will be at 6. From (ii), Parthiv is the CTO. From (iv), the CSO cannot be at 2. Since Kalyan was sitting to the left of the CSO (from (ii)), Kalyan cannot be at 3. Also, Kalyan is not sitting adjacent to Parthiv (from (ii)). Hence, Kalyan cannot be at 5. From (iv), Larry is not the CSO. Hence, Kalyan cannot be at 2. The only place where Kalyan could be sitting is 4. The CSO must be at 3.

From (i), Guru was sitting to the left of Ram. This is only possible if Guru and Ram are at 3 and 2 respectively. Hence, Guru is the CSO.

Tarun must be at 5. Since Tarun was sitting opposite the COO, Ram must be the COO.

From (iii), the CFO was to the left of the CEO. Since we know the designations of everyone except Larry, Tarun and Kalyan, the CFO and CEO must be among these three. Among the three, only Tarun and Kalyan are sitting next to each other. Hence, Kalyan must be the CEO and Tarun, the CFO. Larry will be the CAO.

The following figure gives the positions and designations of the six persons:



5. Larry is the CAO. Choice (A)
 6. Parthiv was sitting opposite the CSO. Choice (D)
 7. Ram was sitting adjacent the CAO but not adjacent the CFO. Choice (B)
 8. The COO and CSO are adjacent each other. Choice (C)

D scored 6 points. This is possible only if D won 1 match, drew 3 matches and lost 2 matches (D could not have won 2 matches and lose 4 matches because it must have lost both matches against one team).

Since A has three wins, A must have won one match each against B, C and D.

Since C has three wins, C must have won one match each against A, B and D.
 Hence, in the two matches played between A and C, A won one match and C won one match.

Since A lost one match against C, it must have drawn the two matches against B and D.

Since B lost 3 matches, B must have lost one match each against A, C and D.

Since B lost against D, D's one win is against B. It would have drawn one match against each of A, B and C. D lost against C and A.

Hence, D drew one match against C. Hence, C must have lost against B.

The following table provides the winner of each match in the tournament. A '-' sign indicates a draw.

	A	B	C	D
A		A	A	A
	-	C	-	
B	A		C	D
	-		B	-
C	A	B		-
	C	C		C
D	A	D	C	
	-	-	-	

9. C drew a match against D. Choice (C)
10. B won a match against C. Choice (B)
11. In the matches that A and C played against each other, the two teams together scored 6 points. For all the other options, the number of points scored was less than 6. Choice (C)
12. Since A score 6 points, A must have won 2 matches and lost 1 match in the first three matches. Hence, A must have played against C in the first three matches that it played (since A lost only against C). Choice (A)

Solutions for questions 13 to 16:

Let 1 to 6 represent the six rooms from left to right.

From (i), Farhan does not stay in the room with the Computer. Further, he does not stay in the room with the Wardrobe and AC. From (ii), Eshwar stays in the room with the Geyser. From (iv), one of Bhargav and Dev stays in the room with the Heater. Hence, Farhan must be staying in the room with the TV.

From (v), there are at least four rooms to the left of the one with the TV, i.e., the one in which Farhan stayed. Hence, Farhan can be in the Room 6 or Room 5. However, Farhan stays in a room to the left of the one with the Wardrobe (from (i)). Hence, Farhan stays in Room 5. Room 6 has a Wardrobe. From (i), Room 4 has AC. From (iii), Chintu stays in Room 4.

From (ii), Eshwar must be staying in Room 3 and that room must have the Geyser.

From (v), the room with the Computer must be Room 1 and the one with the Heater must be Room 2. From (iv), Bhargav stays in Room 1 and Dev stays in Room 2. Gautam stays in Room 6.

The following table provides the order in which the rooms are present and the name of the person who stay in each room:

Room	1	2	3	4	5	6
Person	Bhargav	Dev	Eshwar	Chintu	Farhan	Gautam
Item	Computer	Heater	Geyser	AC	TV	Wardrobe

13. Bhargav stays in the room with the Computer. Choice (D)
14. Three persons (i.e., Eshwar, Chintu, Farhan) stay in the rooms between the room with the Wardrobe and the room in which Dev stays. Choice (B)
15. The room, which is to the immediate right of the one with the Heater, has Geyser. Choice (C)
16. Gautam and Farhan stay in adjacent rooms. Choice (B)

From D, we can observe that 200m Backstroke is before 400m Running.

From E, we can observe that 1000m Running is before 400m Running.

From F, we cannot infer anything as he was in the same event.

Combining the information from A and C, we can see that 200m Running is before 200m Breaststroke, which, in turn, is before 800m Running.

Combining this with information from B, we can see that 400m Running is before 200m Running.

Combining this with information from D we can see that 200m Backstroke is before 400m Running.

From E, we get that 1000m Running is before 400m Running. Hence, 1000m Running is before 400m Running, 200m Running, 200m Breaststroke and 800m Running.

Therefore, between 1000m Running and 200m Backstroke, one of the two is first and the other is second. We can fix the order of the other four events.

The following table provides the possible orders of the six events:

Order	Event
1	1000m Running/200m Backstroke
2	200m Backstroke/1000m Running
3	400m Running
4	200m Running
5	200m Breaststroke
6	800m Running

17. The fourth event of the hexathlon was the 200m Running.
Choice (B)
18. B was participating in 400m Running at 10:10 AM. He must have completed 2 events by 10:10AM.
Choice (C)
19. The last event of the hexathlon was the 800m Running.
Choice (B)
20. Only Statements I and III follow from the given information.
Choice (C)

Solutions for questions 21 to 24:

From (iii), the rank of Quasimore in Sustainability is 4. From (i), Quasimore cannot be ranked 4 in Cleanliness. From (iii), the rank of Quasimore in Cleanliness can be either 4 or 5. Hence, the rank of Quasimore in Cleanliness must be 5.

From (v), Talnia was ranked 2nd in Sustainability.

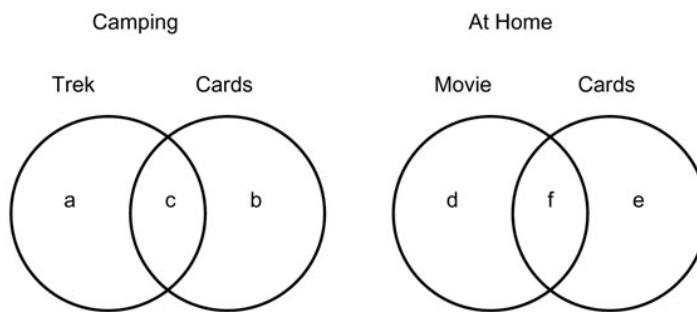
Lamuria's rank in Sustainability can be 1/3/5. But it cannot be 3 because, from (ii), its rank in Cleanliness will also be 3. This will violate condition (i). Hence, it can only be 1/5. If Lamuria's rank in Sustainability is 1, its rank in Cleanliness must be 5. But this is not possible as the rank of Quasimore in Cleanliness is 5.

Hence, Lamuria's rank in Sustainability must be 5 and its rank in Cleanliness is 1.

From (iv), Prevalia and Stertoran must be ranked 1 and 3 in Sustainability in that order (since Prevalia is ranked better than Stertoran).

Solutions for questions 25 to 28:

Since the friends who went camping are distinct from those who stayed at home, we can draw two different Venn diagrams representing the two groups:



From (i), $a + c = 2 \times (c + f) \Rightarrow a = c + 2f$

From (ii), $b + c = d + f - 11$

From (iii), $b + c + e + f = a + c + 20 \Rightarrow b + e + f = a + 20$

Substituting $a = c + 2f$ in the above equation we get,

$$b + e = c + f + 20$$

From (iv), $b + c + e + 2f + d = 94$

From (v), $c + f = 22$ and $a = 26$

Since $a = 26$, $c + 2f = 26$.

Since $c + f = 22$, $f = 4$ and $c = 18$.

$$b + e = c + f + 20 \Rightarrow b + e = 42$$

Also, $(b + e) + c + f + d + f = 94 \Rightarrow 42 + 22 + d + 4 = 94 \Rightarrow d = 26$

From (ii), $b + c = d + f - 11 \Rightarrow b + 18 = 26 + 4 - 11 \Rightarrow b = 1$

Since Stertoran is ranked 3rd in Sustainability, it cannot be ranked 3rd in Cleanliness. It cannot be ranked 2nd as well because, in that case, Prevalia cannot be ranked better than Stertoran (as Lamuria is ranked 1st in Cleanliness). Hence, Stertoran is ranked 4th in Cleanliness. Since Talnia is ranked 2nd in Sustainability, it must be ranked 3rd in Cleanliness. Prevalia must be ranked 2nd in Cleanliness.

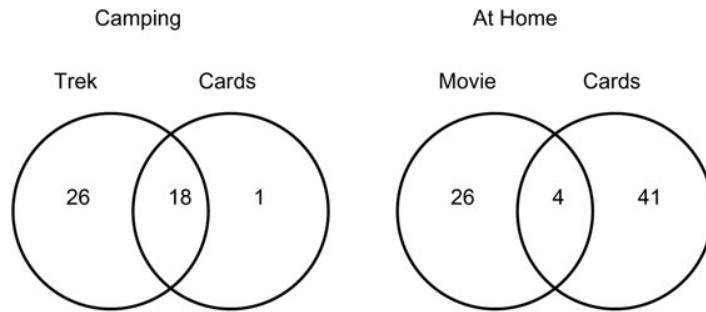
The following table provides the ranks of the five countries for each of the two parameters:

Rank	Cleanliness	Sustainability
1	Lamuria	Prevalia
2	Prevalia	Talnia
3	Talnia	Stertoran
4	Stertoran	Quasimore
5	Quasimore	Lamuria

21. Prevalia is ranked 1 in Sustainability.
Choice (D)
22. Only one country (Quasimore) is ranked worse than Stertoran in Cleanliness.
Choice (B)
23. Talnia's rank in Cleanliness is 3. The country ranked third in Sustainability is Stertoran.
Choice (C)
24. Except for Lamuria, the given condition is satisfied for all the other countries.
Ans: (4)

Since $b + e = 42$, $e = 41$.

The following diagrams provide the number of persons who participated in different activities:



25. Among the friends who stayed at home, 45 friends played cards.
Ans: (45)

26. Total number of friends who went camping = 45
Total number of friends who stayed at home = 71
Difference = 26
Ans: (26)

27. 42 friends only played cards.
Ans: (42)

28. 26 friends only watched movies.
Ans: (26)

Solutions for questions 29 to 32:

The amounts spent by them in each shop is given in the following table:

	Shop 1	Shop 2	Shop 3	Shop 4	Shop 5
Kirk	25	10	15	30	30
Rob	20	25	30	25	10
Tom	25	35	40	20	5
Steve	30	15	5	35	35
Phil	35	15	20	40	30
Manny	10	20	5	20	40

After each friend purchased from Shop 3, Kirk, Rob, Tom, Steve, Phil and Manny spent a total of 50, 75, 100, 50, 70 and 35 respectively.

Since they all had the same amount after spending these amounts, Kirk, Rob, Tom, Steve, Phil and Manny would have started with $x + 50$, $x + 75$, $x + 100$, $x + 50$, $x + 70$ and $x + 35$ respectively.

The following table provides the amounts with them after they purchased from each shop:

	Beginning	Shop 1	Shop 2	Shop 3	Shop 4	Shop 5
Kirk	$x + 50$	$x + 25$	$x + 15$	x	$x - 30$	$x - 60$
Rob	$x + 75$	$x + 55$	$x + 30$	x	$x - 25$	$x - 35$
Tom	$x + 100$	$x + 75$	$x + 40$	x	$x - 20$	$x - 25$
Steve	$x + 50$	$x + 20$	$x + 5$	x	$x - 35$	$x - 70$
Phil	$x + 70$	$x + 35$	$x + 20$	x	$x - 40$	$x - 75$
Manny	$x + 35$	$x + 25$	$x + 5$	x	$x - 20$	$x - 60$

29. Manny had the least amount with him before they purchased from Shop 1.
Choice (A)
30. Tom had the highest amount after they purchased from Shop 5.
Choice (A)

31. Everyone would have been declared *Most Affluent* after they purchased from Shop 3. Among the given options, Manny would have been declared *Most Affluent* after they purchased from Shop 4.
Choice (C)

32. Since each person spent at least 50% of the amount that they initially had, Kirk must have spent 50% of $x + 50$. But Kirk spent a total of 110.

$$\text{Hence, } \frac{110}{x+50} \geq \frac{1}{2} \Rightarrow x \leq 170$$

Similarly, for Rob we get $x \leq 145$.

For Tom, we get $x \leq 150$.

For Steve, we get $x \leq 190$.

For Phil we get $x \leq 210$.

For Manny we get $x \leq 155$.

For everyone to spend at least 50%, x can be at most 145.

Hence, the maximum amount with any person will be 245.

Choice (D)

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

SECTION – III

Solutions for questions 1 to 34:

1. X has 2016 factors

$$\Rightarrow (p+1)(q+1)(r+1)(s+1) = 2016 \quad \dots \quad (1)$$

Y has 168 factors

$$\Rightarrow (p+1)(q+1)(s+1) = 168 \quad \dots \quad (2)$$

$$\frac{(1)}{(2)} \Rightarrow r+1=12 \Rightarrow r=11$$

Z has 288 factors

$$\Rightarrow (q+1)(r+1)(s+1) = 288 \quad \dots \quad (3)$$

$$\frac{(1)}{(3)} \Rightarrow p+1=7 \Rightarrow p=6$$

Substituting $p+1=7$ in (2),

$$(q+1)(s+1) = 24$$

Possible cases for

$q+1$	$s+1$
1	24
2	12
3	8
4	6

$p+q+r+s$ will be minimum when $q+s$ is minimum

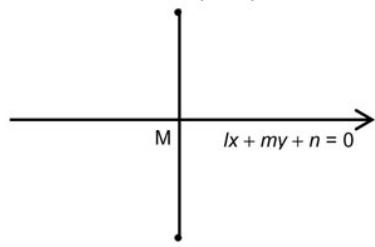
$$\text{Min value of } q+s = (4-1) + (6-1) = 8$$

$$\therefore \text{min value of } p+q+r+s \text{ is } 6+3+11+5=25$$

Ans: (25)

2. Let the given points be $A = (3, 5)$ and $B = (6, 11)$

A (3, 5)



B (6, 11)

Let B(6, 11) be the image of A(3, 5), with respect to $lx + my + n = 0$.

The midpoint, M, of AB lies on $lx + my + n = 0$, and AB is perpendicular to $lx + my + n = 0$.

$$\therefore \text{The midpoint of } A(3, 5) \text{ and } B(6, 11) \text{ is } M = \left(\frac{9}{2}, 8\right).$$

$$\text{Slope of } AB = \frac{(11-5)}{(6-3)} = 2$$

$$\Rightarrow \text{Slope of a line perpendicular to } AB = -\frac{1}{2}$$

\therefore The equation of the line passing through $\left(\frac{9}{2}, 8\right)$ and

$$\text{having slope } -\frac{1}{2} \text{ is } y - 8 = -\frac{1}{2}\left(x - \frac{9}{2}\right)$$

$$y - 8 = -\frac{1}{4}(2x - 9)$$

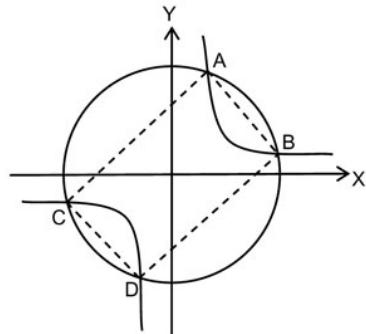
$$4y - 32 = -2x + 9$$

$$2x + 4y - 41 = 0 \quad \dots \quad (1)$$

$$\text{Hence, } \frac{l+m}{n} = \frac{2+4}{-41} = \frac{-6}{41}$$

Choice (A)

3. Given equation $x^2 + y^2 = 29$ is a circle with radius $\sqrt{29}$ units and the given equation $xy = 10$ is a rectangular hyperbola. The graphs of these two equations are as follows.



Given $x^2 + y^2 = 29$ and $xy = 10$

$$\Rightarrow (x+y)^2 = x^2 + y^2 + 2xy = 49$$

$$x+y = 7 \text{ or } -7 \rightarrow \text{(i)}$$

$$(x-y)^2 = x^2 + y^2 - 2xy = 9$$

$$\therefore x-y = 3 \text{ or } -3 \rightarrow \text{(ii)}$$

From (i) and (ii), we get

$$(x, y) = (5, 2) \text{ or } (2, 5) \text{ or } (-5, -2) \text{ or } (-2, -5).$$

Distance between (5, 2) and (2, 5) = Distance between (-5, 2) and (-2, 5) → (i)

Distance between (5, 2) and (-2, -5) = Distance between (-5, -2) and (2, 5) → (ii)

As the pairs of opposite sides are equal and (ii) > (i), i.e., adjacent sides are not equal, the points of intersection can either form a rectangle or a parallelogram, but only rectangle is given in the options.

Note: Even if the above graph cannot be visualized, the question can still be answered by solving the two equations.

Choice (A)

4. If we assume that 5 units of solution is taken from A, the data is tabulated below:

	A	B	C
Concentration.	60%	75%	80%
Quantity	5	x	3

The quantities taken from A and C are in the ratio 5 : 3.

The total deviation from 70 is 0, i.e.

$$5(10) = x(5) + 3(10) \Rightarrow x = 4$$

∴ The quantity taken from B is 20% less than that taken from A.

Choice (C)

5. p and q are the roots of $f(x) = 0$

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

$$f(5) = 25a + 5b + c = 35 \rightarrow \text{(1)}$$

$$f(-5) = 25a - 5b + c = 15 \rightarrow \text{(2)}$$

$$\text{(1)} - \text{(2)} \Rightarrow 10b = 20 \Rightarrow b = 2.$$

$p + q = \text{sum of roots} = \frac{-b}{a}$. However, as 'a' is still unknown

$\frac{-b}{a}$ cannot be determined. Choice (D)

6. The distance covered by A and B and the time that they take to cover it are tabulated below.

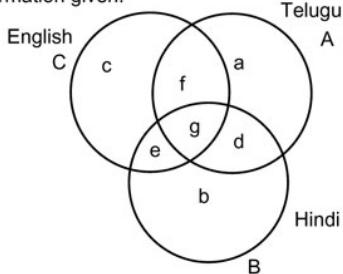
	A	B	Total
Distance	d_1	d_2	140 m
Time	t_1	t_2	20 sec

The average speed is 7 m/s. If it equals the average of the two speeds, either, the two speeds are equal (and equal to 7 m/s) or, the two time periods are equal. i.e. Either $\frac{d_1}{t_1} = \frac{d_2}{t_2} = 7 \text{ m/s}$ or $t_1 = t_2 = 10 \text{ seconds}$

We consider each of the choices:

- I. If A's speed is 6 m/s. B's speed has to be 8 m/s (so that the average can be 7 m/s) - True
 - II. If B's speed is more than 8 m/s (i.e., not 7 m/s) $t_1 = t_2 = 10 \text{ sec}$, i.e., A runs for 10 sec which is less than 12 seconds. - True
 - III. If B's speed is 7 m/s, A's speed has to be 7 m/s - True
 - IV. If A's speed is less than 6 m/s (i.e. is not 7 m/s), $t_1 = t_2 = 10 \text{ sec}$, i.e., B runs for 10 sec (and not more than 12 sec) - False
- Hence, only IV is false. Choice (B)

7. The following venn diagram can be drawn to represent the information given:



The total number of people in the society = $a + b + c + d + e + f + g$

(\because each person knows at least one language)

Total number of people in the society

$$= (A + B + C) - (D + E + F) + G \quad \dots (1)$$

Where $A = a + d + f + g$

$$B = b + d + e + g$$

$$C = c + f + e + g$$

$$D = d + g$$

$$E = e + g$$

$$F = f + g$$

$$G = g$$

Given no. of people who know Telugu (A) = 50

Number of people who know Hindi (B) = 40

Number of people who know English (C) = 30

Number of people who know both Telugu and Hindi =

$$(D) = 15$$

Number of people who know both Hindi and English

$$(E) = 8$$

Number of people who know only Telugu and English (f)

$$= (F - G) = 4.$$

When we substitute these values in equation (1) we get

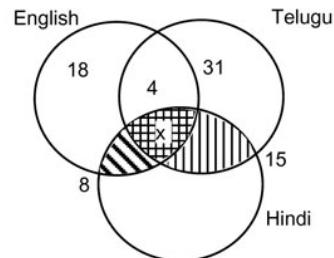
$$(A + B + C) - (D + E + F) + G$$

$$= (A + B + C) - (D + E + F - G)$$

$$= 50 + 40 + 30 - (15 + 8 + 4) = 93$$

Alternative Solution:

Let the number of people who know all 3 languages be x , as shown below.



Now we can easily find out that those who only English = $30 - (4 + 8) = 18$

And those who know only Telugu = $50 - (4 + 15) = 31$

Clearly, the required total as can be seen from the figure is simply $18 + 4 + 31 + 40 = 93$

Choice (A)

8. When the digits of a two-digit natural number are interchanged, the values of the numbers of the form 11, 22, 33, 44, ..., 99 do not change.

Now combinations of the digits

0, 1, 2, 3, ..., 9 taken two at a time, without repetition, is the required number of numbers.

$$\text{i.e., } {}^{10}C_2 = \frac{10(9)}{2} = 45 \text{ is the required answer}$$

Choice (D)

9. To minimize the number of girls, we have to minimize the number of children \Rightarrow minimize the number of households \Rightarrow minimize the number of shops.

Let the number of shops in the locality be x .

$$\text{Number of houses} = x \times 10 = 10x$$

$$\text{Number of children} = 10x \times 2 = 20x$$

$$\text{Number of girls} = \frac{55}{100} \times 20x = 11x$$

$$\text{Number of adults} = \frac{5}{3} \times 20x$$

As the number of adults cannot be a fraction, x should be a multiple of 3.

Thus, the minimum possible value of x is 3.

$$\Rightarrow \text{minimum possible number of girls} = 3x = 3 \times 11 = 33.$$

Choice (C)

10. Time taken by locks machine to produce 6000 locks = 60 hours

There are 5 oiling intervals (in between every 1000 locks)

\therefore Time needed for oiling = 5 (5) = 25 hours

Time needed to produce 6000 locks = 85 hours

Each lock has 2 keys

\therefore Number of keys to be produced is 12000

\therefore Time taken by the machine to produce 12000 keys

$$= \frac{12000}{150} = 80 \text{ hours}$$

There are 3 oiling intervals (in between every 3000 keys).

Time needed for oiling 10 (3) = 30 hours

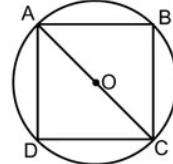
\therefore Time required (in hr) to produce 12000 keys

$$= 80 + 30 = 110$$

Since the keys gets completed later, to complete both the minimum time = 110 hours.

Ans: (110)

11. The situation is equivalent to inscribing a square in a circle and then inscribing a triangle of the maximum possible area in the square.



Let ABCD be the square inscribed in the circle with centre 'O'. $\triangle ACD$ is the largest triangle that can be inscribed in the square ABCD. Let AB = BC = CD = AD = a

$$\Rightarrow AD^2 + DC^2 = AC^2 \Rightarrow 2a^2 = 16$$

$$\Rightarrow a = 2\sqrt{2}$$

$$\text{Area of the triangle} = \frac{1}{2} \times a \times a = \frac{1}{2} \times 2\sqrt{2} \times 2\sqrt{2}$$

$$= 4 \text{ sq.cm} \quad \text{Choice (B)}$$

12. Coins with P_7 after P_1 distributes 1 coin to each person
 $= m + 1$
 Coins with P_7 after P_2 takes 2 coins from each person
 $= m + 1 - 2$
 Proceeding similarly, coins with P_7 after P_6 takes 6 coins from each person $= m + 1 - 2 + 3 - 4 + 5 - 6 = m - 3$
 P_7 then distributes 7 coins to each of the 10 persons. Coins left with him after distribution $= m - 3 - 7(11 - 1)$
 $= m - 3 - 70 = 0 \Rightarrow m = 73$
 Number of coins with each of P_8 , P_9 , P_{10} and P_{11} , after P_7 is left with no coins, is $m - 3 + 7 = m + 4$
 \therefore Total number of coins with P_8 , P_9 , P_{10} and P_{11}
 $= 4(m + 4) = 4 \times 77 = 308 \quad \text{Ans: (308)}$

13. The amount to be paid by Pradeep to bank A after

$$n \text{ years} = 10,00,000 \left(1 + \frac{20}{100}\right)^n$$

The amount to be paid by Pradeep to bank B after

$$n \text{ years} = 10,00,000 \left(1 + \frac{25n}{100}\right)$$

\therefore We have to maximise 'n' so that

$$\left(1 + \frac{20}{100}\right)^n < 1 + \frac{25n}{100}$$

$$\Rightarrow (1.20)^n < 1 + 0.25n$$

$$\text{For } n = 4, (1.20)^n > 1 + 0.25n.$$

Hence maximum value of n for bank A to be a better option is 3. $\quad \text{Choice (B)}$

14. Treat the given expression as the sum of two independent terms and minimize each term.

$$\text{Consider } \frac{x}{y} + \frac{4y}{x}$$

$$\text{Here } \frac{x}{y} \left(\frac{4y}{x}\right) = 4$$

$$\text{So, } \frac{x}{y} + \frac{4y}{x} \text{ will be minimum when } \frac{x}{y} = \frac{4y}{x}$$

$$\Rightarrow \frac{x}{y} = 2 \quad \text{----- (1)}$$

$$\text{Now consider } \frac{z}{12x} + \frac{x}{3z}$$

$$\text{Here } \frac{z}{12x} \left(\frac{x}{3z}\right) = \frac{1}{36}$$

$$\text{So } \left(\frac{z}{12x} + \frac{x}{3z}\right) \text{ will be minimum when } \frac{z}{12x} = \frac{x}{3z}$$

$$\Rightarrow \frac{x}{z} = \frac{1}{2} \quad \text{----- (2)}$$

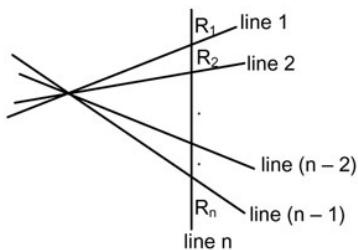
$$(2) \div (1) \text{ gives } \frac{y}{z} = \frac{1}{4} = 0.25 \quad \text{Ans: (0.25)}$$

15. $a = 2, d = 2$
 $2 + 4 + 6 + 8 + 10 + (2 + (n - 1) 2) + (2 + (n - 2) 2) + (2 + (n - 3) 2) + (2 + (n - 4) 2) + (2 + (n - 5) 2) = 130$
 $\Rightarrow n = 12$

$$\therefore \text{sum of } n \text{ terms} = \frac{12}{2}[2 + 24] = 6 \times 26 = 156$$

Choice (B)

16. When n^{th} line is drawn, the maximum possible number of additional regions formed are n .



Ex: When first line is drawn, the plane, which was only one region becomes two regions
 \Rightarrow one additional regions.

Therefore, the three additional lines, which happen to be the 5th, 6th and 7th lines, will create $5 + 6 + 7 = 18$ additional regions.
 Ans: (18)

17. Let us say for a base n , ($n \leq 9$), 12321 is a perfect square when expressed as a decimal.

$$(12321)_n = n^4 + 2n^3 + 3n^2 + 2n + 1$$

$$= n^4 + n^2 + 1 + 1 + 2n^3 + 2n^2 + 2n + 1 = (n^2 + n + 1)^2.$$

Now, n must be a minimum of 4, since the digit 3 is used.

\therefore For all values of n from 4 to 9 (i.e., six distinct values of n), (12321)_n when expressed as a decimal is a perfect square.

\Rightarrow at most 6 students could be there in the class.

Choice (C)

18. Since, the answer key of each student is unique (and the total possible answer keys = $5^5 = 3125$, which is greater than the total number of students) the minimum number of students getting a positive score = Total number of students – Maximum number of students who can get a zero or a negative score.

To get a negative score, a student should answer all the questions incorrectly, which can be done in 4^5 ways, which, in turn, will be the maximum number of students who can get a net negative score.

To get a zero score, a student has to answer exactly one question correctly and answer all the remaining four questions incorrectly, which can be done in 5×4^4 ways, which, in turn, will be the maximum number of students who can get a net zero score.

\therefore The minimum number of students getting a net positive score = $3000 - 4^5 - 5 \times 4^4$
 $= 3000 - 1024 - 1280 = 696 \quad \text{Ans: (696)}$

19. $x^2 - x(a+b) + ab + x^2 - x(b+c) + bc + x^2 - x(a+c) + ac = 0$
 $3x^2 - x(a+b+b+c+a+c) + ab + bc + ac = 0$
 $3x^2 - 2x(a+b+c) + ab + bc + ac = 0$

The discriminant

$$4(a+b+c)^2 - 12(ab+bc+ac)$$

$$= 4(a^2 + b^2 + c^2 + 2ab + 2bc + 2ac) - 12(ab + bc + ca)$$

$$= 4(a^2 + b^2 + c^2 - ab - bc - ca)$$

$$= 2[(a-b)^2 + (b-c)^2 + (c-a)^2] \geq 0$$

\therefore the roots are real.

Further if $a = b = c$, then the discriminant is zero and hence the roots are equal.

Hence only two of the given statements are true.

Ans: (2)

20. Let the total wages be ₹4.

As Mahendar got 75% of the total wages, he got ₹3.

But he alone completed painting one of the sides. Hence completed $\frac{1}{2}$ of the total work, and got ₹2.

He completed $\frac{1}{2}$ of the work on the other side, and earned ₹1, which means Manish, Naren and Karan together have completed $\frac{1}{2}$ of the work on that side.

Let the ratio of efficiencies of Mahendar and Manish be $x : a$.

$$\therefore \text{Re } 1 \times \left(\frac{x}{x+a} + \frac{x}{x+4a} \right) = \text{Re. } 1 \quad \dots \quad (1)$$

$$\Rightarrow x^2 + 4ax + x^2 + ax = x^2 + 5ax + 4a^2$$

$$\Rightarrow x^2 = 4a^2 \Rightarrow \frac{x}{a} = \frac{2}{1}$$

Choice (A)

21. If the average (y) of first n terms is considered, then if n is odd, then y is also a term of the series and $(x - y)$ will be a multiple of the common difference, i.e., 18. If n is even, then y is the average of two consecutive terms of the series. In which case, the difference $(x - y)$ will be 9 + (a multiple of 18).

In either case the difference $(x - y)$ must be a multiple of 9. Clearly all the choices except choice (B) are eliminated.

Choice (B)

22. From the common data, we get the following possibilities for m and n .

m	n
16	19
81	41

- I. $m < n$, if the ten's digit of m is less than its units digit, i.e. if $m = 16$, $m < n$. True.
 - II. $|m - n|$ is a perfect square could be true $|16 - 41|$ is a square.
 - III. $m + n$ is a perfect square could be true as $81 + 19 = 100$
- None of the statements has to be false. Choice (D)

23. Given the ratio of working rates on the three types of vegetables as 120 : 72 : 60 i.e., 10 : 6 : 5.
Let him cut N vegetables in the first K minutes

$$\Rightarrow \frac{K}{3} \text{ minutes was spent cutting say } 10x \text{ carrots.}$$

$\frac{K}{3}$ minutes was spent cutting $6x$ potatoes and $\frac{K}{3}$ minutes was spent cutting $5x$ beetroot.

During the next K minutes, the time distribution was in the

$$\text{ratio } \frac{1}{10} : \frac{1}{6} : \frac{1}{5} \text{ i.e., } 6 : 10 : 12 = 3 : 5 : 6$$

$$\text{Hence } \frac{3}{14}K, \frac{5}{14}K \text{ and } \frac{6}{14}K$$

$$\Rightarrow \text{Carrots cut } \frac{\left(\frac{3}{14}K\right)}{\left(\frac{K}{3}\right)} \times 10x = \frac{90x}{14} \text{ carrots.}$$

Similarly $\frac{90x}{14}$ potatoes and $\frac{90x}{14}$ beetroot are cut.

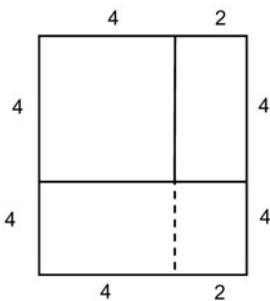
Total number of vegetables cut in the first $2K$ minutes

$$= 10x + 6x + 5x + \left(\frac{90x}{14}\right) \times 3 = 282$$

$$\Rightarrow x = 7 \text{ and } \frac{90x}{14} = 45$$

Ans: (45)

24.



After cutting $4 \times 4 \times 4$ cube which is largest possible the volume remaining portion is $4 \times 6 \times 4 + 4 \times 2 \times 4 = 128 \text{ m}^3$
If minimum number of cubes, all of equal size, have to be made the side of cube has to be maximum. The maximum side of the cube can be 2 m.
Volume of 2 m cube is 8 m^3

$$\text{Number of cubes} = \frac{128}{8} = 16.$$

Choice (C)

25. Sum of all the natural numbers from 1 to 120 divisible by neither 2 nor 7 = sum of first 120 natural numbers – (sum of natural numbers divisible by either 2 or 7)

Sum of natural numbers divisible by either 2 or 7 = sum of natural numbers divisible by 2 + sum of natural numbers divisible by 7 – sum of natural numbers divisible by 14

$$= \frac{60}{2} [2 + 120] + \frac{17}{2} [7 + 119] - \frac{8}{2} [14 + 112]$$

= 4227 and

Sum of first 120 natural numbers

$$= [1 + 120] \frac{120}{2} = 7260$$

Hence required sum = $7260 - 4227 = 3033$.

Ans: (3033)

26. The easiest approach to such questions is to consider a couple of numerical possibilities for a , b and n .

Let $a = -3$ and $b = -2$ (i.e. $a < b$)

Case (i):

Let $n = -1$

$$\text{Here, } \frac{1}{-3} > \frac{1}{-2} \text{ Hence } (-3)^{-1} > (-2)^{-1}$$

Hence $n = -1$, i.e., negative and odd.

\Rightarrow Both statements I and III may be true.

Case (ii):

Let $n = 2$

$$\text{Here, } (-3)^2 > (-2)^2$$

Hence $n = 2$, i.e., positive and even.

\Rightarrow Statement II may also be true.

Hence I, II and III may be true.

Choice (D)

27. The first term on the LHS

$$= \frac{1}{pqr + pr^2 + qr^2} = \frac{1}{r(pq + qr + rp)}$$

We get two similar expressions for the other two terms.

$$\therefore \text{LHS} = \frac{1}{(pq + qr + rp)} \left[\frac{1}{p} + \frac{1}{q} + \frac{1}{r} \right] = \frac{1}{pqr} = 1$$

Alternative Solution:

Let $p = q = 1$, then $p q r = 1$. The given expression equals 1. Among the choices only choices (1) and (5) equal 1.

If $p = q = -1$ and $p q r = 1 \Rightarrow r = 1$.

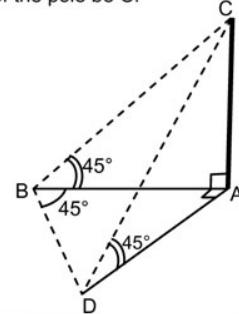
For these values, the given expression equals 1, but

Choice (A) equals $\frac{1}{9}$.

\therefore Hence, the correct choice must be Choice (C).

Choice (C)

28. Let the top of the pole be C.



As the angle of elevation from both B and D is the same, both must be equidistant from the foot of the pole.
Thus AB = AD.

In $\triangle ABD$, AB = AD and $\angle B = 45^\circ \Rightarrow \angle D = 45^\circ$.
 $AB^2 + AD^2 = 25^2$

$$\Rightarrow 2AB^2 = 625 \text{ i.e., } AB = \frac{25}{\sqrt{2}} \text{ m}$$

As the angle of elevation is 45° , $\tan 45^\circ = \frac{AC}{AB}$

$$\Rightarrow AC = AB \Rightarrow AC = \frac{25}{\sqrt{2}} \text{ m.} \quad \text{Choice (B)}$$

29. Since the sum of the factorials of the digits should be less than number, the number cannot possibly contain digits which are greater or equal to 5, as for $n \geq 5$, $n! \geq 120$.

The following numbers satisfy the given conditions:

1, 2, 10, 11, 12, 13, 20, 21, 22, 23, 30, 31, 32, 33, 34, 40, 41, 42, 43. Hence, 19 such numbers exist.

Ans: (19)

30. In any circle, the longer chord is closer to the centre. As $BC < CA < AB$ and the distances of the circumcentre from BC, CA, AB are p, q, r respectively, it follows that $r < q < p$.

Choice (A)

31. Given

$$x_1 + x_2 + x_3 + \dots + x_n = 15015$$

since the numbers form an arithmetic progression with a common difference of 2,

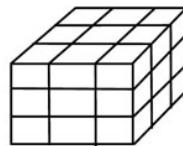
$$\frac{n}{2} [2x_1 + (n-1)2] = 15015$$

$$\Rightarrow n[x_1 + n - 1] = 15015 = 3(5)(1001) \\ = 3(5)(7)(11)(13).$$

Since 15015 has $2^5 = 32$ factors, n can assume 32 values in total.

Ans: (32)

- 32.



To yield the maximum number of cubes, 2 cuts should be made in each direction, as shown above.

\therefore The number of smaller cubes = $3 \times 3 \times 3 = 27$.

Surface area of the large cube = $6a^2$.

Surface area of each small cube = $6(a/3)^2$

\therefore For 27 cubes = $27 \times 6 \times (a/3)^2 = 18a^2$.

Ratio of surface areas = $6a^2 : 18a^2 = 1 : 3$

Additional amount of paint required = $2 \times 3.5 = 7$ litres

Alternative solution:

The cuts being parallel to the original faces, every cut results in the exposure of 2 unpainted faces of the original cube. Therefore 6 cuts will result in 12 unpainted faces being exposed which will require 7 litres of paint.

Choice (C)

33. Let the cost of a folder, a notebook and a pen be ₹ x, y, z respectively. The data is tabulated below.

	x	y	z	
1	2	5	45	
2	-4	3	17	

Option A	4	0	13	
B	9	-30	3	
C	-2	20	11	
D	3	4	5	

Options A, B, C do not give independent conditions, while option D gives an independent condition.

\therefore Choice (D) is enough.

To decide whether or not a given condition is independent (new) or not (old), we see what other conditions we can generate from the given conditions, i.e. we multiply the first 'equation' by p and the second by q and add to get $(p+2q)x + (2p-4q)y + (5p+3q)z = 45p + 17q$

Consider choice A,

If $p+2q=4$ and $2p-4q=0$,

we can verify that $5p+3q=13$

Similarly, if $p+2q=9$ and $2p-4q=-30$, $5p+3q=3$

Likewise, choice C is not an independent condition.

But choice D is an independent condition.

Choice (D)

$$34. S = \frac{1}{\sqrt{1+\sqrt{3}}} + \frac{1}{\sqrt{2+2}} \dots \frac{1}{\sqrt{119+\sqrt{121}}} \text{ Rationalizing}$$

each term with the respective rationalizing factor $\sqrt{3}-1$,

$$2-\sqrt{2}, \dots, \sqrt{121}-\sqrt{119}$$

$$\text{We get, } S = \frac{\sqrt{3}-\sqrt{1}}{3-1} + \frac{\sqrt{4}-\sqrt{2}}{4-2} + \frac{\sqrt{5}-\sqrt{3}}{5-3} + \frac{\sqrt{6}-\sqrt{4}}{6-4} \dots \frac{\sqrt{121}-\sqrt{119}}{121-119}$$

$$S = \frac{\sqrt{3}-\sqrt{1}}{2} + \frac{\sqrt{4}-\sqrt{2}}{2} + \frac{\sqrt{5}-\sqrt{3}}{2} \dots \frac{\sqrt{120}-\sqrt{118}}{2} +$$

$$\frac{\sqrt{121}-\sqrt{119}}{2}$$

$$= -\frac{\sqrt{1}}{2} - \frac{\sqrt{2}}{2} + \frac{\sqrt{120}}{2} + \frac{\sqrt{121}}{2}$$

$$= \frac{10+2\sqrt{30}-\sqrt{2}}{2} = 5 + \frac{2\sqrt{15}-1}{\sqrt{2}}$$

Choice (C)

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