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INSTITUTE OF MANAGEMENT

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CAT - 2020

PREVIOUS QUESTION PAPERS WITH ANSWERS

Question Paper with Solutions

CAT 2020 SLOT 1
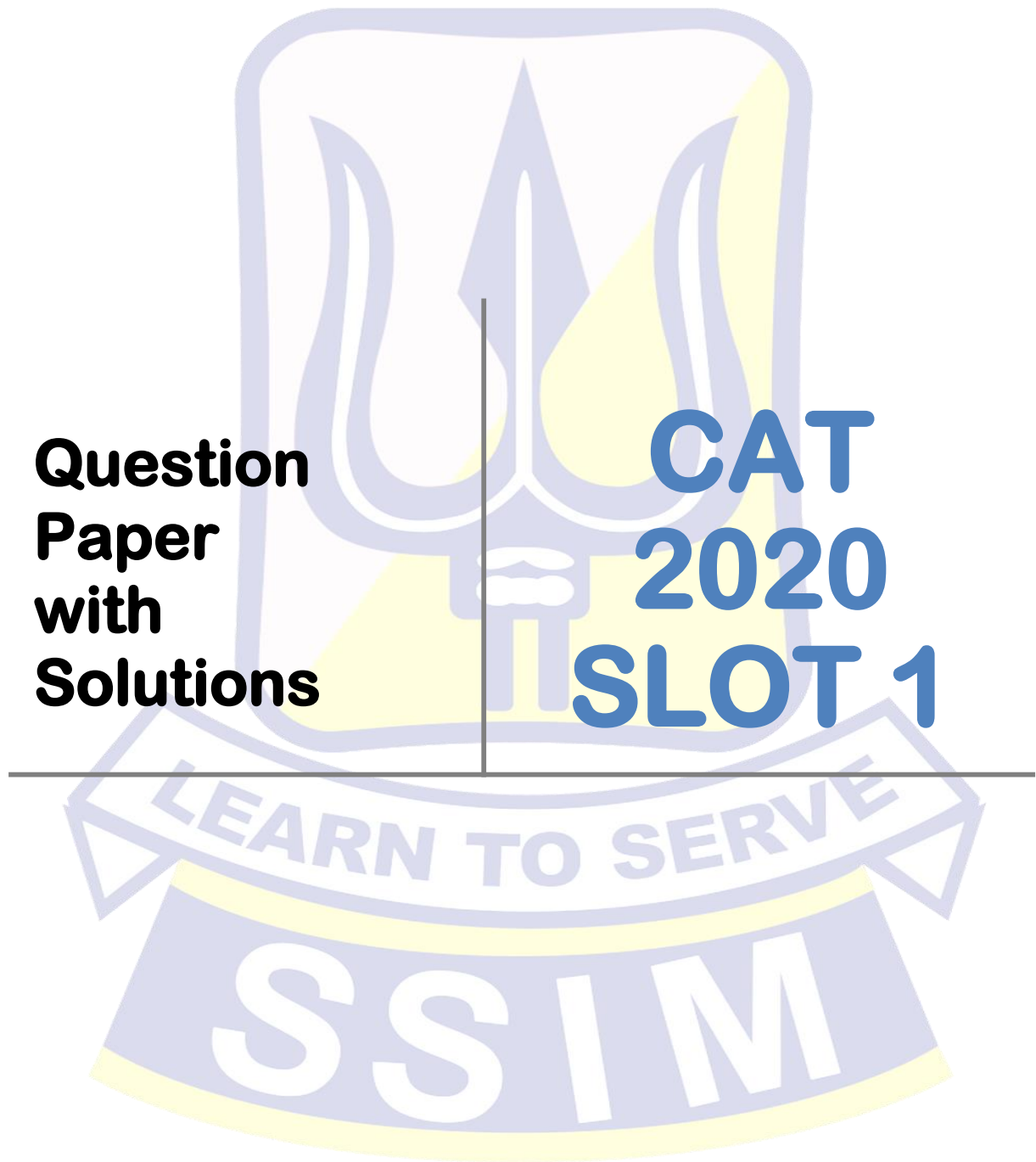
CAT VARC Section

Direction for Reading Comprehension: The passages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

In the late 1960s, while studying the northern-elephant-seal population along the coasts of **Mexico and California, Burney Le Boeuf and his colleagues couldn't help** but notice that the threat calls of males at some sites sounded different from those of males at other sites. . .. That was the first time dialects were documented in a nonhuman mammal. . ..

All the northern elephant seals that exist today are descendants of the small herd that survived on Isla Guadalupe [after the near extinction of the species in the nineteenth century]. As that tiny population grew, northern elephant seals started to recolonize former breeding locations. It was precisely on the more recently colonized islands where Le Boeuf found that the tempos of the male vocal displays showed stronger differences to the ones from Isla Guadalupe, the founder colony.

In order to test the reliability of these dialects over time, Le Boeuf and other researchers visited Año Nuevo Island in California—the island where males showed the slowest pulse rates in their calls—**every winter from 1968 to 1972. "What we found is that the pulse rate** increased, but it still remained relatively slow compared to the other colonies we had **measured in the past" Le Boeuf told me.**

At the individual level, the pulse of the calls stayed the same: A male would maintain his vocal signature throughout his lifetime. But the average pulse rate was changing. Immigration could have been responsible for this increase, as in the early 1970s, 43 percent of the males on Año Nuevo had come from southern rookeries that had a faster pulse rate. This led Le Boeuf and his collaborator, Lewis Petrinovich, to deduce that the dialects were, perhaps, a result of isolation over time, after the breeding sites had been recolonized. For instance, the first settlers of Año Nuevo could have had, by chance, calls with low pulse rates. At other sites, where the scientists found faster pulse rates, the opposite would have happened—seals with faster rates would have happened to arrive first.

As the population continued to expand and the islands kept on receiving immigrants from the original population, the calls in all locations would have eventually regressed to the average pulse rate of the founder colony. In the decades that followed, scientists noticed that the geographical variations reported in 1969 were not obvious anymore. . . . In the early 2010s, while studying northern elephant seals on Año Nuevo Island, [researcher Caroline] Casey noticed, too, that what Le Boeuf had heard decades ago was not what she heard now.

. . . By performing more sophisticated statistical analyses on both sets of data, [Casey and Le Boeuf] confirmed that dialects existed back then but had vanished. Yet there are other differences between the males from the late 1960s and their great-great-grandsons: Modern males exhibit more individual diversity, and their calls are more complex. While 50 years ago the drumming pattern was quite simple and the dialects denoted just a change in tempo, Casey explained, the calls recorded today have more complex structures, sometimes featuring doublets or triplets. . . .

Q.1 From the passage it can be inferred that the call pulse rate of male northern elephant seals in the southern rookeries was faster because:

1. a large number of male northern elephant seals from Año Nuevo Island might have migrated to the southern rookeries to recolonise them.

2. a large number of male northern elephant seals migrated from the southern rookeries to Año Nuevo Island in the early 1970s.

3. the male northern elephant seals of Isla Guadalupe with faster call pulse rates might have been the original settlers of the southern rookeries.

4. the calls of male northern elephant seals in the southern rookeries have more sophisticated structures, containing doublets and triplets.

Q.2 Which one of the following conditions, if true, could have ensured that male northern elephant seal dialects did not disappear?

1. The call tempo of individual immigrant male seals changed to match the average tempo of resident male seals in the host colony.

2. Besides Isla Guadalupe, there was one more founder colony with the same average male call tempo from which male seals migrated to various other colonies.

3. The call tempo of individual male seals in host colonies changed to match the average call tempo of immigrant male seals.

4. Besides Isla Guadalupe, there was one more surviving colony with the same average male call tempo from which no migration took place.

Q.3 Which one of the following best sums up the overall history of transformation of male northern elephant seal calls?

1. The calls have transformed from exhibiting simple composition, great individual variety, and less regional variety to complex composition, less individual variety, and great regional variety.

2. Owing to migrations in the aftermath of near species extinction, the average call pulse rates in the recolonised breeding locations exhibited a gradual increase until they matched the tempo at the founding colony.

3. The calls have transformed from exhibiting simple composition, less individual variety, and great regional variety to complex composition, great individual variety, and less regional variety.

4. Owing to migrations in the aftermath of near species extinction, the calls have transformed from exhibiting complex composition, less individual variety, and great regional variety to simple composition, less individual variety, and great regional variety.

Q.4 All of the following can be inferred from Le Boeuf's study as described in the passage EXCEPT that:

1. male northern elephant seals might not have exhibited dialects had they not become nearly extinct in the nineteenth century.

2. the average call pulse rate of male northern elephant seals at Año Nuevo Island increased from the early 1970s till the disappearance of dialects.

3. the influx of new northern elephant seals into Año Nuevo Island would have soon made the call pulse rate of its male seals exceed that of those at Isla Guadalupe.

4. changes in population and migration had no effect on the call pulse rate of individual male northern elephant seals.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

Vocabulary used in speech or writing organizes itself in seven parts of speech (eight, if you count interjections such as Oh! and Gosh! and Fuhgeddaboudit!). Communication composed of these parts of speech must be organized by rules of grammar upon which we agree. When these rules break down, confusion and misunderstanding result. Bad grammar **produces bad sentences. My favorite example from Strunk and White is this one: "As a** m**other of five, with another one on the way, my ironing board is always up."**

Nouns and verbs are the two indispensable parts of writing. Without one of each, no group of words can be a sentence, since a sentence is, by definition, a group of words containing a subject (noun) and a predicate (verb); these strings of words begin with a capital letter, **end with a period, and combine to make a complete thought which starts in the writer's head and then leaps to the reader's.**

Must you write complete sentences each time, every time? Perish the thought. If your work **consists only of fragments and floating clauses, the Grammar Police aren't going to come** and take you away. Even William Strunk, that Mussolini of rhetoric, recognized the delicious pliabili**ty of language. "It is an old observation," he writes, "that the best writers sometimes disregard the rules of rhetoric." Yet he goes on to add this thought, which I urge you to consider: "Unless he is certain of doing well, [the writer] will probably do b**est to follow the **rules."**

The telling clause here is Unless he is certain of doing well. If you don't have a rudimentary grasp of how the parts of speech translate into coherent sentences, how can you be certain that you are doing well? How will you know **if you're doing ill, for that matter? The answer, of course, is that you can't, you won't. One who does grasp the rudiments of grammar finds** a comforting simplicity at its heart, where there need be only nouns, the words that name, and verbs, the words that act.

Take any noun, put it with any verb, and you have a sentence. It never fails. Rocks explode. Jane transmits. Mountains float. These are all perfect sentences. Many such thoughts make

little rational sense, but even the stranger ones (Plums deify!) have a kind of poetic weight **that's nice. The simplicity of noun**-verb construction is useful—at the very least it can provide a safety net for your writing. Strunk and White caution against too many simple sentences in a row, but simple sentences provide a path you can follow when you fear getting lost in the tangles of rhetoric—all those restrictive and nonrestrictive clauses, those modifying phrases, those appositives and compound-complex sentences. If you start to freak out at the sight of such unmapped territory (unmapped by you, at least), just remind yourself that rocks explode, Jane transmits, mountains float, and plums deify. Grammar is .

. . the pole you grab to get your thoughts up on their feet and walking.

[QUESTION]

Q.5 Inferring from the passage, the author could be most supportive of which one of the following practices?

1. The critique of standardised rules of punctuation and capitalisation.
2. A campaign **demanding that a writer's creative license should allow the breaking of** grammatical rules.
3. A Creative Writing course that focuses on how to avoid the use of rhetoric.
4. The availability of language software that will standardise the rules of grammar as an aid to writers

Q.6 "Take any noun, put it with any verb, and you have a sentence. It never fails. Rocks explode. Jane transmits. Mountains float." None of the following statements can be seen as similar EXCEPT:

1. Take an apple tree, plant it in a field, and you have an orchard.
2. A group of nouns arranged in a row becomes a sentence.
3. A collection of people with the same sports equipment is a sports team.
4. Take any vegetable, put some spices in it, and you have a dish.

Q.7 All of the following statements can be inferred from the passage EXCEPT that:

1. the primary purpose of grammar is to ensure that sentences remain simple.
2. the subject–predicate relation is the same as the noun–verb relation.

3. **"Grammar Police" is a metaphor for critics who focus on linguistic rules.**

4. sentences do not always have to be complete.

Q.8 Which one of the following quotes best captures the main concern of the passage?

1. **"Bad grammar produces bad sentences."**

2. **"The telling clause here is Unless he is certain of doing well."**

3. **"Nouns and verbs are the two indispensable parts of writing. Without one of each, no group of words can be a sentence . . ."**

4. **"Strunk and White caution against too many simple s**entences in a row, but simple sentences provide a path you can follow when you fear getting lost in the tangles of rhetoric . . ."**

Q.9 Which one of the following statements, if false, could be seen as supporting the arguments in the passage?

1. An understanding of grammar helps a writer decide if she/he is writing well or not.

2. Perish the thought that complete sentences necessarily need nouns and verbs!

3. Regarding grammar, women writers tend to be more attentive to method and accuracy.

4. It has been observed that writers sometimes disregard the rules of rhetoric.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

Few realise that the government of China, governing an empire of some 60 million people during the Tang dynasty (618–907), implemented a complex financial system that recognised grain, coins and textiles as money. . . . Coins did have certain advantages: they were durable, recognisable and provided a convenient medium of exchange, especially for smaller transactions. However, there were also disadvantages. A continuing shortage of copper meant that government mints could not produce enough coins for the entire empire, to the extent that

for most of the dynasty's history, coins constituted only a tenth of the money supply. One of the

main objections to calls for taxes to be paid in coin was that peasant producers who could weave cloth or grow grain **–** the other two major currencies of

the Tang –would not be able to produce coins, and therefore would not be able to pay their taxes. . . .

As coins had advantages and disadvantages, so too did textiles. If in circulation for a long period of time, they could show signs of wear and tear. Stained, faded and torn bolts of textiles had less value than a brand new bolt. Furthermore, a full bolt had a particular value. If consumers cut textiles into smaller pieces to buy or sell something worth less than a full bolt, that, too, greatly lessened the value of the textiles. Unlike coins, textiles could not be used for small transactions; as [an official] noted, **textiles could not "be exchanged by the foot and the inch" . . .**

But textiles had some advantages over coins. For a start, textile production was widespread and there were fewer problems with the supply of textiles. For large transactions, textiles weighed less than their equivalent in coins since a string of coins . . . could weigh as much as 4 kg. Furthermore, the dimensions of a bolt of silk held remarkably steady from the third to the tenth century: 56 cm wide and 12 m long . . . The values of different textiles were also more stable than the fluctuating values of coins. . . .

The government also required the use of textiles for large transactions. Coins, on the other hand, were better suited for smaller transactions, and possibly, given the costs of transporting coins, for a more local usage. Grain, because it rotted easily, was not used nearly as much as coins and textiles, but taxpayers were required to pay grain to the government as a share of their annual tax obligations, and official salaries were expressed in weights of grain. . . .

In actuality, our own currency system today has some similarities even as it is changing in front of our eyes. . . . We have cash – coins for small transactions like paying for parking at a meter, and banknotes for other items; cheques and debit/credit cards for other, often larger, types of payments. At the same time, we are shifting to electronic banking and making payments online. Some young people never use cash [and] do not know how to write a cheque . . .

Q.10 According to the passage, the modern currency system shares all the following features with that of the Tang, EXCEPT that:

1. it uses different materials as currency.

2. it is undergoing transformation.

3. its currencies fluctuate in value over time.

4. it uses different currencies for different situations.

Q.11 In the context of the passage, which one of the following can be inferred with regard to the use of currency during the Tang era?

1. Currency that deteriorated easily was not used for official work.

2. Copper coins were more valuable and durable than textiles.

3. Currency usage was similar to that of modern times.

4. Grains were the most used currency because of government requirements.

Q.12 When discussing textiles as currency in the Tang period, the author uses the words **"steady" and "stable" to indicate all of the following EXCEPT:**

1. reliable transportation.

2. reliable supply.

3. reliable measurements.

4. reliable quality.

Q.13 During the Tang period, which one of the following would not be an economically sound decision for a small purchase in the local market that is worth one-eighth of a bolt of cloth?

1. Paying with a faded bolt of cloth that has approximately the same value.

2. Making the payment with the appropriate weight of grain.

3. Using coins issued by the government to make the payment.

4. Cutting one-eighth of the fabric from a new bolt to pay the amount.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

The word 'anarchy' comes from the Greek anarkhia, meaning contrary to authority or without a ruler, and was used in a derogatory sense until 1840, when it was adopted by

Pierre-Joseph Proudhon to describe his political and social ideology. Proudhon argued that organization without government was both possible and desirable. In the evolution of political ideas, anarchism can be seen as an ultimate projection of both liberalism and socialism, and the differing strands of anarchist thought can be related to their emphasis on one or the other of these.

Historically, anarchism arose not only as an explanation of the gulf between the rich and the poor in any community, and of the reason why the poor have been obliged to fight for their share of a common inheritance, but as a radical answer to the question **'What went wrong?'** **that followed the ultimate outcome of the French Revolution. It had ended not only** with a reign of terror and the emergence of a newly rich ruling caste, but with a new adored emperor, Napoleon Bonaparte, strutting through his conquered territories.

The anarchists and their precursors were unique on the political Left in affirming that workers and peasants, grasping the chance that arose to bring an end to centuries of exploitation and tyranny, were inevitably betrayed by the new class of politicians, whose first priority was to re-establish a centralized state power. After every revolutionary uprising, usually won at a heavy cost for ordinary populations, the new rulers had no hesitation in applying violence and terror, a secret police, and a professional army to maintain their control.

For anarchists the state itself is the enemy, and they have applied the same interpretation to the outcome of every revolution of the 19th and 20th centuries. This is not merely because every state keeps a watchful and sometimes punitive eye on its dissidents, but because every state protects the privileges of the powerful.

The mainstream of anarchist propaganda for more than a century has been anarchistcommunism, which argues that property in land, natural resources, and the means of production should be held in mutual control by local communities, federating for innumerable joint purposes with other communes. It differs from state socialism in opposing the concept of any central authority. Some anarchists prefer to distinguish between anarchist-communism and collectivist anarchism in order to stress the obviously desirable freedom of an individual or family to possess the resources needed for living, while not implying the right to own the resources needed by others. . . .

There are, unsurprisingly, several traditions of individualist anarchism, one of them deriving **from the 'conscious egoism' of the German writer** Max Stirner (1806–56), and another from a remarkable series of 19th-century American figures who argued that in protecting our own autonomy and associating with others for common advantages, we are promoting the good of all. These thinkers differed from free-market liberals in their absolute mistrust of American capitalism, and in their emphasis on mutualism.

Q.14 The author believes that the new ruling class of politicians betrayed the principles of the French Revolution, but does not specify in what way. In the context of the passage, which statement below is the likeliest explanation of that betrayal?

1. The new ruling class was constituted mainly of anarchists who were against
    the destructive impact of the Revolution on the market.

2. The anarchists did not want a new ruling class, but were not politically strong
    enough to stop them.

3. The new ruling class struck a deal with the old ruling class to share power
    between them.

4. **The new ruling class rode to power on the strength of the workers'**
    revolutionary anger, but then turned to oppress that very class.

Q.15 Which one of the following best expresses the similarity between American individualist anarchists and free-market liberals as well as the difference between the former and the latter?

1. Both reject **the regulatory power of the state; but the former favour a people's**
    state, while the latter favour state intervention in markets.

2. Both prioritise individual autonomy; but the former also emphasise
    mutual dependence, while the latter do not do so.

3. Both are sophisticated arguments for capitalism; but the former argue for a morally
    upright capitalism, while the latter argue that the market is the only morality.

4. Both are founded on the moral principles of altruism; but the latter conceive of
    the market as a force too mystical for the former to comprehend.

Q.16 The author makes all of the following arguments in the passage, EXCEPT:

1. The failure of the French Revolution was because of its betrayal by the new class of politicians who emerged from it.

2. The popular perception of anarchism as espousing lawlessness and violence comes from a mainstream mistrust of collectivism.

3. Individualist anarchism is actually constituted of many streams, all of which focus on the autonomy of the individual.

4. For anarchists, the state is the enemy because all states apply violence and terror to maintain their control.

Q.17 According to the passage, what is the one idea that is common to all forms of anarchism?

1. There is no idea common to all forms of anarchism; that is why it is anarchic.
2. They all derive from the work of Pierre-Joseph Proudhon.
3. They are all opposed to the centralisation of power in the state.
4. They all focus on the primacy of the power of the individual.

Q.18 Of the following sets of concepts, identify the set that is conceptually closest to the concerns of the passage.

1. Revolution, State, Strike, Egoism.
2. Revolution, State, Protection, Liberals.
3. Anarchism, State, Individual, Freedom.
4. Anarchism, Betrayal, Power, State.

Q.19 The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. Relying on narrative structure alone, indigenous significances of nineteenth century San folktales are hard to determine.

2. Using their supernatural potency, benign shamans transcend the levels of the San cosmos in order to deal with social conflict and to protect material resources and enjoy a measure of respect that sets them apart from ordinary people.

3. Selected tales reveal that they deal with a form of spiritual conflict that has social implications and concern conflict between people and living or dead malevolent shamans.

4. Meaning can be elicited, and the tales contextualized, by probing beneath the narrative of verbatim, original-language records and exploring the connotations of highly significant words and phrases.

Q.20 Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:

1. Talk was the most common way for enslaved men and women to subvert the rules of their bondage, to gain more agency than they were supposed to have.

2. Even in conditions of extreme violence and unfreedom, their words remained ubiquitous, ephemeral, irrepressible, and potentially transgressive.

3. Slaves came from societies in which oaths, orations, and invocations carried great potency, both between people and as a connection to the all-powerful spirit world.

4. Freedom of speech and the power to silence may have been preeminent markers of white liberty in Colonies, but at the same time, slavery depended on dialogue: slaves could never be completely muted.

5. Slave-owners obsessed over slave talk, though they could never control it, yet feared its power to bind and inspire—for, as everyone knew, oaths, whispers, and secret conversations bred conspiracy and revolt.

Q.21 The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. Tensions and sometimes conflict remain an issue in and between the 11 states in South East Asia (Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam).

2. **China's rise as a regional military power and its claims in the South China Sea have** become an increasingly pressing security concern for many South East Asian states.

3. Since the 1990s, the security environment of South East Asia has seen both continuity and profound changes.

4. These concerns cause states from outside the region to take an active interest in South East Asian security.

Q.22 The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

As Soviet power declined, the world became to some extent multipolar, and Europe strove to define an independent identity. What a journey Europe has undertaken to reach this point. It had in every century changed its internal structure and invented new ways of thinking about the nature of international order. Now at the culmination of an era, Europe, in order to participate in it, felt obliged to set aside the political mechanisms through which it had conducted its affairs for three and a half centuries. Impelled also by the desire to cushion the emergent unification of Germany, the new European Union established a common currency in 2002 and a formal political structure in 2004. It proclaimed a Europe united, whole, and free, adjusting its differences by peaceful mechanisms.

1. Europe has consistently changed its internal structure to successfully adapt to the changing world order.

2. Europe has consistently changed in keeping with the changing world order and that has culminated in a united Europe.

3. The establishment of a formal political structure in Europe was hastened by the unification of Germany and the emergence of a multipolar world.

4. Europe has chosen to lower political and economic heterogeneity, in order to adapt itself to an emerging multi-polar world.

Q.23 The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

For years, movies and television series like Crime Scene Investigation (CSI) paint an **unrealistic picture of the "science of voices." In the 1994 movie Clear and Present** Danger **an expert listens to a brief recorded utterance and declares that the speaker is "Cuban, aged 35 to 45, educated in the […] eastern United States." The recording is then fed to a**

supercomputer that matches the voice to that of a suspect, concluding that the probability of correct identification is 90%. This sequence sums up a good number of misimpressions about forensic phonetics, which have led to errors in reallife justice. Indeed, that movie scene exemplifies the so-**called "CSI effect"—**the phenomenon in which judges hold unrealistic expectations of the capabilities of forensic science.

1. Although voice recognition is often presented as evidence in legal cases, its scientific basis can be shaky.

2. Movies and televisions have led to the belief that the use of forensic phonetics in legal investigations is robust and fool proof.

3. Voice recognition as used in many movies to identify criminals has been used to identify criminals in real life also.

4. Voice recognition has started to feature prominently in crime-scene intelligence investigations because of movies and television series.

Q.24 The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

For nearly a century most psychologists have embraced one view of intelligence. Individuals are born with more or less intelligence potential (I.Q.); this potential is heavily influenced by heredity and difficult **to alter; experts in measurement can determine a person's** intelligence early in life, currently from paper-and-pencil measures, perhaps eventually from examining the brain in action or even scrutinizing his/her genome. Recently, criticism of this conventional wisdom has mounted. Biologists ask if speaking of a single entity called **"intelligence" is coherent and question the validity of measures used to estimate heritability** of a trait in humans, who, unlike plants or animals, are not conceived and bred under controlled conditions.

1. Biologists have questioned the long-**standing view that 'intelligence' is a single entity** and the attempts to estimate its heritability.

2. Biologists have started questioning psychologists' view of 'intelligence' as a measurable immutable characteristic of an individual.

3. **Biologists have questioned the view that 'intelligence' is a single entity and the ways in** which what is inherited.

4. Biologists have criticised that conventional wisdom that individuals are born with more or less intelligence potential.

Q.25 Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:

1. For feminists, the question of how we read is inextricably linked with the question of what we read.
2. **Elaine Showalter's critique of the literary curriculum is exemplary of this work.**
3. Androcentric literature structures the reading experience differently depending on the gender of the reader.
4. The documentation of this realization was one of the earliest tasks undertaken by feminist critics.
5. More specifically, the feminist inquiry into the activity of reading begins with the realization that the literary canon is androcentric, and that this has a profoundly damaging effect on women readers.

Q.26 The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. Man has used poisons for assassination purposes ever since the dawn of civilization, against individual enemies but also occasionally against armies.
2. These dangers were soon recognized, and resulted in two international declarations— in 1874 in Brussels and in 1899 in The Hague—that prohibited the use of poisoned weapons.
3. The foundation of microbiology by Louis Pasteur and Robert Koch offered new prospects for those interested in biological weapons because it allowed agents to be chosen and designed on a rational basis.
4. Though treaties were all made in good faith, they contained no means of control, and so failed to prevent interested parties from developing and using biological weapons.

CAT LRDI Section

The local office of the APP-CAB company evaluates the performance of five cab drivers, Arun, Barun, Chandan, Damodaran, and Eman for their monthly payment based on ratings in five different parameters (P1 to P5) as given below:

P1: timely arrival

P2: behaviour

P3: comfortable ride

P4: driver's familiarity with the route

P5: value for money

Based on feedback from the customers, the office assigns a rating from 1 to 5 in each of these parameters. Each rating is an integer from a low value of 1 to a high value of 5. The final rating of a driver is the average of his ratings in these five parameters. The monthly payment of the drivers has two parts – a fixed payment and final rating-based bonus. If a driver gets a rating of 1 in any of the parameters, he is not eligible to get bonus. To be eligible for bonus a driver also needs to get a rating of five in at least one of the parameters.

The partial information related to the ratings of the drivers in different parameters and the monthly payment structure (in rupees) is given in the table below:

The following additional facts are known.

1. Arun and Barun have got a rating of 5 in exactly one of the parameters. Chandan has got a rating of 5 in exactly two parameters.
2. None of drivers has got the same rating in three parameters.

Q.27. If Damodaran does not get a bonus, what is the maximum possible value of his final rating?

1. 3.8
2. 3.4
3. 3.6
4. 3.2

Q.28. If Eman gets a bonus, what is the minimum possible value of his final rating?

1. 3.0
2. 3.2
3. 2.8
4. 3.4

Q.29. If all five drivers get bonus, what is the minimum possible value of the monthly payment (in rupees) that a driver gets?

1. 1740
2. 1600
3. 1700
4. 1750

Q.30. If all five drivers get bonus, what is the maximum possible value of the monthly payment (in rupees) that a driver gets?

1. 1960
2. 1950
3. 1900
4. 2050

Ten musicians (A, B, C, D, E, F, G, H, I and J) are experts in at least one of the following three percussion instruments: tabla, mridangam, and ghatam. Among them, three are experts in tabla but not in mridangam or ghatam, another three are experts in mridangam but not in tabla or ghatam, and one is an expert in ghatam but not in tabla or mridangam. Further, two are experts in tabla and mridangam but not in ghatam, and one is an expert in tabla and ghatam but not in mridangam.

The following facts are known about these ten musicians.

1. Both A and B are experts in mridangam, but only one of them is also an expert in tabla.
2. D is an expert in both tabla and ghatam.
3. Both F and G are experts in tabla, but only one of them is also an expert in mridangam.
4. Neither I nor J is an expert in tabla.
5. Neither H nor I is an expert in mridangam, but only one of them is an expert in ghatam.

Q.31. Who among the following is DEFINITELY an expert in tabla but not in either mridangam or ghatam?

1. C
2. H
3. A
4. F

Q.32. Who among the following is DEFINITELY an expert in mridangam but not in either tabla or ghatam?

1. B
2. G
3. J
4. E

Q.33. Which of the following pairs CANNOT have any musician who is an expert in both tabla and mridangam but not in ghatam?

1. A and B
2. C and F
3. C and E
4. F and G

Q.34. If C is an expert in mridangam and F is not, then which are the three musicians who are experts in tabla but not in either mridangam or ghatam?

1. C, E and G
2. C, G and H
3. E, G and H
4. E, F and H

Four institutes, A, B, C, and D, had contracts with four vendors W, X, Y, and Z during the ten calendar years from 2010 to 2019. The contracts were either multi-year contracts running for several consecutive years or single-year contracts. No institute had more than one contract with the same vendor. However, in a calendar year, an institute may have had contracts with multiple vendors, and a vendor may have had contracts with multiple institutes. It is known that over the decade, the institutes each got into two contracts with two of these vendors, and each vendor got into two contracts with two of these institutes.

The following facts are also known about these contracts.

I.   Vendor Z had at least one contract in every year.

II.   Vendor X had one or more contracts in every year up to 2015, but no contract in any year after that.

III.   Vendor Y had contracts in 2010 and 2019. Vendor W had contracts only in 2012.

V.   There were exactly four multi-year contracts. Institute B had a 7-year contract, D had a 4- year contract, and A and C had one 3-year contract each. The other four contracts were single-year contracts.

VI.   Institute C had one or more contracts in 2012 but did not have any contract in 2011.

VII.   Institutes B and D each had exactly one contract in 2012. Institute D did not have any contract in 2010.

Q.35. In which of the following years were there two or more contracts?

1. 2018
2. 2017
3. 2015
4. 2016

Q.36. Which of the following is true?

1. D had a contract with Y in 2019
2. D had a contract with X in 2011
3. B had a contract with Y in 2019
4. B had a contract with Z in 2017

Q.37. In how many years during this period was there only one contract?

1. 4
2. 2
3. 3
4. 5

Q.38. What BEST can be concluded about the number of contracts in 2010?

1. exactly 4
2. at least 4
3. exactly 3
4. at least 3

Q.39. Which institutes had multiple contracts during the same year?

1. B and C only
2. A only
3. B only
4. A and B only

Q.40. Which institutes and vendors had more than one contracts in any year?

1. A, D, W, and Z
2. B, W, X, and Z
3. B, D, W, and X
4. A, B, W, and X

In a certain board examination, students were to appear for examination in five subjects: English, Hindi, Mathematics, Science and Social Science. Due to a certain emergency situation, a few of the examinations could not be conducted for some students. Hence, some students missed one examination and some others missed two examinations. Nobody missed more than two examinations.

The board adopted the following policy for awarding marks to students. If a student appeared in all five examinations, then the marks awarded in each of the examinations were on the basis of the scores obtained by them in those examinations.

If a student missed only one examination, then the marks awarded in that examination was the average of the best three among the four scores in the examinations they appeared for.

If a student missed two examinations, then the marks awarded in each of these examinations was the average of the best two among the three scores in the examinations they appeared for.

The marks obtained by six students in the examination are given in the table below. Each of them missed either one or two examinations.

The following facts are also known.

I. Four of these students appeared in each of the English, Hindi, Science, and Social Science examinations.

II. The student who missed the Mathematics examination did not miss any other examination.

III. One of the students who missed the Hindi examination did not miss any other examination. The other student who missed the Hindi examination also missed the Science examination.

Q.41. Who among the following did not appear for the Mathematics examination?

1. Foni
2. Alva
3. Esha
4. Carl

Q.42. Which students did not appear for the English examination?

1. Alva and Bithi
2. Carl and Deep
3. Esha and Foni
4. Cannot be determined

Q.43. What BEST can be concluded about the students who did not appear for the Hindi examination?

1. Alva and Deep
2. Deep and Esha
3. Alva and Esha
4. Two among Alva, Deep and Esha

Q.44. What BEST can be concluded about the students who missed the Science examination?

1. Alva and Bithi

2. Deep and Bithi

3. Alva and Deep

4. Bithi and one out of Alva and Deep

Q.45. How many out of these six students missed exactly one examination?

Q.46. For how many students can we be definite about which examinations they missed?

1000 patients currently suffering from a disease were selected to study the effectiveness of treatment of four types of medicines — A, B, C and D. These patients were first randomly assigned into two groups of equal size, called treatment group and control group. The patients in the control group were not treated with any of these medicines; instead they were given a dummy medicine, called placebo, containing only sugar and starch. The following information is known about the patients in the treatment group.

a. A total of 250 patients were treated with type A medicine and a total of 210 patients were treated with type C medicine.

b. 25 patients were treated with type A medicine only. 20 patients were treated with type C medicine only. 10 patients were treated with type D medicine only.

c. 35 patients were treated with type A and type D medicines only. 20 patients were treated with type A and type B medicines only. 30 patients were treated with type A and type C medicines only. 20 patients were treated with type C and type D medicines only.

d. 100 patients were treated with exactly three types of medicines.

e. 40 patients were treated with medicines of types A, B and C, but not with medicines of type D. 20 patients were treated with medicines of types A, C and D, but not with medicines of type B.

f. 50 patients were given all the four types of medicines. 75 patients were treated with exactly one type of medicine

Q.47. How many patients were treated with medicine type B?

Q.48. The number of patients who were treated with medicine types B, C and D, but not type A was:

Q.49. How many patients were treated with medicine types B and D only?

Q. 50. The number of patients who were treated with medicine type D was:

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CAT Quant Section

Q.51. How many 3-digit numbers are there, for which the product of their digits is more than 2 but less than 7?

Q.52. Veeru invested Rs 10000 at 5% simple annual interest, and exactly after two years, Joy invested Rs 8000 **at 10% simple annual interest. How many years after Veeru's** investment, will their balances, i.e., principal plus accumulated interest, be equal?

Q.53. An alloy is prepared by mixing three metals A, B and C in the proportion 3: 4: 7 by volume. Weights of the same volume of the metals A, B and C are in the ratio 5: 2: 6. In 130 kg of the alloy, the weight, in kg, of the metal C is

1. 70
2. 96
3. 48
4. 84

Q.54. On a rectangular metal sheet of area 135 sq in, a circle is painted such that the circle touches two opposite sides. If the area of the sheet left unpainted is two-thirds of the painted area then the perimeter of the rectangle in inches is

1. $5\sqrt{3}\dfrac{9}{\pi}$

2. $3\sqrt{\dfrac{5}{2}}\dfrac{6}{\pi}$

3. $3\sqrt{5}\dfrac{12}{\pi}$

4. $4\sqrt{3}\dfrac{9}{\pi}$

Q.55. If $\log_4 5 = \log_4 y \log_6 \sqrt{5}$, then y equals

Q.56. Two persons are walking beside a railway track at respective speeds of 2 and 4 km per hour in the same direction. A train came from behind them and crossed them in 90 and 100

seconds, respectively. The time, in seconds, taken by the train to cross an electric post is nearest to

1. 87
2. 82
3. 75
4. 78

Q.57. The number of real-valued solutions of the equation $2^x + 2^{-x} = 2 - (x-2)^2$ is

1. infinite
2. 1
3. 0
4. 2

Q.58. If y is a negative number such that $2^{y^2 \log_3 5} = 5^{\log_2 3}$, then y equals

1. $\log_2 (1/3)$
2. $-\log_2 (1/3)$
3. $-\log_2 (1/5)$
4. $\log_2 (1/5)$

Q.59. How many distinct positive integer-valued solutions exist to the equation

$$(x^2 - 7x + 11)^{(x^2 - 13x + 42)} = 1?$$

1. 6
2. 8
3. 2
4. 4

Q.60. A person spent Rs 50000 to purchase a desktop computer and a laptop computer. He sold the desktop at 20% profit and the laptop at 10% loss. If overall he made a 2% profit then the purchase price, in rupees, of the desktop is

Q. 61. The area of the region satisfying the inequalities $|x| - y \le 1$, $y \ge 0$ and $y \le 1$ is

Q. 62. A straight road connects points A and B. Car 1 travels from A to B and Car 2 travels from B to A, both leaving at the same time. After meeting each other, they take 45 minutes and 20 minutes, respectively, to complete their journeys. If Car 1 travels at the speed of 60 km/hr, then the speed of Car 2, in km/hr, is

1. 90
2. 100
3. 80
4. 70

Q.63. Among 100 students, x_1 have birthdays in January, x_2 have birthdays in February, and so on. If x_0 max $x_1, x_2, , x_{12}$, then the smallest possible value of x_0 is

1. 9
2. 10
3. 8
4. 12

Q.64. The mean of all 4 -digit even natural numbers of the form 'aabb', where a >0, is

1. 5050
2. 4466
3. 5544
4. 4864

Q.65. Leaving home at the same time, Amal reaches office at 10: 15 am if he travels at 8 km/hr, and at 9: 40 am if he travels at 15 km/hr. Leaving home at 9: 10 am, at what speed, in km/hr, must he travel so as to reach office exactly at 10 am ?

1. 13
2. 14
3. 12
4. 11

Q.66. A train travelled at one-thirds of its usual speed, and hence reached the destination 30 minutes after the scheduled time. On its return journey, the train initially travelled at its

usual speed for 5 minutes but then stopped for 4 minutes for an emergency. The percentage by which the train must now increase its usual speed so as to reach the destination at the scheduled time, is nearest to

1. 58
2. 67
3. 61
4. 50

Q.67. If $x = (4096)^{7-4\sqrt{3}}$, then which of the following equals 64 ?

1. $$\frac{x^7}{x^{2\sqrt{3}}}$$

2. $$\frac{x^7}{x^{4\sqrt{3}}}$$

3. $$\frac{x^{\frac{7}{2}}}{x^{4\sqrt{3}}}$$

4. $$\frac{x^{\frac{7}{2}}}{x^{2\sqrt{3}}}$$

Q.68. If $f(5+x) = f(5-x)$ for every real x, and f(x)=0 has four distinct real roots, then the sum of these roots is

1. 0
2. 40
3. 10
4. 20

Q.69. If a, b and c are positive integers such that ab = 432, bc = 96 and c < 9, then the smallest possible value of a + b + c is

1. 56
2. 59
3. 49
4. 46

Q.70. In a group of people, 28% of the members are young while the rest are old. If 65% of the members are literates, and 25% of the literates are young, then the percentage of old people among the illiterates is nearest to

1. 62
2. 55
3. 66
4. 59

Q.71. A circle is inscribed in a thombus with diagonals 12 cm and 16 cm. The ratio of the area of circle to the area of rhombus is

1. $\dfrac{5}{18}$

2. $\dfrac{6}{25}$

3. $\dfrac{3}{25}$

4. $\dfrac{2}{15}$

Q.72. A gentleman decided to treat a few children in the following manner. He gives half of his total stock of toffees and one extra to the first child, and then the half of the remaining stock along with one extra to the second and continues giving away in this fashion. His total stock exhausts after he takes care of 5 children. How many toffees were there in his stock initially?

Q.73. Let A, B and C be three positive integers such that the sum of A and the mean of B and C is 5. In addition, the sum of B and the mean of A and C is 7. Then the sum of A and B is

1. 6
2. 5
3. 7
4. 4

Q.74. A solution, of volume 40 litres, has dye and water in the proportion 2 : 3. Water is added to the solution to change this proportion to 2 : 5. If one-fourths of this diluted

solution is taken out, how many litres of dye must be added to the remaining solution to bring the proportion back to 2 : 3?

Q.75. The number of distinct real roots of the equation $x + \dfrac{1}{x} = 3x - \dfrac{2}{x} - 20$ equals

Q.76. A solid right circular cone of height 27 cm is cut into two pieces along a plane parallel to its base at a height of 18 cm from the base. If the difference in volume of the two pieces is 225 cc, the volume, in cc, of the original cone is

1. 232
2. 256
3. 264
4. 243
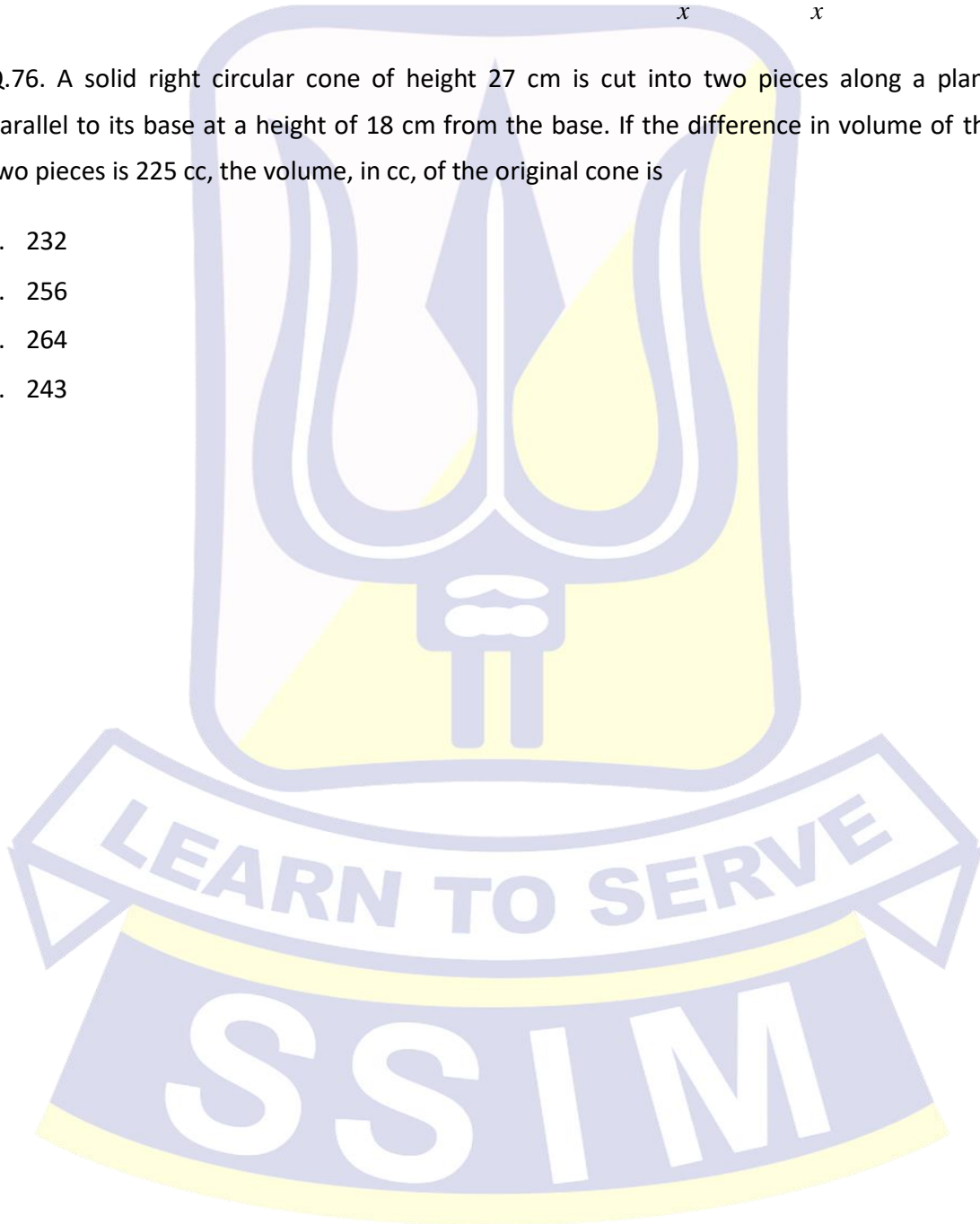
Answer Keys

1. 3	20. 3	39. 4	58. 1
2. 1	21. 3124	40. 4	59. 1
3. 3	22. 4	41. 4	60. 20000
4. 3	23. 2	42. 3	61. 3
5. 4	24. 1	43. 1	62. 1
6. 4	25. 3	44. 4	63. 1
7. 1	26. 1324	45. 3	64. 3
8. 1	27. 3	46. 4	65. 3
9. 2	28. 1	47. 340	66. 2
10. 2	29. 3	48. 10	67. 4
11. 3	30. 1	49. 150	68. 4
12. 1	31. 2	50. 325	69. 4
13. 4	32. 3	51. 21	70. 3
14. 4	33. 3	52. 12	71. 2
15. 2	34. 4	53. 4	72. 62
16. 2	35. 3	54. 3	73. 1
17. 3	36. 1	55. 36	74. 8
18. 3	37. 3	56. 2	75. 1
19. 1432	38. 3	57. 3	76. 4
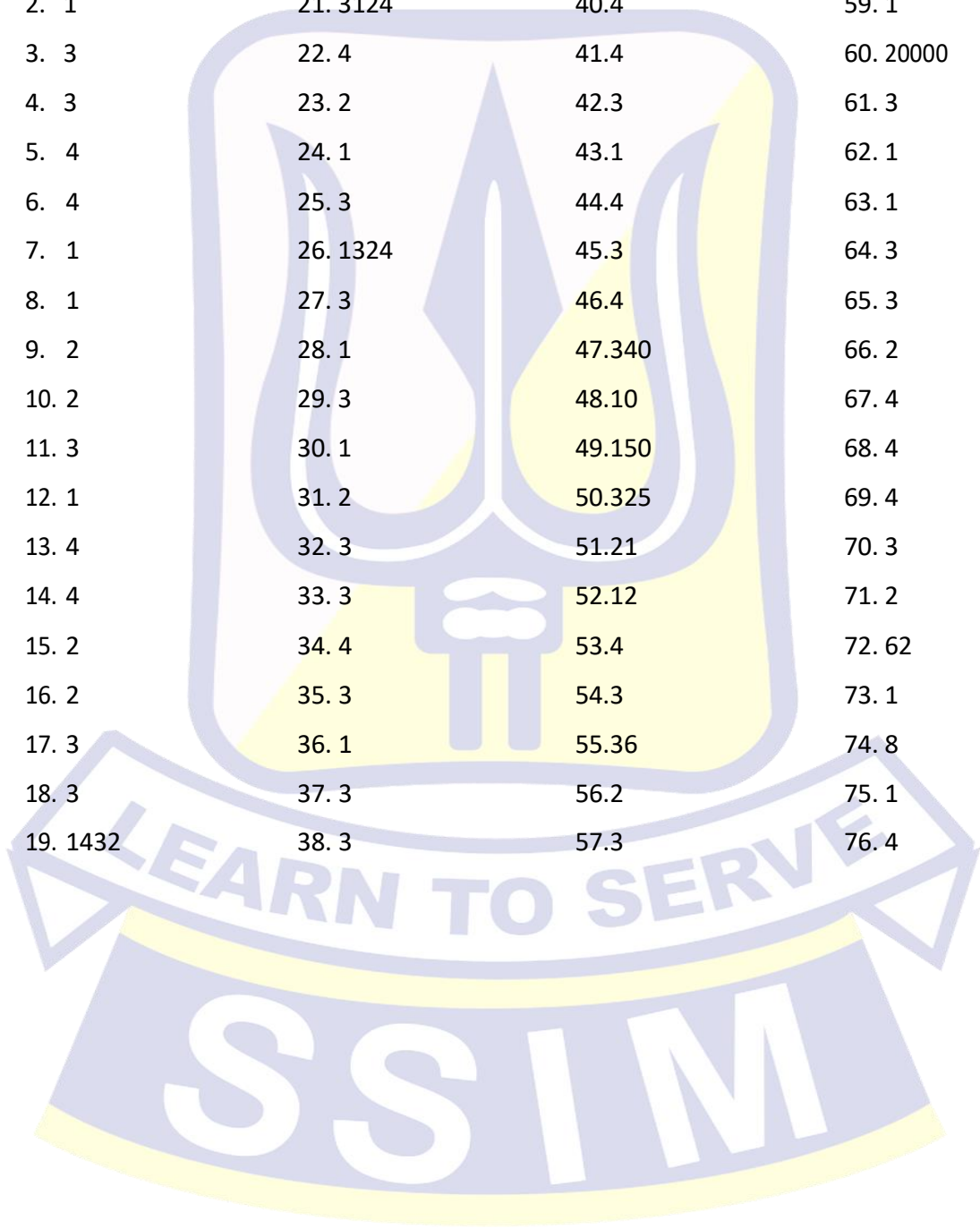
Solutions

Solution 1:

Some questions of this passage are very difficult. We have tried our best to answer the questions for which we found convincing evidence in the passage.

This question is an inference question and asks us to mark the option that suggests why the call pulse rate of male northern elephant seals in the southern rookeries was faster. The evidence for this can be seen in the last part of the second last paragraph. In that paragraph **we have "this led Le Boeuf to deduce that dialects were a result of isolation over** time...for instance, the first settlers of Ano Nuevo could have had, by chance, calls with low pulse rates. At other sites, where scientists found faster pulse rates the opposite would have happened-seals with faster rates would have happened to arrive fi**rst". So if the pulse rate** of the elephant seals in southern rookeries was faster, it was because the seals with faster call pulse rates might have been the original settlers (or might have arrived there first). Thus C is the best choice. Option A goes out because if that were the case, then the pulse rates of the seals in southern rookeries would have been slower, not faster. Option B also goes because here the question is migration to southern rookeries and not from southern rookeries. For choice D, there is no evidence whatsoever.

[Option: 3]

Solution 2:

This might look a little difficult, but we have a clear evidence that helps us arrive at the right answer. **We must read the first sentence of the last paragraph "as the population continued to** expand and the islands kept on receiving immigrants from the original population, the calls in **all locations would have eventually regressed to the average pulse rate of the founder colony".**

This is a simple concept of average. Now the question is which of the following could have ensured (it means it is asking us for a hypothetical situation) that male northern elephant seals dialects did not disappear. It disappeared because the average changed because of migrant seals. As more and more seals came, the average regressed to

"the pulse rate of the founder colony". To make the situation opposite, the call tempo of the individual immigrant seal should have changed to match the average tempo of resident male **seals of the "host colony." If option A had happened, the male northern seal**s dialect would not have disappeared. Option C is the exact opposite of A. We must remember here that the islands kept on receiving immigrants from the original population, and the average pulse rate changed to match the founder colony, not the host colony. **That's why the host colony's dialects** disappeared. Had option A been true, this would not have happened.

[Option: 1]

Solution 3:

This is the only easy question of this passage. The last sentence of the passage says "modern males exhibit more individual diversity, and their calls are more complex...sometimes **featuring doublets or triplets". So to capture the overall history of transformation, we must** capture this last part of the passage. There is more of individual variety, but less regional variety. **You must be wondering why! The passage clearly tells us that "in the decades that** followed, scientists noticed that the geographical variations reported in 1969 were not **obvious anymore...". C is the best choice. A and D go out because they mention "grea**t **regional variety".**

[Option: 3]

Solution 4:

This is a difficult question but option elimination can help us arrive at the right answer. We have to mark the answer that cannot be inferred, as it is an EXCEPT question. A can be inferred because the seals exhibited dialects because the population was isolated. This isolation was a result of the seal population being almost on the verge of extinction. Since their numbers were very small, the isolation happened. As the population grew there was immigration to different places and this resulted in disappearance of the dialects. Thus we can infer A. Option B also can be inferred from the para that talks about Ano Nuevo seals. It clearly suggests that the average pulse rate increased from 1970s till the dialects disappeared. Option C is certainly a wrong inference because the influx might have resulted in pulse rate of the seals averaging to that of Isla Guadalupe, but not exceeding. The word

"exceeding" makes this a wrong inference, and therefore the right answer. Option D is exactly true to what the passages, as a whole, discusses. The individual call rate did not change throughout, but the immigration made all the difference, by ensuring influx of seals with higher pulse rate, thus increasing the average pulse rate.

[Option: 3]

Solution 5:

This is the simplest RC passage, and many questions here can be solved effortlessly. The question asks us to mark a choice of which the author would be supportive. We have to keep the central idea in mind while going through the options. The author opines that **grammar is essential to frame sentences and one can't do away with grammar. Option 4** perfectly fits in. The author would indeed be supportive of such a software as the one that will standardise the rules of grammar as an aid to writers. Option 1 goes out because it is too narrow a choice, and tends to specifically focus on punctuation and capitalization instead of grammar as a whole. Choice 2 is against grammar, so it goes out, while option does not even mention the keyword grammar, which is the focus on the passage.

[Option: 4]

Solution 6:

This is an analogy question. You bring two different things together and what you have is a new thing. The right option must have two different things, which when combined should give us a new thing. 4 precisely does that. Vegetable is the noun, the spices is the verb, and the resulting new sentence is the new dish. There is no such analogy visible **in 3. We don't understand the relevance of "same sports equipment". The question says "take any noun", but in 3 we are taking 'a collection of people'. 2 is logically flawed because without a verb we can't have a sentence. Option 1 might look close, but pl**anting an apple tree alone in a field will not make the field an orchard. We need to have many such apple trees to make an orchard. 4 is the best.

[Option: 4]

Solution 7:

Here for this question, we have to mark a choice that cannot be inferred from the passage. For choice 2 we have evidence in the second paragraph of the passage. 2 can be definitely inferred from the second paragraph. Choice 2 is also correct, and can be inferred from the option itself. Police ensure enforcement of law and order, whereas grammar police insist on application of strict grammar rules. Option 4 goes because it too can be inferred. After all, the author is in favour of grammar and it is grammar that helps us form complete sentences. So how can the passage imply that sentences need not be complete. It has to be the other way round. Noun and verb come together to form a complete sentence.

[Option: 1]

Solution 8:

Here we have mark a choice that captures the main idea of the passage. Since the author highlights the importance of grammar in framing correct sentences, choice 1 becomes the right answer. This is too simple a question to demand why others are not the right choice.

[Option: 1]

Solution 9:

Here we have to pick a choice, which, when falsified, supports the arguments of the passage. Since 1 is supporting the author, it would not the same when falsified, so 1 goes out. 2 says that one must not think that nouns and verbs are necessary for complete sentences. But when falsified it means that nouns and verbs are necessary for complete sentences, so this supports the author, and is therefore the right answer. Choice 4 is irrelevant because the passage is concerned with grammar and not with rhetoric. Whether **some writers regard or disregard the rules of rhetoric has nothing to do with the passage's** chief concern, which is grammar.

[Option: 2]

Solution 10:

This is an easy passage to read, but some of the questions have very close choices. This question asks to pick a choice that modern currency does not share with the currencies of

the Tang era. You must remember that this is an EXCEPT question, and the feature not shared will become the right choice. 1 is a feature shared by both modern and Tang currencies. Last paragraph tells us about modern currencies, whereas the opening tells us about the Tang currencies. Choice 3 also is a feature shared by both, the bolt of silk lost value because of wear and tear. Now many might feel that the last paragraph does not speak anything about modern currencies losing value over time. But this is implied as common knowledge. The idea of inflation suggests that currency value my not always be the same always. The value of Rs 100 was greater 20 years ago than it is today. Thus 3 is a feature shared by both modern and Tang currencies. 4 is also a feature shared by both because in the modern times we use coins for smaller payments, currency for bigger payments, and electronic methods for still bigger payments. This was true of Tang era as well, as can be seen in the first and second paragraphs. The currencies during the Tang era were static: we had coins, fabric and grains to make payments; there is no transformation implied in these during that era, whereas in the modern times because of technology the currency system is undergoing transformation, as the last paragraph shows. The author **says: it is changing in front of our eyes...**

[Option: 2]

Solution 11:

The answer to the earlier questions helps us answer this question. If in the earlier question we eliminated choices that modern currencies shared with the currencies of the Tang era, then it implies that currency usage during the Tang era was similar to currency usage of modern times. There is no evidence for choice 1. Copper coins were difficult to mint, the **passage says, but that doesn't mean that coppe**r coins were more valuable. Choice 4 is opposite of what is stated in the passage.

[Option: 3]

Solution 12:

   To answer this question, we must look for the word "steady and stable" and examine the context in which the words have been used. These words have come in the third paragraph. The **para says "dimensions of a bolt of silk held steady ..." here by dimension, the author**

implies measurement. Thus 1 is correct, but it goes out because it is an except question. The idea of supply can also be inferred from the first sentence of the third paragraph of the passage. The values of different textiles were more stable because the textiles would not have deteriorated over time. The Passage tells us that the value of textiles depended on the quality of the textile. So stable value means stable quality. The reliability of transportation is not the question here. It is the cost of the transportation that the passage highlights (second last para). Thus 1 is the best choice.

[Option: 1]

Solution 13:

This is a slightly tricky question, but we have to pick the choice that is not economically a sound decision. So the right choice must imply some sort of a loss. Option 1 says that payment was done with a faded bolt of the same value.... since the faded bolt will further deteriorate, using it to pay makes sense. 1 goes out. Making payment in grains would be the most economical way as grains would rot easily, so the payer will gain while the payee will not. Here we have to answer for the payer. Thus both 2 and 3 are economical. 3 is also an economical way because coins, the passage says, lost value over time, but a piece of fabric from a new bolt is not likely to lose value over time, and so would be economically not a wise decision to make payment.

[Option: 4]

Solution 14:

This is an application question. We have to pick from the choices the one that explains how the new ruling class might have betrayed the principles of the French Revolution. We have to first understand what, as per the passage, were the principles of the French Revolution. Here we have to understand that the workers and peasants were the oppressed class, and it is they who made the revolution possible. Betrayal means to against someone. 1 cannot be the right choice because the new ruling class was against the destructive impact of the revolution on the market, but not against the workers and peasants. Both in 2 and 3 there is no sign of betrayal. Only in 4 can we see the evidence of betrayal where the new ruling class

rode to power on the strength of workers' revolutionary anger, but then turned to oppress that very class. 4 is the best choice.

[Option: 4]

Solution 15:

The clue to the right answer can be seen in the last paragraph where the author says "there are several traditions of anarchism...one was 19th century American figures who argued that in protecting our own autonomy and associating with others, we are promoting the good of all. These thinkers differed from free-market liberals in their absolute mistrust of American capitalism, and in their emphas**is of mutualism." Thus there was a difference between free** market liberals and the American anarchists. This difference was with respect to mutualism and capitalism. The anarchists favoured mutualism but mistrusted capitalism. Option 2 brings out this difference correctly. The others just go out because none of them talk about mutualism, which the American anarchists favoured, but the liberals did not.

[Option: 2]

Solution 16:

Here we have to eliminate the choice that features in the passage as the au**thor's argument,** and choose as our right answer the one that does not. 1 is true as per the passage and can be verified from the second paragraph of the passage. The first sentence of the last para is evidence for choice 3. From the first sentence of the fourth paragraph, we can derive choice

4. Thus we have evidence for all choices except 2. In fact, we can directly mark 2 without verifying the others because anarchists are in favour of autonomy and mutualism. So anarchists will never mistrust collectivism. The evidence for this can be found in the last paragraph. Thus 2 is not the argument presented by the author in the passage.

[Option: 2]

Solution 17:

The passage clearly says in the first para and the fourth paragraph that state itself is the enemy. Thus 3 is the right choice, unarguably. The others are easy to eliminate.

[Option: 3]

Solution 18:

This too is a very simple question because we have to pick the concepts that are there in **the passage. Both 1 and 2 go out because they don't have in them the most important** concept: anarchism. Out of 3 and 4, we must pick 3 because the last part of the passage discussed Freedom and individual autonomy. You can refer to the last two paragraphs. Also in option 4 power and state are the same things, there is no need to keep them as two separate things.

[Option: 3]

Solution 19:

This is a simple parajumble question. None of the sentences, except 1 have the opening **idea. 1 says "in**digenous significances of nineteenth century San folk tales are hard to **determine". The idea of "San Folk tales" makes this an opening idea. Rest all just mention the word "the tales" without specifying the kind of tales. Now, 1 says "significances of the tales are hard to determine" and 4 says "meaning can be elicited ...by probing beneath the narrative of the verbatim...". Thus 14 form a pair. 3 further says that "selected tales reveal** that they deal with a form of spiritual conflict...and concern conflic**t between people".
Finally, in 2 we have "...benign shamans transcend the levels of the San cosmos in order to deal with social conflict...". Thus 1432 is the right sequence in which information flows like** this: significance of San Folk tales is hard to determine...but meaning can be elicited .... the tales reveal social conflict... shamans try to deal with the social conflict

[Answer: 1432]

Solution 20:

This is a relatively simple question. 4 opens the paragraph by giving us the reference of time and **place. It talks about white liberty in colonies, and slavery in those colonies. 4 says "the slaves could never be muted". 5 comes as an additional information for 4, because 5 clearly says that "slave owners were obsessed over slave talk" and 1 says "talk** was the most common way for **enslaved men and women to subvert the rules of their bondage" ...2**

further adds to the story by stating that "even in conditions of extreme violence.... their **words remained ubiquitous". Thus 4512 form a logical link, with 3 as the odd one out. The** sequence may not strictly be 4512, but in all cases 3 is the odd one.

[Answer: 3]

Solution 21:

In this question, it is easy for us to spot the opening sentence. It brings the action from the past (1990s) into the present. For this reason, 3 is in the present perfect continuous form, **and 1 is in the simple present form. Thus 31 form a pair. 4 has the pronoun "these concerns". It refers to the noun "pressing security concern" in 2. Thus 24 form a pair. The right** sequence has to be 3124.

[Answer: 3124]

Solution 22:

This is a slightly difficult question. The passage talks about what modern Europe has done in order to adapt to changing international order. There are two things it has done: establish a common currency, and a formal political structure, adjusting its internal differences by **peaceful mechanisms. 1 looks good, but does the passage say that "Europe has consistently done this"? Maybe. But what** it misses here is the essence. Europe has changed its structure, **but the focus of the passage is on "what it has done of late". For this reason, 4 wins. By** choosing a common currency it has tried to lower economic heterogeneity, and by establishing European Union it has tried to lower political heterogeneity. Thus 4 captures the essence, while 1, 2 and 3 walk on the periphery.

[Option: 4]

Solution 23:

This question is slightly easier than the earlier one. Let's see the critical elements of the passage. The most important critical element is "forensic phonetics in movies and television", and "these have led to errors in real-life justice, with unrealistic expectations of the capabilities of forensic **science". 1 goes out because it misses the context of "m**ovies and

television". **3 is a complete distortion, whereas 4 misses the "unrealistic expectations" part.** 2 is the best choice in every way.

[Option: 2]

Solution 24:

In this question, too, we have to look for the keywords. The passage talks about intelligence and its heritability, and the criticism mounted against it. Option 1 exactly captures all the keywords. 2 misses on the heritability part of the story. 3 wrongly mentions the debate

   about "ways in which intelligence is inherited". The criticism is about heritability itself, not about the ways in which it is inherited. Choice 4 also missies the crucial idea of heritability. Thus 1 is the best choice.

[Option: 1]

Solution 25:

   This could be a challenging question, but we have to look for clues that connect the **sentences. This will help us create a new sequence and find the odd one out. 5 says "more specifically, the feminist enquiry...". thus there must a reference to "more specifically"** because this phrase is used to bring in clarity to something. We must try to find a reference **to this. The reference can be found in 1, which says "for feminists, the question of ..." (the** question of =enquiry). Thus 15 form a pair. **5 has "...the feminist enquiry begins with the realization...and 4 further adds to it by saying "the documentation of this realization...was one of the earliest tasks undertaken by feminist critics..." 2 concludes by stating that "Elaine's critique of the literary curriculum is exemplary of this work". 2 serves as an** example of 4. 3 is the odd one out.

[Answer: 3]

Solution 26:

This is the easiest parajumble you will ever get in cat exam. The passage moves from the **broader idea of "historical use of poisons" to a narrower idea of "biological weapons". 1** opens the paragraph. It then moves to biological weapons in 3. In 2 treaties are signed

against the use poisoned weapons. In 4 there is additional info about the treaties, that they contained no means of control. Thus 1324 is the right sequence.

[Answer: 1324]

	P_1	P_2	P_3	P_4	P_5	payment	bonus
Arun				4		1000	250
Tarun	3					1200	200
Chandan			2			1400	100
Damodaran		3				1300	150
Eman					2	1100	200

A   Exactly one $5 stars$

B   Exactly one $5 stars$

C   Exactly two $5 stars$

Solution 27:

Damodaran not get a bonus .two possibilities either No 5 stars or atleast one 1st star To

get maximum final rating 5 5 3 4 1 $\dfrac{18}{5}$ 3.6

Option: 3

Solution 28:

Eman got bonus (Atleast one -5 star) Minimum final rating 5 2 2 3 3 $\dfrac{15}{5}$ 3

Option: 1

Solution 29:

A   54223 $\dfrac{16}{3225080}$ 010001800 5

B   53223 $\dfrac{15}{3200600}120018005$

C   5 5 2 2 3 $\frac{17}{}$ 3 4 100 340 1740(340 1400) 5

D   53223 $\frac{15}{}$ 3150450130017505

E   52233 $\frac{15}{}$ 3200600110017005

Minimum payment =1700

Option: 3

Solution 30:

If   all   five   drivers   got   bonus   maximum   possible   would   be

A   5 4 4 3 3 $\frac{19}{}$ 3.8 250 950 1000 1950 5

B   5 4 4 3 3 $\frac{19}{}$ 3.8 200 760 1200 1960 5

C   55442 $\frac{20}{}$ 4100400140018005

D   5 5 3 4 4 $\frac{21}{}$ 4.2 150 630 1300 1930 5

E   55442 $\frac{20}{}$ 4200800110019005

Maximum monthly payment = 1960

Option: 1

Each of the ten musicians A, B, C, D, E, F, G, H, I & J is an expert in at least one of the percussion instruments.

3 are expert in only Tabla (T)

3 are expert in only Mridangam (M)

1 is expert in only Ghatam (G)

2 are expert in T & M but not G

1 is expert in T & G but Not on M

Total no of Musicians expert in T = 6

Total no of Musicians expert in M = 5

Total no of Musicians expert in G = 2

Table – 1

Musician	Percussion Instrument		
	TABLA (T)	MRIDANGAM (M)	GHATAM (G)
A	(OR) ↕	✓	×
B		✓	×
C			
D	✓	×	✓
E			
F	✓	(OR) ↕	
G	✓		
H		×	(OR) ↕
I	×	×	
J	×		
Total	6	5	2

Since none of the musician who are expert in mridangam also expert in Ghatam. Hence A & B are not expert in Ghatam.

None of the musicians are expert in all 3 instruments, D is not expert in Mridangam. I has expertise in Ghatam because he is expert neither in Tabla n or Mridangam (From 4 and 5). Again since H is expert neither in Mridangam n or Ghatam, H is an expert in Tabla.

Table – 2

Musician	Percussion Instrument		
	TABLA(T)	MRIDANGAM(M)	GHATAM(G)
A	(OR) ↕	✓	×
B		✓	×
C	?	←	×
D	✓	× (OR)	✓
E	?	↵	×
F	✓	(OR) ↕	×
G	✓		×
H	✓	×	(OR)↕ ×
I	×	×	✓
J	×	✓	×
Total	6	5	2

(Tabla (OR) on left spanning A–E, Tabla pointing to C/D/E)

Total number of musicians who are expert in tabla is six. Besides D, F, G & H, either A or B (from 1) and either C or E are experts in tabla.

Total number of musicians who are expert in ghatam is two. Since D & I are experts in Ghatam, others are not experts in Ghatam.

Now, J is expert neither in Tabla nor in Ghatam. Hence J is an expert in Mridangam. Total number of musicians who have expertise in Mridangam is five.

Those a re A, B, J and F or G, Hence out of C & E one has expertise in Mridangam.

Out of A & B one of the musicians is an expert of only Mridangam the other has the expertise in both table & Mridangam.
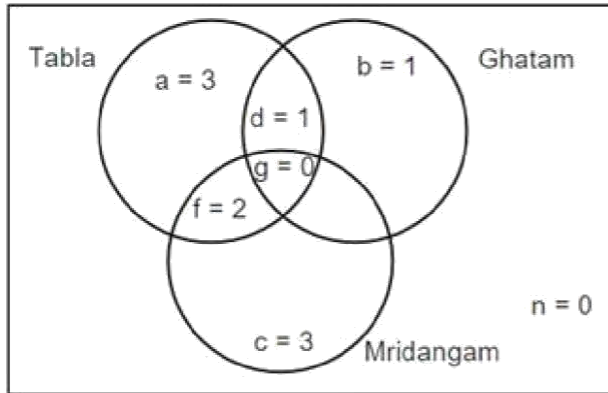
Out of F & G one of the musicians is an expert of only table &the other has the expertise in both table & Mridangam.

Out of C & E one of the musicians is an expert of Tabla only and the other is an expert of Mridangam only

Alternate solutions:

The given information can be represented in the following Venn diagram

From (1), one of A and B will be in region c and the other one in region f.

From (2), D is in region d.

From (3), one of F and G will be in region a and the other one in f.

From (4), either both I and J will be in region c or one in region b and the other in region c.

From (5), one of H and I will be in region b and the other in region a.

By combining (4) and (5), I will be in region b, H in region a and J in region c.

Thus, we get the following.

Region a = 3 (F/G, H, C/E), Region b = 1 (I), Region c = 3 (A/B, J, C/E)

Region d = 1 (D), Region f = 2 (B/A, G/F)

Solution 31:

H definitely is an expert only in Tabla

Option: 2

Solution 32:

J definitely is an expert only in Mridangam

Option: 3

Solution 33:

One of A and B, one of G and F are experts in both tabla and mridangam but not ghatam. Three of the choices has at least one of the above four musicians. But one (C and E) does not have any one of these four. Hence, that is the answer

Option: 3

Solution 34:

Given, C is an expert in mridangam but not F. It means F and E are experts only in tabla. Thus, E, F and H will be the experts in tabla but not in mridangam or ghatam.

Option: 4

Institutes A, B, C, D Vendors W, X, Y, Z

Contracts Awarded are multiyear Contracts (consecutive years) or single Year Contract.

No institute had more than one contract with the single vendor.

Each Institute   Two contracts   two vendors

Each Vendor   two contracts   two institutes

V. Exactly 4 multi year contract (A-3years, B-7 years, C-3 years, D-4 years). Exactly 4 single year contracts. In total 8 contracts.

I. Vendor Z had at least one contract in ever year. This is only possible if he had both the contracts which are multi years contract. As 7 + 1 = 8 not possible. Only possibility is (7years + 3 years) or (3 years + 7 years) = 10 years.

II. Vendor X Six years 2010, 2011, 2012, 2013, 2014, 2015. To have contract for theses six years, only possibility is left with multi years contracts (4 years + 3 years or 3 years + 4 years) with 1 year overlapping contract. Pl. Note (3years + 3 years) is not possible for vendor X as one 3 years is already awarded to vendor Z{(7years + 3 years) or (3 years + 7 years) = 10 years}.

So all the 4 multiyear contracts are awarded to Z (3 years, 7 years) & X (3 years, 4 years). So we are left with 4 single year contracts.

III. Vendor Y had contracts in 2010 & 2019. Both of these contracts are single year contracts. Vendor W had contracts (two contracts) only in year 2012. So both of these are single year contracts.

IV. There are 5 contracts in 2012.

VI. Institute C had one or more contracts in 2012, but no contract in 2011.

VII. Institute B & D each had exactly one contract in 2012. Institute D did not have any contract in 2010.

Out of 5 contracts in 2012 {B, D, W, W and C at least one contract). Hence C has exactly one contract in 2012.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A											3 year
B											7 year
C											3 year
D											4 year
	Y		W, W. B, D, C							Y	

For Vendor X, 4 year contract is with D. It Can vary from (2011-2014) or (2012-2015). No contract can be awarded to him after 2015 (point II). Only possibility for 3 year contract is with A only, as C do not have any contract in 2011. Therefore Vendor X has a 3 year contract with institute A from 2010-2012 & a 4 year contract with institute D from 2012 to 2015 (so as to have one or more contract from 2012 to 2015).

Vendor Z can be allotted contracts with only Institute B & C Only. As vendor Z has at least one contract in every year (point I) , thus the only possibility left is first 7 year contract with institute B and then 3 year contract with institute C (as institute C do not have any contract in 2011).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A	X - 3 years (2010-2012)										3 year
B											7 year
C											3 year
D			X - 4 years (2012-2015)								4 year
	Y		W, W , B, D, C							Y	

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A	X - 3 years (2010-2012)										3 year
B	Z - 7 years (2010-2016)										7 year
C								Z – 3 years (2017-2019)			3 year
D			X - 4 years (2012-2015)								4 year
	Y		W, W , B, D, C							Y	

In 2012 there are 5 contracts. Three contracts are already assigned. Remaining two are single year contracts of W in 2012. Also Institute C has at least one contract in 2012. {No institute had more than one contract with the same vendor (initial condition)}. Hence both vendor W 1 years contract cannot be with Institute C. Hence Exactly one contract of vendor W is with institute C. Further, Point VII, Institutes B and D each had exactly one contract in 2012 which is already assigned. Hence second 1 year contract of vendor W is with institute A in 2012 (only possibility).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A	X - 3 years (2010-2012),										3 year
			W-1 year (2012)								
B	Z - 7 years (2010-2016)										7 year
C			W-1 year (2012)					Z – 3 years (2017-2019)			3 year
D			X - 4 years (2012-2015)								4 year
	Y		W, W , B, D, C							Y	

Institute A has allotted two contracts to 2 vendors {X & W}. Institute C had allotted contracts to two vendors {W & Z}. Hence Vendor Y can have a 1 year contract with only Institute B in 2010, (only possibility left). Hence vendor Y had 1 year contract in 2019 with Institute D (only possibility left).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A	X - 3 years (2010-2012),										3 year
			W-1 year (2012)								
B	Y-1 year (2010) Z - 7 years (2010-2016)										7 year
C			W-1 year (2012)					Z – 3 years (2017-2019)			3 year
D	X - 4 years (2012-2015)									Y-1 year (2019)	4 year
	Y		W, W , B, D, C							Y	

Solution 35:

In 2015 there were two contracts with vendor Z and X

Option: 3

Solution 36:

D had a contract with Y in 2019

Option: 1

Solution 37:

In three years {in 2016 (Z), 2017 (Z), 2018 (Z)} there were only one contract

Option: 3

Solution 38:

In 2010 {(A-X), (B-Z), (B-Y)} exactly three contracts.

Option: 3

Solution 39:

A   (X & W) in 2012, B (Z & Y) in 2010

Option: 4

Solution 40:

Institutes { A   2012, B   2010}, Vendors { W   2012 X   2012}

Option: 4

From the fourth paragraph, it is very clear that if the student miss exactly two exams, them his / her marks in those two subjects would be the average of best two scores and would

also be "EQUAL"

By properly analysing the table, we can conclude that Esha is the only student who do not score equal marks in any two subjects. Hence, Esha is one of the student who missed exactly one subject.

Marks obtained by the student in the missed examination is the average of Best three scores, and the average/mean cannot be lowest or highest value.

Considering this concept of averages, Isha can miss examination of English, Hindi or Science.

If Esha missed English Exam, then her marks in that exam would be $\dfrac{95 \quad 85\ 60}{3}$ or 80. Eventually she scored 80 only in English. Hence Esha could miss examination of English

If Esha missed Hindi Exam, then her marks would be $\dfrac{95\ 85\ 60}{3}$ or 60. This contradicts with value given the table if Esha missed science Exam, then her marks in science exam would be $\dfrac{80\ 85\ 95}{\ }$ or 86.6. Again contradiction

In conclusion, Esha missed the exam of exactly subject that is English

From the second fact, we can infer that one of student missed exam of only Mathematics.

If Alva missed Maths exam, then her scored would be $\dfrac{80\ 75}{3} \quad 75 \quad 76.66$. This value contradicts with value given the table Hence Alva did not miss the Math Exam

If Bithi missed the Maths Exam, then her score would not be the lowest score (55)

If Carl missed the Maths exam, then his score would be $\dfrac{80 \; 100 \; 90}{3}$ o r 270 Carl could be the student who missed the maths exam.

If Deep missed the Maths exam then he can't score the highest marks of 100

If Foni missed the Maths exam then her score in that exam would be $\dfrac{83 \; 88 \; 83}{3}$ Or 84.6.

This contradicts with value given in the table. In conclusion, Carl is the student who missed the exam of only mathematics.

From the third fact, we can conclude that one student missed only Hindi exam. Another student missed two exams one Hindi and one more. Two students among Alva, Bithi, Deep and Foni would be in this category.

If Alva missed only Hindi exam, then her score would be $\dfrac{80 \; 70 \;\; 75}{3}$ or 75 marks score. If Alva missed two exams, then her score in both the exam would be equal.

Alva can miss Hindi and science, and her score in both these exam in the average of $\dfrac{80 \atop 70}{2}75$ marks scored

In conclusion, Alva can miss only Hindi exam or Hindi and science both

If Bithi missed Hindi exam, then the score would be 90 85 85 or 86.6.The contradicts with value in the table

If Deep missed Hindi exam, then his score would be $\dfrac{100 \quad 90 \; 80}{\text{Makes score } 3}$ or 90.

If Deep missed Hindi and science, then his score would be $\dfrac{}{00 \; 80}$ or 90. Again marks

In conclusion Deep missed the exam of only Hindi or Hindi and science If Foni missed Hindi, 87.66. This contradicts with value of given that table then her score would be $\dfrac{8388 \; 83}{3}$ score 2

After analysing the third fact, we can conclude that one among Alwa and deep missed only Hindi and the other missed Hindi and science.

So far we have analysed missed exams as Alwa, Carl. Deep and Foni.

Only Bithi and Foni left

From the first fact, we can conclude that

Exactly two students missed English exam.

Exactly two students missed Hindi exam.

Exactly two students missed Science and Exactly two students missed Social, Science

Social Science was missed by two students and those 2 students must be Bithi and Foni

We need to make sure apart from Esha, one more student missed English exam. Between Bithi and Foni, the scores are equal in Social score and English. In conclusion, Foni missed the exams of English and Social.

We also need to make sure apart from Alva or Deep, one more student missed Science exam and the only possibility is Bithi.

Alwa   Only Hindi or Hindi + Science

Bithi   Science and Social Science

Carl   Only mathematics

Deep   Only Hindi or Hindi and Science

Foni   English and social science

Solution 41:

Option: 4

Solution 42:

Option: 3

Solution 43:

Option: 1
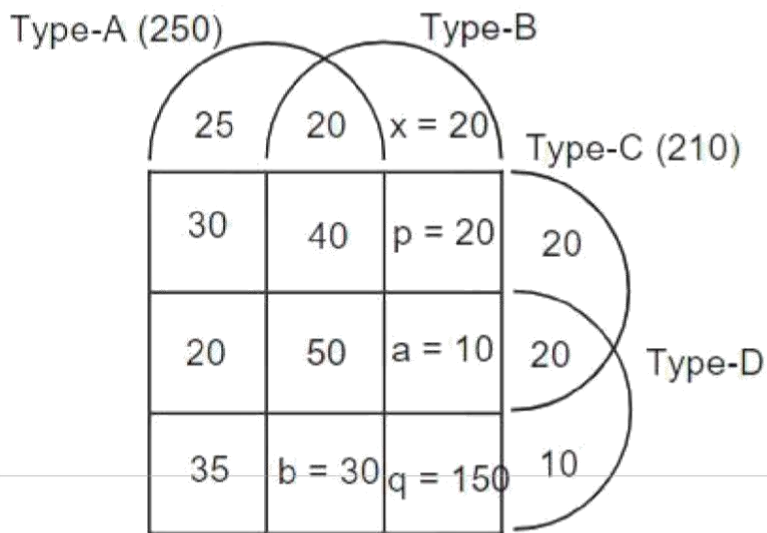
Solution 44:

Option: 4

Solution 45:

Answer: 3

Solution 46:

Answer: 4

1000 patients are equally distributed into two groups treatment group and control group. We have some information regarding the effectiveness of medicines A, B, C and D on the treatment group. Let us start filling the data give in the restrictions in a four sets Venn diagram.

75 patients were treated exactly one type of medicine.

25 x 20 10 75

x 20

We have only one unknown in type-A medicine. $220\ b\quad 250\quad b\ 30$

100 patients were treated with exactly three types of medicines. $40\ 20\quad 30\ a\ 100$

$a\ 10$

Now, we have only one unknown in each of the type C and type-D.

$p\ 210\ 190\ 20$

$500\ 350\ 150$

Solution 47:

Answer: 340

Solution 48:

Answer: 10

Solution 49:

Answer: 150

Solution 50:

Answer: 325

Solution 51:

The product of the digits of the three-digit numbers should be more than 2 and less than 7 .

Hence the possible numbers are as follows.

Product	3	5	4	6
Possibilities	(113, 131, 311)	(115, 151, 511)	(122, 212, 221)	(123, 132, 231)
			(114, 141, 411)	(116, 161, 611)
				(213, 321, 312)

Hence there are a total of 21 possibilities.

[Answer: 21]

Solution 52:

Let after n years both the sums amount to the equal amounts.

Then, $1000\left(1+\dfrac{5(n+2)}{100}\right)=800\left(1+\dfrac{10n}{100}\right)$

i.e., $1.5+\dfrac{15n}{100}=n+10$

Hence 12 years after veeru invested their balances will be equal

[Answer: 12]

Solution 53:

Required weight of $C=\dfrac{7+6}{354276}=130+84$ kg

[Option: 4]

Solution 54:

Let the length and the breadth of the rectangle be l and b respectively.

As the circle touches the two opposite sides, its diameter will be same as the breadth of the rectangle. Given, $lb=135$ and $lb-(b/2)^2=\dfrac{2}{3}(b/2)^2$

$\dfrac{5}{3}\cdot\dfrac{b^2}{4}=135-b=18$

From this $l=15\sqrt{\dfrac{1}{2}}$

Required perimeter:

$2(l+b)=2\left(\dfrac{15}{2}+\dfrac{18}{3}\right)=3\left(\dfrac{5}{2}+\dfrac{6}{2}\right)$

[Option: 2]

Solution 55:

$\log_4 5 \ \log_4 y \log_6 \sqrt{5}$

$$\log_4 5 \ \log_4 y \log_6 \sqrt{5}$$

$\log_4 5 \log_6 \sqrt{5} \log_4 y \ 2$

$\log_4 5 \log_5 6 \log_4 y$

$2 \log_4 6 \log_4 y$

$\log_4 6^2 \ \log_4 y$

$\log_4 36 \ \log_4 y$

$y \ 36$

[Answer: 36]

Solution 56:

Let the length of the train be l and its speed be s. Given $(s\ 2)\dfrac{l}{\dfrac{5}{18}}\ 90; \quad (s\ 4)\dfrac{l}{\dfrac{5}{18}}\ 100$

$90(s\ 2)\dfrac{5}{18}\quad 100(s\ 4)\dfrac{5}{18}\quad s\ 22$

Length of the train =500 m.

Hence the required time to cross a lamp post $\dfrac{500}{22\ \dfrac{5}{18}}$

i.e., 81.81 (or) 82 sec.

[Option: 2]

Solution 57:

$$2^{x} 2^{-x} \quad 2(x\ 2)^2$$

The minimum value of $2^x 2^{-x}$ is 2 when $x \quad 0$

But $x \quad 0; 2 \quad (x\ 2)^2 \quad 2$

The maximum value of $2 \quad (x\ 2)^2$ is 2 when $x \quad 2$

But x $\qquad\qquad\qquad\qquad 2\,2^x \quad 2^{-x} \quad 17$

$\qquad\qquad\qquad\qquad\qquad 4$

Hence there is no value of $x, 2^x \ 2^{-x}\ 2 \quad (x\ 2)^2$

The number of solutions is 0

[Option: 3]

Solution 58:

$$2^{y_2\ \log_3\ 5} \qquad 5^{\log_2\ 3}$$

$$2^{\log_3 5\ y_2} \quad 5^{\log_2 3}$$

$$5^{\log_3 2\ y_2} \quad 5^{\log_2 3}$$

$$5^{y_2\ \log_3 2} \qquad 5^{\log_2 3}$$

$$y^2 \log_3 2 \quad \log_2 3$$

$$y_2 \quad \log_2 3 \log_2 3$$

is negative)

$$y \quad \log_2 3 \ ^{1} \quad \log_2 \frac{1}{3}$$

[Option: 1]

Solution 59:

$$x_2 \quad 7\ x\ 11^{\ x_2} \quad 13\ x\ 42 \qquad 1$$

We know if $a^b \quad 1$

   $a \quad 1$ and b is any number

or $a \quad 1$ and b is even

a   0 and b is 0

case 1: $x^2 \quad 13\ x \quad 42 \quad 0 \quad x \qquad 6, 7$

case 2 : $x^2 \quad 7\ x \quad 11 \quad 1 \quad x^2 \quad 7\ x\ 10 \quad 0 \quad$ x=2 or 5

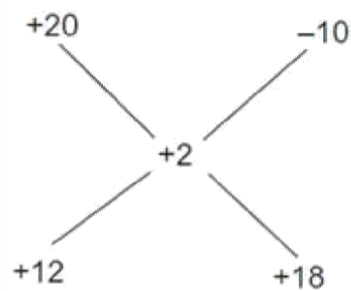case 3 : $x^2 \quad 7\ x \quad 11 \quad 1 \quad x^2 \quad 7\ x \quad 12 \quad 0$

x=4 or 3

Hence number of solutions are 6

[Option: 1]

Solution 60:

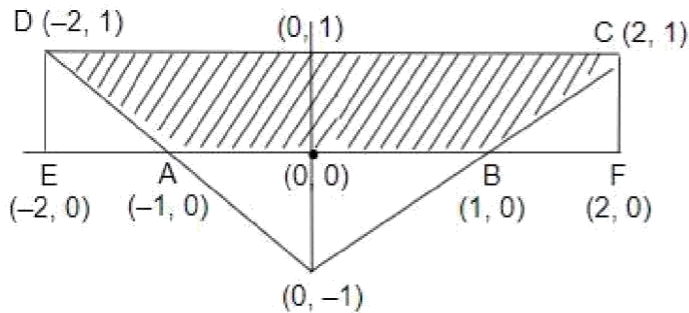Using Alligation Rule, the ratio of cost prices of desktop and laptop will be

i.e., 2: 3

The cost of desktop $\quad \dfrac{2}{5} \quad 50000$ i.e., ? 20,000

[Answer: 20000]

Solution 61:

The graph of $|x|y$ 1; y 0 and y 1 is as follows:

Area of $ABCD$ Area of EFCD - Area of EAD - Area of BFC

$EFFC$ $EAED$ $BFFC$ $\dfrac{1}{2}$ $\dfrac{1}{2}$

41 11 11 $\dfrac{1}{2}$ $\dfrac{1}{2}$

4 1 3 Square units.

[Answer: 3]

Solution 62:

In this particular case, we know Ratio of speeds $\sqrt{}$ Inverse ratio of times taken $C_1 : C_2$ $\sqrt{}$

$20 : 45$ i.e., 2: 3

As the speed of Car C_1 is 60 kmph, the speed of Car C_2 is 90 kmph

[Option: 1]

Solution 63:

Given x_0 $x_1 , x_2 ,$ x_{12}

If x_1 x_2 x_3 x_4 9; x_5 x_6 12 8

$x_0 \quad \max(9,9,9,9,8,8\ .8)$

The minimum value if x_0 is 9 .

[Option: 1]

Solution 64:

The sum of possible even digit numbers in the form aabb is
1100 1122 1144 1166 1188 2200 2222 2288 .9900 9922 9988 i.e. (45 numbers)

1100+1100+1100+1100+1100+22+44+66+88+2200+2200+2200+2200+2200
+22+44+66+88+…+9900+9900+9900+990+9900+22+44+66+88

5(1100 2200.9900) 9(22 44 66 88)5 1100(1 29) 9 22(1 2 3 4)

5500(45) 45 44 45(5544)

Hence mean =5544

[Option: 3]

Solution 65:

Let the speed in the first two cases be s and the distance be "d". Given,

$$d \quad \frac{d\ 35}{d}\ 10km\ 81560$$

Required speed $\quad 10\dfrac{50}{60}$ =12 kmph

[Option: 3]

Solution 66:

Let the usual speed of the train be s and time taken at that speed be 't'.

Given by travelling at s/3, it reached 30 min late. Hence the usual time:

Distance travelled $s\,t$

Distance travelled in the first $5min$ $s\,t/3$. D

Distance to be travelled in the last 6 min $2\,st/3$

Required speed to cover that distance on time $\dfrac{2\,st/3}{2t/5}$ i.e., $\dfrac{5s}{3}$

Hence the percentage increase in its speed $(2/3)\,100$ i.e., $66\dfrac{2}{3}$% or 67% 3

[Option: 2]

Solution 67:

$x\,(4096)^{7\,4\sqrt{3}}$

$x^{7\,4\sqrt{3}}\,(4096)^{1}$

On rationalizing $7\dfrac{1}{4\sqrt{3}}$, we get $7\,4\,3\,7\,4$

$x^{7\,4\sqrt{3}}(64)^{2}$

$64\,x^{7\,4\sqrt{3}}{}^{2}$

$64\quad x_2^{7}$

$x_2\sqrt{3}$

[Option: 4]

Solution 68:

Given $f(5\quad x)\;f(5\quad x)$

Put $x\quad x\;5$

$f(x)\,f(10\,x)$

Let a, b be two roots of f(x)=0, then $10-a$, $10-b$ are also roots of $f(x)=0$

Hence sum of the roots $a+b+10-a+10-b=20$

[Option: 4]

Solution 69:

Given $ab=432$, $bc=96$ and $c\geq 9$

To find the minimum value for $a+b+c$, the two larger numbers should be as close as possible.

The closest combination whose product is 432 is 18×24. For $b=24$, we get $c=4$ and $a=18$.

Hence the least value for $a+b+c=46$.

[Option: 4]

Solution 70:

Let the number of persons in the group be 100.

 Then the people who are young =28

Ans the number of literate persons=65

Number of literates who are young $=25\%$ of $65=16.25$

  Required answer $=\dfrac{48.75}{100-66-72}$

[Option: 3]

Solution 71:
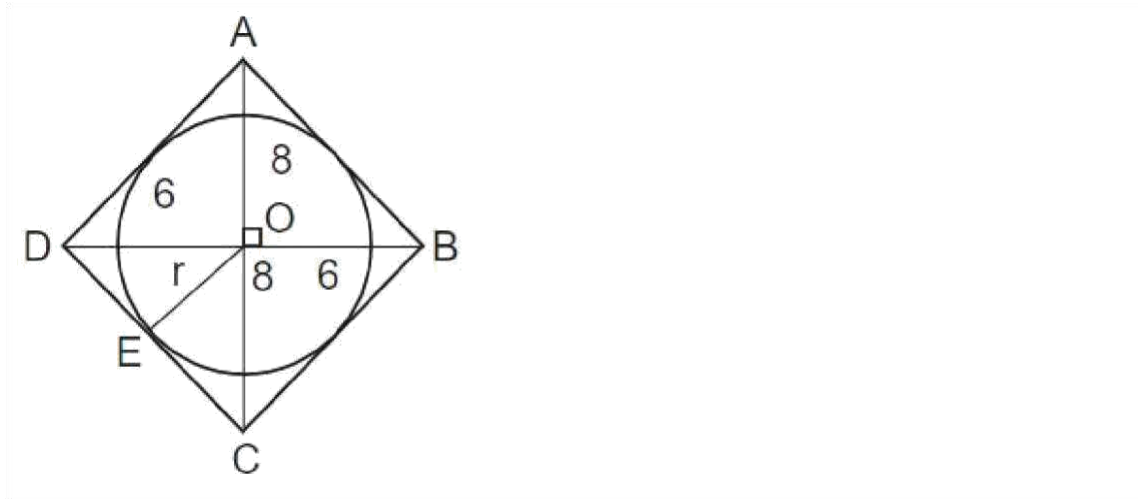
Given the circle is inscribed in the rhombus of diagonals 12 and 16 . Let O be the point of intersection of the diagonals of the rhombus. Then, OE (radius) DC.

Also $DC \quad \sqrt{\quad 6^2 \quad 8^2} \quad 10$

As area of ODC should be the same, we have, $\qquad \dfrac{1}{2} \quad 6\ 8 \quad \dfrac{1}{2}\ OE\ 10$

OE 4.8

Required ratio of areas $\qquad \dfrac{(4.8)^2 \quad 6}{\dfrac{12 \quad 16}{2}}$

[Option: 2]

Solution 72:

Given that the person is left with no toffees after distributing them to the fifth student.

Also given that to each student the person gave one more than half the number of toffees at that stage.

For these types of problems, better we go for backward calculation. If the person had not given 1 extra toffee, he would have left with that toffee.

This represents that he had 2 toffees at that stage. In the previous stage i.e in 4th stage he should have (2 +1) 2 i.e 6 toffees In the third stage, he should have (6 1) 2 i.e 14 toffees.

In the second stage, he should have (14 1) 2 i.e 30 toffees. In the first stage, he should have (30 1) 2 i.e 62 toffees. Hence he initially had 62 toffees.

[Answer: 62]

Solution 73:

Given A, B and C are positive integers such that $A \quad \dfrac{B \ C}{2} \quad 5$ (1)

$\dfrac{A \ C}{B} \quad 7$ (2)

(2) (1) $\dfrac{BA}{2}$ $_{BA4\ 2\ 2}$

The least value for A=1 in which case B=5.

Hence $A \quad B \quad 6$

[Option: 1]

Solution 74:

Original quantity of dye and water in the original solution i.e., 16 litres (i.e. $\quad 40$ and 24 $\dfrac{2}{5}$

litres (i.e. = 40 16)

Quantity of water added 16 litres (As 1 part 8 litres). Quantity of dye and water removed $\dfrac{1}{4} \quad \dfrac{2}{7}$ (56) i.e., 4 litres and $\dfrac{1}{4} \quad \dfrac{5}{7}$ (56) i.e., 10 litres. Final quantity of dye and water is 12 litres and 30 litres.

Quantity of dye to be added to make the ratio of dye and water again 2: 3 i.e., 8 litres.

[Answer: 8]

Solution 75:

Let $x \quad \dfrac{1}{x} \quad a$

The given equation becomes, a^2 3

a 2   0

a 2 or 1

         1

i.e x 2

         1

or x 1

                                     x x

since x is real, x $\dfrac{1}{x}$ 1; x $\dfrac{1}{x}$ 2

The number of solutions = 1

[Answer: 1]

Solution 76:

As the cone is cut at one-third height from the top (the vertex), the total volume is proportional to the cubes of the heights of the two parts.

Ratio of volumes two parts $\left(\dfrac{1}{3}\right)^3$:1 1: 27

Hence the bottom part will have volume of 27

1 i.e., 26 parts.

Given (26   1) i.e., 25 parts -225 cc.

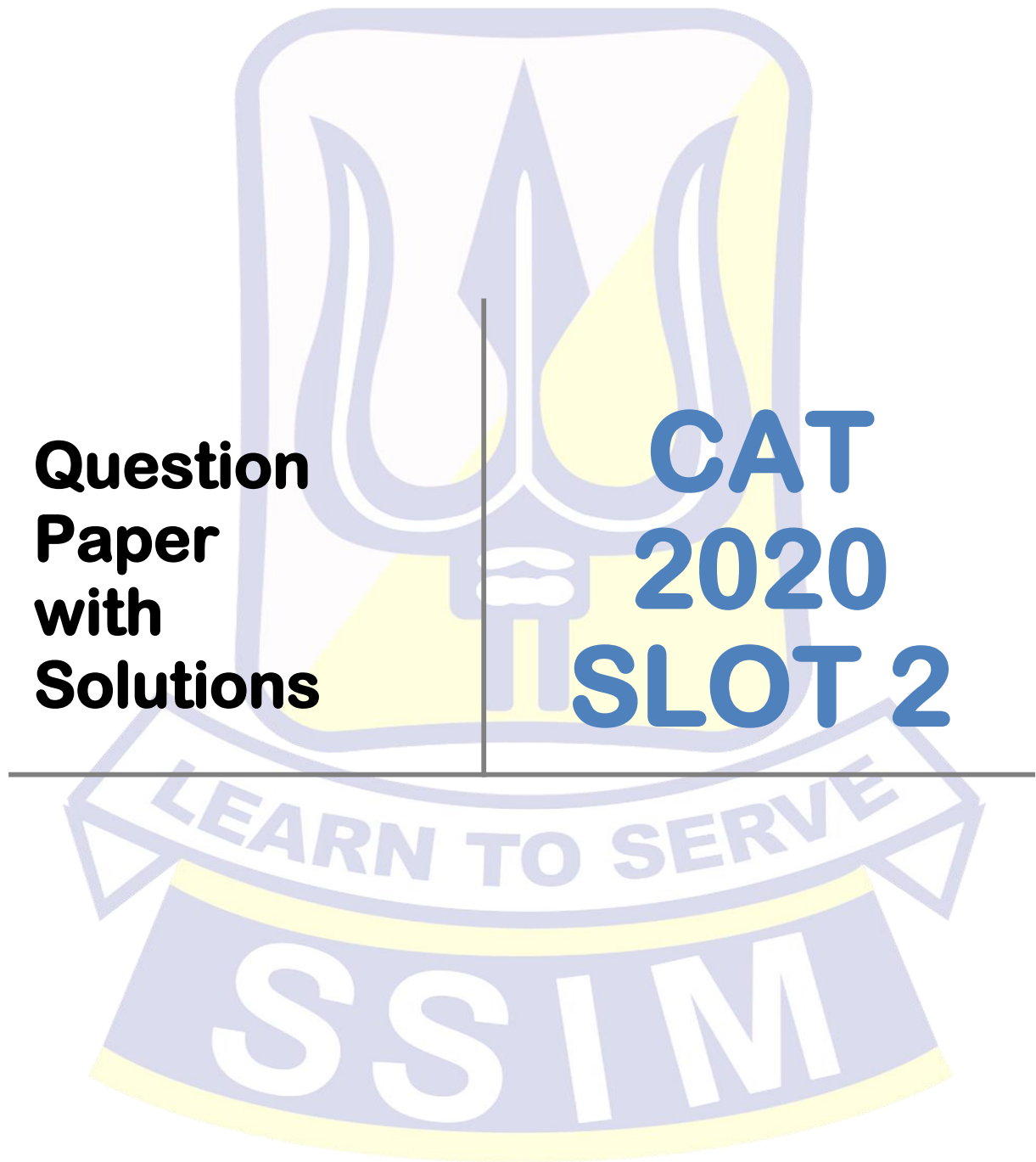Hence the required answer is 27 parts

27

225

       =243 cc.

                    $\dfrac{2}{5}$

[Option: 4]

Question Paper with Solutions

Question Paper with Solutions

CAT 2020 SLOT 2

CAT VARC Section

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

Aggression is any behavior that is directed toward injuring, harming, or inflicting pain on another living being or group of beings. Generally, the victim(s) of aggression must wish to avoid such behavior in order for it to be considered true aggression. Aggression is also categorized according to its ultimate intent. Hostile aggression is an aggressive act that results from anger, and is intended to inflict pain or injury because of that anger. Instrumental aggression is an aggressive act that is regarded as a means to an end other than pain or injury. For example, an enemy combatant may be subjected to torture in order to extract useful intelligence, though those inflicting the torture may have no real feelings of anger or animosity toward their subject. The concept of aggression is very broad, and includes many categories of behavior (e.g., verbal aggression, street crime, child abuse, spouse abuse, group conflict, war, etc.). A number of theories and models of aggression have arisen to explain these diverse forms of behavior, and these theories/models tend to be categorized according to their specific focus. The most common system of categorization groups the various approaches to aggression into three separate areas, based upon the three key variables that are present whenever any aggressive act or set of acts is committed. The first variable is the aggressor him/herself. The second is the social situation or circumstance in which the aggressive act(s) occur. The third variable is the target or victim of aggression.

Regarding theories and research on the aggressor, the fundamental focus is on the factors that lead an individual (or group) to commit aggressive acts. At the most basic level, some argue that aggressive urges and actions are the result of inborn, biological factors. Sigmund Freud (1930) proposed that all individuals are born with a death instinct that predisposes us to a variety of aggressive behaviors, including suicide (self directed aggression) and mental illness (possibly due to an unhealthy or unnatural suppression of aggressive urges). Other influential perspectives supporting a biological basis for aggression conclude that humans evolved with an abnormally low neural inhibition of aggressive impulses (in comparison to other species), and that humans possess a powerful instinct for property accumulation and territorialism. It is proposed that this instinct accounts for hostile behaviors ranging from minor street crime to world wars. Hormonal factors also appear to play a significant role in fostering aggressive tendencies. For example, the hormone testosterone has been shown to increase aggressive behaviors when injected into animals. Men and women convicted of violent crimes also possess significantly higher levels of testosterone than men and women convicted of nonviolent crimes. Numerous studies comparing different age groups,

racial/ethnic groups, and cultures also indicate that men, overall, are more likely to engage in a variety of aggressive behaviors (e.g., sexual assault, aggravated assault, etc.) than women. One explanation for higher levels of aggression in men is based on the assumption that, on average, men have higher levels of testosterone than women.

Q.1. The author identifies three essential factors according to which theories of aggression are most commonly categorised. Which of the following options is closest to the factors identified by the author?

1.   Psychologically – Sociologically – Medically.
2.   Aggressor – Circumstances of aggression – Victim.
3.   Extreme – Moderate – Mild.
4.   Hostile – Instrumental – Hormonal.

Q.2. The author discusses all of the following arguments in the passage EXCEPT that:

1.   men in general are believed to be more hormonally driven to exhibit violence than women.

2.   several studies indicate that aggression may have roots in the biological condition of humanity.

3.   the nature of aggression can vary depending on several factors, including intent.

4.   aggression in most societies is kept under control through moderating the death instinct identified by Freud.

Q.3. All of the following statements can be seen as logically implied by the arguments of the passage EXCEPT:

1.   the Freudian theory of suicide as self-inflicted aggression implies that an aggressive act need not be sought to be avoided in order for it to be considered aggression.

2.   a common theory of aggression is that it is the result of an abnormally low neural regulation of testosterone.

3.   if the alleged aggressive act is not sought to be avoided, it cannot really be considered aggression.

4.   **Freud's theory of aggression proposes that** aggression results from the suppression of aggressive urges.

Q.4. **"[A]n enemy combatant may be subjected to torture in order to extract useful** intelligence, though those inflicting the torture may have no real feelings of anger or animosity toward their **subject." Which one of the following best explicates the larger point** being made by the author here?

1.   Information revealed by subjecting an enemy combatant to torture is not always reliable because of the animosity involved.

2.   When an enemy combatant refuses to reveal information, the use of torture can sometimes involve real feelings of hostility.

3.   In certain kinds of aggression, inflicting pain is not the objective, and is no more than a utilitarian means to achieve another end.

4.   The use of torture to extract information is most effective when the torturer is not emotionally involved in the torture.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

174 incidents of piracy were reported to the International Maritime Bureau last year, with Somali pirates responsible for only three. The rest ranged from the discreet theft of coils of rope in the Yellow Sea to the notoriously ferocious Nigerian gunmen attacking and hijacking oil tankers in the Gulf of Guinea, as well as armed robbery off Singapore and the Venezuelan

coast and kidnapping in the Sundarbans in the Bay of Bengal. For [Dr. Peter] Lehr, an expert on modern-**day piracy, the phenomenon's history should be a source of instruction rather** than entertainment, piracy past offering lessons for piracy present. . . .

But . . . where does piracy begin or end? According to St Augustine, a corsair captain once told Alexander the Great that in the forceful acquisition of power and wealth at sea, the difference between an emperor and a pirate was simply one of scale. By this logic, European empire-builders were the most successful pirates of all time. A more eclectic history might have included the conquistadors, Vasco da Gama and the East India Company. But Lehr sticks to the disorganised small fry, making comparisons with the renegades of today possible.

The main motive for piracy has always been a combination of need and greed. Why toil always a starving peasant in the 16th century when a successful pirate made up to £4,000 on each raid? Anyone could turn to freebooting if the rewards were worth the risk . . . .

Increased globalisation has done more to encourage piracy than suppress it. European colonialism weakened delicate balances of power, leading to an influx of opportunists on the high seas. A rise in global shipping has meant rich pickings for freebooters. Lehr writes: **"It quickly becomes clear that in those parts of the world that have not profited from** globalisation and modernisation, and where abject poverty and the daily struggle for

survival are still a reality, the root causes of piracy are still the same as they were a couple **of hundred years ago." . . .**

Modern pirate prevention has failed. After the French yacht Le Gonant was ransomed for $2million in 2008, opportunists from all over Somalia flocked to the coast for a piece of the action. . . . A consistent rule, even today, is there are never enough warships to patrol pirate-infested waters. Such ships are costly and only solve the problem temporarily; Somali piracy is bound to return as soon as the warships are withdrawn. Robot shipping, eliminating hostages, has been proposed as a possible solution; but as Lehr points out, this

will only make pirates switch their targets to smaller carriers unable to afford the technology.

His advice isn't new. Proposals to end illegal fishing are often advanced but they are difficult

to enforce. Investment in local welfare put a halt to Malaysian piracy in the 1970s, but was dependent on money somehow filtering through a corrupt bureaucracy to the poor on the

periphery. Diplomatic initiatives against piracy are plagued by mutual distrust: The Russians execute pirates, while the EU and US are relucta**nt to capture them for fear they'll claim** asylum.

Q.5. "Why toil away as a starving peasant in the 16th century when a successful pirate made

up to £4,000 on each raid?" In this sentence, the author's tone can best be described as being:

1.   analytical, to explain the contrasts between peasant and pirate life in medieval England.
2.   indignant, at the scale of wealth successful pirates could amass in medieval times.
3.   ironic, about the reasons why so many took to piracy in medieval times.
4.   facetious, about the hardships of peasant life in medieval England.

Q.6. "A more eclectic history might have included the conquistadors, Vasco da Gama

and the East India Company. But Lehr sticks to the disorganised small fry . . ." From this statement we can infer that the author believes that:

1.   Lehr does not assign adequate blame to empire builders for their past deeds.
2.   colonialism should be considered an organised form of piracy.
3.   Vasco da Gama and the East India Company laid the ground for modern piracy.
4.   the disorganised piracy of today is no match for the organised piracy of the past.

Q.7. We can deduce that the author believes that piracy can best be controlled in the long run:

1.   through the extensive deployment of technology to track ships and cargo.
2.   through international cooperation in enforcing stringent deterrents.
3.   if we eliminate poverty and income disparities in affected regions.
4.   through lucrative welfare schemes to improve the lives of people in affected regions.

Q.8 The author ascribes the rise in piracy today to all of the following factors EXCEPT:

1.   **colonialism's disruption of historic ties among countries.**
2.   decreased surveillance of the high seas.
3.   the high rewards via ransoms for successful piracy attempts.
4.   the growth in international shipping with globalisation.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

The claims advanced here may be condensed into two assertions: [first, that visual] culture is what images, acts of seeing, and attendant intellectual, emotional, and perceptual sensibilities do to build, maintain, or transform the worlds in which people live. [And second, that the] study of visual culture is the analysis and interpretation of images and the ways of seeing (or gazes) that configure the agents, practices, conceptualities, and institutions that put images to work. . . .

Accordingly, the study of visual culture should be characterized by several concerns. First, scholars of visual culture need to examine any and all imagery – high and low, art and non art.. . . They must not restrict themselves to objects of a particular beauty or aesthetic value. Indeed, any kind of imagery may be found to offer up evidence of the visual construction of reality. . . .

Second, the study of visual culture must scrutinize visual practice as much as images themselves, asking what images do when they are put to use. If scholars engaged in this enterprise inquire what makes an image beautiful or why this image or that constitutes a

masterpiece or a work of genius, they should do so with the purpose of investigating an **artist's or a work's contribution to the experience of beauty, taste, value, or genius. No**

amount of social analysis can account fully for the existence of Michelangelo or Leonardo. They were unique creators of images that changed the way their contemporaries thought and felt and have continued to shape the history of art, artists, museums, feeling, and aesthetic value. But study of the critical, artistic, and popular reception of works by such artists as Michelangelo and Leonardo can shed important light on the meaning of these artists and their works for many different people. And the history of meaning-making has a great deal to do with how scholars as well as lay audiences today understand these artists and their achievements.

Third, scholars studying visual culture might properly focus their interpretative work on lifeworlds by examining images, practices, visual technologies, taste, and artistic style as constitutive of social relations. The task is to understand how artifacts contribute to the construction of a world. . . . Important methodological implications follow: ethnography and reception studies become productive forms of gathering information, since these move beyond the image as a closed and fixed meaning-event. . . .

Fourth, scholars may learn a great deal when they scrutinize the constituents of vision, that is, the structures of perception as a physiological process as well as the epistemological frameworks informing a system of visual representation. Vision is a socially and a biologically constructed operation, depending on the design of the human body and how it engages the interpretive devices developed by a culture in order to see intelligibly. . . .

Seeing . . . operates on the foundation of covenants with images that establish the conditions for meaningful visual experience.

Finally, the scholar of visual culture seeks to regard images as evidence for explanation, not as epiphenomena.

Q.9. "No amount of social analysis can account fully for the existence of Michelangelo or **Leonardo." In light of the passage, which one of the following interpretations of this** sentence is the most accurate?

1. Socially existing beings cannot be analysed, unlike the art of Michelangelo or Leonardo which can.
2. Michelangelo or Leonardo cannot be subjected to social analysis because of their genius.
3. **No analyses exist of Michelangelo's or Leonardo's social accounts.**
4. Social analytical accounts of people like Michelangelo or Leonardo cannot explain their genius.

Q.10. "Seeing . . . operates on the foundation of covenants with images that establish the conditions for meaningful visual experience." In light of the passage, which one of the following statements best conveys the meaning of this sentence?

1. Sight as a meaningful visual experience is possible when there is a foundational condition established in images of covenants.
2. Images are meaningful visual experiences when they have a foundation of covenants seeing them.
3. Sight becomes a meaningful visual experience because of covenants of meaningfulness that we establish with the images we see.
4. The way we experience sight is through images operated on by meaningful covenants.

Q.11. Which set of keywords below most closely captures the arguments of the passage?

1. Scholars, Social Analysis, Michelangelo and Leonardo, Interpretive Devices.
2. Visual Construction of Reality, Work of Genius, Ethnography, Epiphenomena.
3. Imagery, Visual Practices, Lifeworlds, Structures of Perception.
4. Visual Culture, Aesthetic Value, Lay Audience, Visual Experience.

Q.12. All of the following statements may be considered valid inferences from the passage, EXCEPT:

1. studying visual culture requires institutional structures without which the structures of perception cannot be analysed.
2. understanding the structures of perception is an important part of understanding how visual cultures work.
3. artifacts are meaningful precisely because they help to construct the meanings of the world for us.
4. visual culture is not just about how we see, but also about how our visual practices can impact and change the world.

Q.13. Which one of the following best describes the word "epiphenomena" in the last sentence of the passage?

1.   Phenomena amenable to analysis.
2.   Visual phenomena of epic proportions.
3.   Phenomena supplemental to the evidence.
4.   Overarching collections of images.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

In a low-carbon world, renewable energy technologies are hot business. For investors looking to redirect funds, wind turbines and solar panels, among other technologies, seem a straightforward choice. But renewables need to be further scrutinized before being championed as forging a path toward a low-carbon future. Both the direct and indirect impacts of renewable energy must be examined to ensure that a climate-smart future does not intensify social and environmental harm. As renewable energy production requires land, water, and labor, among other inputs, it imposes costs on people and the environment. Hydropower projects, for instance, have led to community dispossession and exclusion . .

.Renewable energy supply chains are also intertwined with mining, and their technologies contribute to growing levels of electronic waste . . . Furthermore, although renewable energy can be produced and distributed through small-scale, local systems, such an approach might not generate the high returns on investment needed to attract capital.

Although an emerging sector, renewables are enmeshed in long-standing resource extraction through their dependence on minerals and metals . . . Scholars document the

negative consequences of mining . . . even for mining operations that commit to socially **responsible practices[:] "many of the world's largest reservoirs of minerals like cobalt, copper, lithium,[and] rare earth minerals"**—the ones needed for renewable technologies— **"are found in fragile states and under communities of margi**nalized peoples in Africa, Asia, **and Latin America." Since the demand for metals and minerals will increase substantially in** a renewable-powered future . . . this intensification could exacerbate the existing consequences of extractive activities.

Among t**he connections between climate change and waste, O'Neill . . . highlights that "devices developed to reduce our carbon footprint, such as lithium batteries for hybrid and** electric cars or solar panels[,] become potentially dangerous electronic waste at the end of **their productive life." The disposal of toxic waste has long perpetuated social injustice** through the flows of waste to the Global South and to marginalized communities in the Global North . ..

While renewable energy is a more recent addition to financial portfolios, investments in the sector must be considered in light of our understanding of capital accumulation. As

agricultural finance reveals, the concentration of control of corporate activity facilitates profit generation. For some climate activists, the promise of renewables rests on their ability not only to reduce emissions but also to provide distributed, democratized access to energy

. . .But Burke and Stephens . . . caution that "renewable energy systems offer a possibility but not a certainty for more democratic energy futures." Small-scale, distributed forms of energy are only highly profitable to institutional investors if control is consolidated somewhere in the financial chain. Renewable energy can be produced at the household or neighborhood level. However, such small-scale, localized production is unlikely to generate high returns for investors. For financial growth to be sustained and expanded by the renewable sector, production and trade in renewable energy technologies will need to be highly concentrated, and large asset management firms will likely drive those developments.

Q.14 Based on the passage, we can infer that the author would be most supportive of which one of the following practices?

1.   The localised, small-scale development of renewable energy systems.

2.   More stringent global policies and regulations to ensure a more just system of toxic waste disposal.

3.   Encouragement for the development of more environment-friendly carbon-based fuels.

4.   The study of the coexistence of marginalised people with their environments.

Q.15. All of the following statements, if true, could be seen as supporting the arguments in the passage, EXCEPT:

1.   Marginalised people in Africa, Asia and Latin America have often been the main sufferers of corporate mineral extraction projects.

2.   The example of agricultural finance helps us to see how to concentrate corporate activity in the renewable energy sector.

3.   One reason for the perpetuation of social injustice lies in the problem of the disposal of toxic waste.

4.   The possible negative impacts of renewable energy need to be studied before it can be offered as a financial investment opportunity.

Q.16. Which one of the following statements, if false, could be seen as best supporting the arguments in the passage?

1.   Renewable energy systems are not as profitable as non-renewable energy systems.

2.   Renewable energy systems are as expensive as non-renewable energy systems.

3.   The production and distribution of renewable energy through small-scale, localsystems is not economically sustainable.

4.   Renewable energy systems have little or no environmental impact.

Q.17. Which one of the following statements, if true, could be an accurate inference from the first paragraph of the passage?

1. The author has reservations about the consequences of non-renewable energysystems.
2. The **author's only reservation is about the profitability of renewable energy systems.**
3. The author has reservations about the consequences of renewable energy systems.
4. The author does not think renewable energy systems can be as efficient as non-renewable energy systems.

Q.18. Which one of the following statements best captures the main argument of the last paragraph of the passage?

1. Most forms of renewable energy are not profitable investments for institutional investors.
2. Renewable energy produced at the household or neighbourhood level is more efficient than mass-produced forms of energy.
3. Renewable energy systems are not democratic unless they are corporate-controlled.
4. The development of the renewable energy sector is a double-edged sword.

Q.19. Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:

1. **The victim's trauma after assault rarely gets the atte**ntion that we lavish on the moment of damage that divided the survivor from a less encumbered past.

2. One thing we often do with narratives of sexual assault is sort their respective parties into different temporalities: it seems we are interested in **perpetrators' futures and victims'** pasts.

3. **One result is that we don't have much of a vocabulary for what happens in a victim's life** after the painful past has been excavated, even when our shared language gestures toward the **future, as the term "survivor"** does.

4. Even the most charitable questions asked about the victims seem to focus on the past, in pursuit of understanding or of corroboration of painful details.

5. As more and more stories of sexual assault have been made public in the last two years, the genre of their telling has exploded --- crimes have a tendency to become not just stories but genres.

Q.20. The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. While you might think that you see or are aware of all the changes that happen in your immediate environment, there is simply too much information for your brain to fully process everything.

2. **Psychologists use the term 'change blindness' to describe this tendency of people to** be blind to changes though they are in the immediate environment.

3. It cannot be aware of every single thing that happens in the world around you.

4. Sometimes big shifts happen in front of your eyes and you are not at all aware of these changes.

Q.21. Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:

1. You can observe the truth of this in every e-business model ever constructed: monopolise and protect data.

2. Economists and technologists believe that a new kind of capitalism is being created - different from industrial capitalism as was merchant capitalism.

3. In 1962, Kenneth Arrow, the guru of mainstream economics, said that in a free market economy the purpose of inventing things is to create intellectual property rights.

4. There is, alongside the world of monopolised information and surveillance, a different dynamic growing up: information as a social good, incapable of being owned or exploited or priced.

5. Yet information is abundant. Information goods are freely replicable. Once a thing is made, it can be copied and pasted infinitely.

Q.22. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

With the Treaty of Westphalia, the papacy had been confined to ecclesiastical functions, and the doctrine of sovereign equality reigned. What political theory could then explain the origin and justify the functions of secular political order? In his Leviathan, published in 1651, three years after the Peace of Westphalia, Thomas Hobbes provided such a theory. He **imagined a "state of nature" in the past when the absence of authority produced a "war of all against all." To escape such intolerable insecurity, he theoriz**ed, people delivered their **rights to a sovereign power in return for the sovereign's provision of security for all within the state's border. The sovereign state's monopoly on power was established as the only** way to overcome the perpetual fear of violent death and war.

1. Thomas Hobbes theorized the emergence of sovereign states based on a transactional relationship between people and sovereign state that was necessitated by a sense of insecurity of the people.

2. Thomas Hobbes theorized the voluntary surrender of rights by people as essential for emergence of sovereign states.

3. Thomas Hobbes theorized the emergence of sovereign states as a form of transactional governance to limit the power of the papacy.

4.   **Thomas Hobbes theorized that sovereign states emerged out of people's voluntary** desire to overcome the sense of insecurity and establish the doctrine of sovereign equality.

Q.23. The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1.   It also has four movable auxiliary telescopes 1.8 m in diameter.

2.   Completed in 2006, the Very Large Telescope (VLT) has four reflecting telescopes,8.2 m in diameter that can observe objects 4 billion times weaker than can normally be seen with the naked eye.

3.   This configuration enables one to distinguish an astronaut on the Moon.

4.   When these are combined with the large telescopes, they produce what is called interferometry: a simulation of the power of a mirror 16 m in diameter and the resolution of a telescope of 200 m.

Q.24. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

All humans make decisions based on one or a combination of two factors. This is either intuition or information. Decisions made **through intuition are usually fast, people don't** even think about the problem. It is quite philosophical, meaning that someone who made a decision based on intuition will have difficulty explaining the reasoning behind it. The decision-maker would often utilize her senses in drawing conclusions, which again is based on some experience in the field of study. On the other side of the spectrum, we have decisions made based on information. These decisions are rational — it is based on facts and figures, which unfortunately also means that it can be quite slow. The decision-maker would frequently use reports, analyses, and indicators to form her conclusion. This methodology results in accurate, quantifiable decisions, meaning that a person can clearly explain the rationale behind it.

1.   We make decisions based on intuition or information on the basis of the time available.

2.   It is better to make decisions based on information because it is more accurate, and the rationale behind it can be explained.

3.   Decisions based on intuition and information result in differential speed and ability to provide a rationale.

4.   While decisions based on intuition can be made fast, the reasons that led to these cannot be spelt out.

Q.25. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

The rural-urban continuum and the heterogeneity of urban settings pose an obvious challenge to identifying urban areas and measuring urbanization rates in a consistent way within and across countries. An objective methodology for distinguishing between urban and rural areas that is based on one or two metrics with fixed thresholds may not

adequately capture the wide diversity of places. A richer combination of criteria would **better describe the multifaceted nature of a city's function and its environment, but the** joint interpretation of these criteria may require an element of human judgment.

1.   The difficulty of accurately identifying urban areas means that we need to create a rich combination of criteria that can be applied to all urban areas.

2.   With the diversity of urban landscapes, measurable criteria for defining urban areas may need to be supplemented with human judgement.

3.   Current methodologies used to define urban and rural areas are no longer relevant to our being able to study trends in urbanisation.

4.   Distinguishing between urban and rural areas might call for some judgement on the objective m**ethodology being used to define a city's functions.**

Q.26. The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1.   But the attention of the layman, not surprisingly, has been captured by the atom bomb, although there is at least a chance that it may never be used again.

2.   Of all the changes introduced by man into the household of nature, [controlled]large-scale nuclear fission is undoubtedly the most dangerous and most profound.

3.   The danger to humanity created by the so-called peaceful uses of atomic energy may, however, be much greater.

4.   The resultant ionizing radiation has become the most serious agent of pollution of the environment and the greate**st threat to man's survival on earth.**

CAT LRDI Section

Twenty five coloured beads are to be arranged in a grid comprising of five rows and five columns. Each cell in the grid must contain exactly one bead. Each bead is coloured either Red, Blue or Green.

While arranging the beads along any of the five rows or along any of the five columns, the rules given below are to be followed:

1.   Two adjacent beads along the same row or column are always of different colours.

2.   There is at least one Green bead between any two Blue beads along the same row or column.

3.   There is at least one Blue and at least one Green bead between any two Red beads along the same row or column.

Every unique, complete arrangement of twenty five beads is called a configuration.

Q.27. The total number of possible configuration using beads of only two colours is:

Q.28. What is the maximum possible number of Red beads that can appear in any configuration ?

Q.29. What is the minimum number of Blue beads in any configuration ?

Q.30. Two Red beads have been placed in 'second row, third column' and 'third row, second column'. How many more Red beads can be placed so as to maximise the number of Red beads used in the configuration?

A chain of departmental stores has outlets in Delhi, Mumbai, Bengaluru and Kolkata. The sales are categorized by its three departments – **'Apparel', 'Electronics', and 'HomeDecor'.**

An Accountant has been asked to prepare a summary of the 2018 and 2019 sales amounts for an internal report. He has collated partial information and prepared the following table.

The following additional information is known.

1.   The sales amounts in the Apparel departments were the same for Delhi and Kolkata in 2018.

2.   The sales amounts in the Apparel departments were the same for Mumbai and Bengaluru in 2018. This sales amount matched the sales amount in the Apparel department for Delhi in 2019.

3.   The sales amounts in the HomeDecor departments were the same for Mumbai and Kolkata in 2018.

4.   The sum of the sales amounts of four Electronics departments increased by the same amount as the sum of the sales amounts of four Apparel departments from 2018 to 2019.

5.   The total sales amounts of the four HomeDecor departments increased by Rs 70 Crores from 2018 to 2019.

6.   The sales amounts in the HomeDecor departments of Delhi and Bengaluru each increased by Rs 20 Crores from 2018 to 2019.

7.   The sales amounts in the Apparel departments of Delhi and Bengaluru each increased by the same amount in 2019 from 2018. The sales amounts in the Apparel departments of Mumbai and Kolkata also each increased by the same amount in 2019 from 2018.

8.   The sales amounts in the Apparel departments of Delhi, Kolkata and Bengaluru in 2019 followed an Arithmetic Progression.

Q.31. In HomeDecor departments of which cities were the sales amounts the highest in 2018 and 2019, respectively?

1.   Delhi and Delhi
2.   Mumbai and Mumbai
3.   Bengaluru and Delhi
4.   Mumbai and Delhi

Q.32. What was the increase in sales amount, in Crore Rupees, in the Apparel department of Mumbai from 2018 to 2019?

1.   12
2.   5
3.   10
4.   8

Q.33. Among all the 12 departments (i.e., the 3 departments in each of the 4 cities), what was the maximum percentage increase in sales amount from 2018 to 2019?

1.   75
2.   50
3.   28
4.   25

Q.34. What was the total sales amount, in Crore Rupees, in 2019 for the chain of departmental stores?

1.   750
2.   150
3.   600
4.   900

A shopping mall has a large basement parking lot with parking slots painted in it along a single row. These slots are quite narrow; a compact car can fit in a single slot but an SUV requires two slots. When a car arrives, the parking attendant guides the car to the first available slot from the beginning of the row into which the car can fit.

For our purpose, cars are numbered according to the order in which they arrive at the lot. For example, the first car to arrive is given a number 1, the second a number 2, and so on. This numbering does not indicate whether a car is a compact or an SUV. The configuration of a parking lot is a sequence of the car numbers in each slot. Each single vacant slot is represented by letter V.

For instance, suppose cars numbered 1 through 5 arrive and park, where cars 1, 3 and 5 are compact cars and 2 and 4 are SUVs. At this point, the parking lot would be described by the sequence 1, 2, 3, 4, 5. If cars 2 and 5 now vacate their slots, the parking lot would now be described as 1, V, V, 3, 4. If a compact car (numbered 6) arrives subsequently followed by an SUV (numbered 7), the parking lot would be described by the sequence 1, 6, V, 3, 4, 7.

Answer the following questions INDEPENDENTLY of each other.

Q.35. Initially cars numbered 1, 2, 3, and 4 arrive among which 1 and 4 are SUVs while 2 and 3 are compact cars. Car 1 then leaves, followed by the arrivals of car 5 (a compact car) and car 6 (an SUV). Car 4 then leaves. Then car 7 (an SUV) and car 8 (a compact car) arrive. At this moment, which among the following numbered car is parked next to car 3?

1.   8
2.   6
3.   5
4.   7

Q.36. Suppose eight cars have arrived, of which two have left. Also suppose that car 4 is a compact and car 7 is an SUV. Which of the following is a POSSIBLE current configuration of the parking lot?

1.   V,2,3,7,5,6,8
2.   8,2,3,V,5,6,7
3.   8,2,3,V,6,5,7
4.   8,2,3,V,5,7,6

Q.37. Suppose the sequence at some point of time is 4, 5, 6, V, 3. Which of the following is NOT necessarily true?

1.   Car 5 is a compact.
2.   Car 4 is a compact.
3.   Car 3 is an SUV.
4.   Car 1 is an SUV.

Q.38. Suppose that car 4 is not the first car to leave and that the sequence at a time between the arrival of the car 7 and car 8 is V, 7, 3, 6, 5. Then which of the following statements MUST be false?

A.   Car 7 is a compact.
B.   Car 4 is an SUV.
C.   Car 6 is a compact.
D.   Car 2 is a compact.

The Humanities department of a college is planning to organize eight seminars, one for each of the eight doctoral students - A, B, C, D, E, F, G and H. Four of them are from Economics, three from Sociology and one from Anthropology department. Each student is guided by one among P, Q, R, S and T. Two students are guided by each of P, R and T, while one student is guided by each of Q and S. Each student is guided by a guide belonging to their department.

Each seminar is to be scheduled in one of four consecutive 30-minute slots starting at 9:00 am, 9:30 am, 10:00 am and 10:30 am on the same day. More than one seminars can be scheduled in a slot, provided the guide is free. Only three rooms are available and hence at the most three seminars can be scheduled in a slot. Students who are guided by the same guide must be scheduled in consecutive slots.

The following additional facts are also known.

A.   Seminars by students from Economics are scheduled in each of the four slots.
B.   **A's is the only seminar that is sched**uled at 10:00 am. A is guided by R.
C.   F is an Anthropology student whose seminar is scheduled at 10:30 am.
D.   The seminar of a Sociology student is scheduled at 9:00 am.

E.   B and G are both Sociology students, whose seminars are scheduled in the same slot.
The seminar of an Economics student, who is guided by T, is also scheduled in the same slot.

F.P, who is guiding both B and C, has students scheduled in the first two slots.

G.   A and G are scheduled in two consecutive slots. Q.39.

Which one of the following statements is true?

A.   Three seminars are scheduled in the last slot.

B.   Only one seminar is scheduled in the second slot.
C.   Two seminars are scheduled in the first slot.
D.   Three seminars are scheduled in the first slot.

Q.40. Who all are NOT guiding any Economics students?

1.   P, R and S
2.   P, Q and R
3.   P, Q and S
4.   Q, R and S

Q.41. Which of the following statements is necessarily true?

1.   S is guiding F.
2.   Q is guiding G.
3.   B is scheduled in the first slot.
4.   H is an Economics student.

Q.42. If D is scheduled in a slot later than Q's, then which of the following two statement(s) is(are) true?

1.   E and H are guided by T.

2.   G is guided by Q.

  1.   Only (ii)
  2.   Neither (i) nor (ii)
  3.   Both (i) and (ii)
4.   Only (i)

Q.43. If E and Q are both scheduled in the same slot, then which of the following statements BEST describes the relationship between D, H, and T?

1.   Both D and H are guided by T.
2.   At least one of D and H is guided by T.
3.   Exactly one of D and H is guided by T.
4.   Neither D nor H is guided by T.

Q.44. If D is scheduled in the slot immediately before Q's, then which of the following is NOT necessarily true?

1.   G is guided by Q.
2.   E is guided by R.
3.   D is guided by T.
4.   F is guided by S.

In an election several candidates contested for a constituency. In any constituency, the winning candidate was the one who polled the highest number of votes, the first runner up was the one who polled the second highest number of votes, the second runner up was the one who polled the third highest number of votes, and so on. There were no ties (in terms of number of votes polled by the candidates) in any of the constituencies in this election.

In an electoral system, a security deposit is the sum of money that a candidate is required to pay to the election commission before he or she is permitted to contest. Only the defeated candidates (i.e., one who is not the winning candidate) who fail to secure more than one sixth of the valid votes polled in the constituency, lose their security deposits.

The following table provides some incomplete information about votes polled in four constituencies: A, B, C and D, in this election.

	Constituency			
	A	B	C	D
No. of candidates contesting	10	12	5	8
Total No. of valid votes polled	5,00,000	3,25,000	6,00,030	
No. of votes polled by the winning candidate	2,75,000	48,750		
No. of votes polled by the first runner up	95,000			37,500
No. of votes polled by the second runner up				30,000
% of valid votes polled by the third runner up				10%

The following additional facts are known:

A.   The first runner up polled 10,000 more votes than the second runner up in constituency A.

B.   None of the candidates who contested in constituency C lost their security deposit. The difference in votes polled by any pair of candidates in this constituency was at least 10,000.

C.   The winning candidate in constituency D polled 5% of valid votes more than that of the first runner up. All the candidates who lost their security deposits while contesting for this constituency, put together, polled 35% of the valid votes.

Q.45. What is the percentage of votes polled in total by all the candidates who lost their security deposits while contesting for constituency A?

Q.46. How many candidates who contested in constituency B lost their security deposit?

Q.47. What BEST can be concluded about the number of votes polled by the winning candidate in constituency C?

1. 1,40,006

B.   less than 2,00,010
C.   1,40,010
D.   between 1,40,005 and 1,40,010

Q.48. What was the number of valid votes polled in constituency D?

A.   1,75,000
B.   1,50,000
C.   1,25,000
D.   62,500

Q.49. The winning margin of a constituency is defined as the difference of votes polled by the winner and that of the first runner up. Which of the following CANNOT be the list of constituencies, in increasing order of winning margin?

1.   B,D,C,A
2.   D,B,C,A
3.   B,C,D,A
4.   D,C,B,A

Q.50. For all the four constituencies taken together, what was the approximate number of votes polled by all the candidates who lost their security deposit expressed as a percentage of the total valid votes from these four constituencies?

1.   23.91%
2.   23.54%
3.   32.00%
4.   38.25%

CAT Quant Section

Q.51. The sum of the perimeters of an equilateral triangle and a rectangle is 90 cm. The area, T, of the triangle and the area, R, of the rectangle, both in sq cm, satisfy the relationship $R T^2$. If the sides of the rectangle are in the ratio 1: 3, then the length, in cm, of the longer side of the rectangle, is

1.   24
2.   27
3.   21
4.   18

Q.52. In May, John bought the same amount of rice and the same amount of wheat as he **had bought in April, but spent ₹ 150 more due to** price increase of rice and wheat by 20%

and 12%, respectively. If John had spent ₹ 450 on rice in April, then how much did he spend on wheat in May?

1. ₹ 580
2. ₹ 570
3. ₹ 560
4. ₹ 590

Q.53. In a car race, car A beats car B by 45 km, car B beats car C by 50 km, and car A beats car C by 90 km. The distance (in km) over which the race has been conducted is

1. 500
2. 475
3. 550
4. 450

Q.54. John takes twice as much time as Jack to finish a job. Jack and Jim together take one-thirds of the time to finish the job than John takes working alone. Moreover, in order to finish the job, John takes three days more than that taken by three of them working together. In how many days will Jim finish the job working alone?

Q.55. Let the m-th and n-th terms of a geometric progression be $\frac{3}{4}$ and 12 , respectively, where m<n. If the common ratio of the progression is an integer r, then the smallest possible value of r + n - m is

1. -2
2. 2
3. 6
4. -4

Q.56. If x and y are positive real numbers satisfying x+y=102, then the minimum possible value of $2601\left(1+\frac{1}{x}\right)\left(1+\frac{1}{y}\right)$ is

Q.57. The value of $\log_a\left(\frac{a}{b}\right) + \log_b\left(\frac{b}{a}\right)$, for $1 < a \le b$ cannot be equal to

1. -0.5
2. 1
3. 0
4. -1

Q.58. In how many ways can a pair of integers (x , a) be chosen such that $x^2 - 2|x| + |a-2| = 0$?

1. 4
2. 5
3. 6
4. 7

Q.59. Students in a college have to choose at least two subjects from chemistry, mathematics and physics. The number of students choosing all three subjects is 18, choosing mathematics as one of their subjects is 23 and choosing physics as one of their subjects is 25. The smallest possible number of students who could choose chemistry as one of their subjects is

1. 20
2. 22
3. 19
4. 21

Q.60. For real x, the maximum possible value of $\dfrac{x}{\sqrt{1+x^4}}$ is

1. $\dfrac{1}{\sqrt{3}}$
2. 1
3. $\dfrac{1}{\sqrt{2}}$
4. $\dfrac{1}{2}$

Q.61. Aron bought some pencils and sharpeners. Spending the same amount of money as Aron, Aditya bought twice as many pencils and 10 less sharpeners. If the cost of one **sharpener is ₹ 2 more than the cost of a pencil, then the minimum possible number of** pencils bought by Aron and Aditya together is

30
33
27
36

Q.62. A sum of money is split among Amal, Sunil and Mita so that the ratio of the shares of Amal and Sunil is 3:2, while the ratio of the shares of Sunil and Mita is 4:5. If the difference between the largest and **the smallest of these three shares is Rs 400, then Sunil's share, in** rupees, is

Q.63. Anil buys 12 toys and labels each with the same selling price. He sells 8 toys initially at 20% discount on the labeled price. Then he sells the remaining 4 toys at an additional 25%

discount on the discounted price. Thus, he gets a total of Rs 2112, and makes a 10% profit. With no discounts, his percentage of profit would have been

1. 60
2. 55
3. 50
4. 54

Q.64. Two circular tracks T1 and T2 of radii 100 m and 20 m, respectively touch at a point A. Starting from A at the same time, Ram and Rahim are walking on track T1 and track T2 at speeds 15 km/hr and 5 km/hr respectively. The number of full rounds that Ram will make before he meets Rahim again for the first time is

1. 4
2. 3
3. 2
4. 5

Q.65. How many 4-digit numbers, each greater than 1000 and each having all four digits distinct, are there with 7 coming before 3

Q.66. The number of pairs of integers (x , y) satisfying $x \ge y \ge -20$ and $2x + 5y \le 99$ is

Q.67. If x and y are non-negative integers such that x + 9 = z, y + 1 = z and x + y < z + 5, then the maximum possible value of 2x + y equals

Q.68. A and B are two points on a straight line. Ram runs from A to B while Rahim runs from B to A. After crossing each other, Ram and Rahim reach their destinations in one minute and four minutes, respectively. If they start at the same time, then the ratio of Ram's speed to Rahim's speed is

1. 2
2. $\sqrt{2}$
3. $2\sqrt{2}$
4. $\dfrac{1}{2}$

Q.69. The distance from B to C is thrice that from A to B. Two trains travel from A to C via B. The speed of train 2 is double that of train 1 while traveling from A to B and their speeds are interchanged while traveling from B to C. The ratio of the time taken by train 1 to that taken by train 2 in travelling from A to C is

1. 1: 4
2. 7: 5
3. 5: 7

4. 4:1

Q.70. Let C be a circle of radius 5 meters having center at O. Let PQ be a chord of C that passes through points A and B where A is located 4 meters north of O and B is located 3 meters east of O. Then, the length of PQ, in meters, is nearest to

1. 7.2
2. 7.8
3. 6.6
4. 8.8

Q.71. The number of integers that satisfy the equality $x^2 - 5x + 7 = x^{x+1} - 1$ is

1. 2
2. 3
3. 5
4. 4

Q.72. Let $f(x) = x^2 + ax + b$ and $g(x) = f(x+1)f(x-1)$. If $f(x) \geq 0$ for all real x, and $g(20) = 72$, then the smallest possible value of b is

1. 1
2. 16
3. 0
4. 4

Q.73. Let C1 and C2 be concentric circles such that the diameter of C1 is 2 cm longer than that of C2. If a chord of C1 has length 6 cm and is a tangent to C2, then the diameter, in cm, of C1 is

Q.74. From an interior point of an equilateral triangle, perpendiculars are drawn on all three sides. The sum of the lengths of the three perpendiculars is s. Then the area of the triangle is

1. $3s^2$

2. $\dfrac{s^2}{\sqrt{3}}$

3. $\dfrac{2s^2}{\sqrt{3}}$

4. $\dfrac{s^2}{2\sqrt{3}}$

Q.75. For the same principal amount, the compound interest for two years at 5% per annum exceeds the simple interest for three years at 3% per annum by Rs 1125. Then the principal amount in rupees is

Q.76. In a group of 10 students, the mean of the lowest 9 scores is 42 while the mean of the highest 9 scores is 47. For the entire group of 10 students, the maximum possible mean exceeds the minimum possible mean by

1.   4
2.   3
3.   5
4.   6

Answer Keys

1.	2	20.	1342	39.	3	58.	4
2.	4	21.	2	40.	3	59.	1
3.	2	22.	1	41.	4	60.	3
4.	3	23.	2143	42.	3	61.	2
5.	3	24.	3	43.	2	62.	800
6.	2	25.	2	44.	2	63.	3
7.	3	26.	2413	45.	9	64.	2
8.	2	27.	2	46.	11	65.	315
9.	4	28.	9	47.	1	66.	17
10.	3	29.	6	48.	1	67.	23
11.	3	30.	6	49.	3	68.	1
12.	1	31.	1	50.	1	69.	3
13.	3	32.	1	51.	2	70.	4
14.	2	33.	2	52.	3	71.	2
15.	4	34.	4	53.	4	72.	4
16.	4	35.	4	54.	4	73.	10
17.	3	36.	2	55.	1	74.	2
18.	4	37.	3	56.	2704	75.	90000
19.	4	38.	3	57.	2	76.	1

Solutions

Solution 1:

This is the easiest question of the passage. The clue to the right answer is given in the last part of the first paragraph. Reading that part is enough to spot the right choice. It says there are three variables present in an aggressive act. They are: the aggressor, the circumstances, and the victim.

[Option: 2]

Solution 2:

We must remember that this is an except question. We must pick the choice that is not **presented as the author's argument. Choice 1 goes out because the author discusses it** towards the end of the passage. Men have higher levels of testosterone, resulting in higher aggression. The second sentence of the last paragraph provides clue for choice 2. Thus 2 is also eliminated. The first paragraph elaborately describes the varying nature of aggression. Thus 3 also is eliminated. The moderation of death instinct is nowhere discussed in the passage, although the presence of death instinct is discussed. Thus 4 is the right choice.

[Option: 4]

Solution 3:

Though this is an except question, this question can be easily answered if we look for the **phrase "neural regulation" in the passage. The neural inhibit**ion has been discussed with regards to aggressive impulses, not the hormone testosterone. Thus 2 is definitely not implied by the author. Once we have found the right answer there is no need to verify the others. The rest of the options, however, do find indirect reference in the passage.

[Option: 2]

Solution 4:

The point made by the author in the quoted remark is that you may be aggressive without any real feelings of anger or animosity. Why? Because inflicting pain is not the objective, but serves some other end. Thus 3 directly becomes the right choice. This was a very easy question.

[Option: 3]

Solution 5:

This is a passage easy to read and understand. The very first **question is author's tone in** the given sentence. Indignant means angry, but there is no anger as the author is relating to something that used to happen 400 years ago. The author is not trying to be analytical, rather he is trying to be ironical. Irony is used to highlight a situation by using contrast in an amusing way. His intention is not to discuss the contrast between peasant life and pirate life way back in the 16th century. 3 is the best choice.
[Option: 3]

Solution 6:

The author by giving the example of Vasco da Gama and the east India company to suggest that they both were not very different from piracy. Options 2 brings out that suggestion appropriately. 1 goes out because the author does consider them as pirates. 3 might look like **a good choice but the phrase "laid the ground for modern piracy" brings something that is not implied or stated in the passage. 4 could have been another close choice, but the author's** intention is not to compare the disorganized piracy of today with the organized piracy of the past. His intention is to compare the disorganized small piracy of the past with the renegades of today. It is small Vs small, and not small Vs big. 2 is the right answer.

[Option: 2]

Solution 7:
At the end of the **fourth paragraph the author says that "root causes of piracy today are the same as they were a couple of hundred years ago". What were the causes a couple of** hundred years ago? According to the author it is poverty. Thus he believes that eliminating poverty will solve the problem. Thus 3 is the right choice. All the other choices **are mentioned only to show that they haven't brought the desired results.**

[Option: 3]

Solution 8:
We have to pick the choice that is not the cause behind the rise in piracy. 1 goes out because it is the cause. The first sentence of the fourth paragraph offers the clue. The **third paragraph says that "the main motive for piracy has always been a combination of need and greed...". Thus 3 also is correct, as a cause of piracy. The fo**urth paragraph has clue to option 4 as well. Thus 2 is the right choice. The author believes that surveillance can never be an effect solution because it is not addressing the root cause.

[Option: 2]

Solution 9:

This is so simple a question that one will not feel like marking the right choice just because it is too straightforward. The author in the third paragraph says that the study of visual culture is very important to understand the agents, practices and institutions that put images to work. **Then he further goes to say that "no amount of social analysis (visual culture) can account**

fully for the existence of Michelangelo or Leonardo. They were unique creators. Choice 4 is very close to this statement. It is so easy that one is highly likely to miss out on this. Choice 2 is close but a little absurd. It says that because they are genius they cannot be subjected to social analysis. The author says that we may have social analysis of these artists but no matter how much we analyse; the analysis may not be enough.

[Option: 4]

Solution 10:

This question asks us to interpret a phrase given in the passage. For meaningful visual experience, we need the conditions, which operate on the foundation of covenants. 3 precisely captures that meaning. In fact, the question asks us to pick the option that is

similar in content to the one given in the question. 1 could have been close but it distorts **the idea by saying "when there is foundational condition established in images". It**

suggests that the foundation is established in images. Only 3 correctly rephrases the whole idea given in the question

[Option: 3]

Solution 11:

This was an easy question. Two keywords are very important, one is visual images or imagery, and the other is visual culture or practices. Both these are important as per the first paragraph of the passage and only in choice 3 can we find these two keywords. Thus 3 is the best choice. 4 misses on imagery or visual images. 2 misses on the visual culture. 1 misses both visual culture and images.

[Option: 3]

Solution 12:

We have to mark the choice that is not a valid inference. 2 can be inferred from last

paragraph. 4 can be inferred from the first paragraph, and also the paragraph that

discusses Michelangelo and Leonardo. In the third last paragraph the author says "how artifacts contribute to the construction of a world...". Thus 3 also can be inferred. 1

cannot be inferred because structures of perception have been discussed as a physiological process, not as an institutional structure. Thus 1 is farfetched and the right choice as it cannot be inferred.

[Option: 1]

Solution 13:

To mark the correct answer, we must understand the meaning of epiphenomenon, which

means a secondary effect or a by-product. 3 is the right choice because supplemental

means "provided in addition to". Thus by-product=supplemental.

[Option: 3]

Solution 14:

The question asks us to pick a choice that the author would be most supportive of. 1 goes out because the author in the last paragraph says that localised renewable energy systems is unlikely to generate high returns for investors. 2 can be definitely inferred because the author clearly says at the end of second last para that disposal of toxic waste has perpetuated social injustice. Thus 2 is the right choice. For many 3 might be a tempting choice, but it is beside the point. The author is not concerned with more environment friendly carbon based fuels. He is talking about renewable energy sources, and the social and financial costs behind it. The whole discussion in the passage is based on the premise that we have already taken the path low carbon based renewable energy path. So the suggestion in 3 is pointless. 4 goes out because the author is not favouring any study. He wants resolution to the problem, so he wants action.

[Option: 2]

Solution 15:

This is a slightly difficult question. But 1 definitely supports the author. It must go out. We can find the evidence in the second paragraph. The second sentence of the last paragraph provides evidence for the 2nd choice. The third choice has already been inferred while solving the earlier question. It can be found in the last sentence of the second last para. 4 is the right answer because there is no reference for it in the passage. We have to mark the answer based on the evidence that we see in the passage. [Option: 4]

Solution 16:

This is the easiest question of the passage. We have to first falsify the choice and then see

whether it is supporting the arguments in the passage. Choice 4, when falsified, says that

renewable energy systems have an environmental impact. If that is the case, the author's

arguments find support in the passage. Thus 4 is the right choice. 1 goes out because the author says in the passage that renewable energy systems are not as profitable as non-renewable energy systems. The Last sentence of the first paragraph provides evidence for

this. The profitability aspect has been discussed in the last paragraph of the passage. Thus it takes care of both 2 and 3, because if the profitability is low, it means that the expense is high, and therefore economically unsustainable. Thus all 1,2 and 3 support the author without being negated, whereas 4 supports the author only when it is negated

[Option: 4]

Solution 17:

This question is an easy question because to find the answer we have to read only the **first paragraph. The author says "...but renewables need to be further scrutinized...".**

This suggests that the author has some reservations or doubts pertaining to renewable energy. Thus 3 is the right choice. A very easy question indeed. 1 goes out because it talks of non-renewable energy systems. 2 goes out because the author is equally concerned about environmental and social impact of renewable energy systems. 4 finds no mention in the passage and the first paragraph.

[Option: 3]

Solution 18:
This is a pretty interesting question. The author says "renewable energy can be produced

at the household or neighbourhood level...but such small scale localised production is unlikely to generate high returns for investors.**" This is a double edged sword. 2 goes out** because efficiency has not at all been discussed in the last paragraph. Corporate control is indeed discussed but not in reference to democratic distribution of energy. Thus 3 goes out. 1 goes out because renewable energy has been discussed as a single idea, without any forms and types. Thus 1 also is a distortion

[Option: 4]

Solution 19:
The official answer for this question seems to be a little weird. Though 4 is the official answer, we believe that sentence 5 should have been the right choice. 2 will open the **paragraph. 1 and 4 focus on the victim's past. 1 says "victim's trauma after the assault rarely gets the attention..." and 4 says "even the most charitable question seems to focus on the victim's past...". 3 finally concludes by saying "the result is that we don't have much of a vocabulary for what happens in a victim's life after the painful past...". 5 should** have been the right answer, but the official answer is 4.

[Answer: 4]

Solution 20:

This question is a difficult one, where two possible sequences might be correct. There is no doubt that 42 is one pair and 13 is the other. The point is which will come first 13 or 42. The official answer says 1342, though we believe that 4213 is just equally logical a sequence.

[Answer: 1342]

Solution 21:

This is a question of moderate difficulty. 1 points at some truth. We must try to find the sentence that connects with 1. How can we monopolize and protect data? By having intellectual property rights. Thus 31 form a pair. 4 adds another idea to the story; it says **"alongside the world of monopolised information (already discussed in 31), we have** information as a social good, incapable of being owned. 5 concludes by saying that **"information good are freely replicable....it can be copied and pasted infinitely". In the light** of intellectual property rights, and free information goods, 2 seems to be the odd one out.

[Answer: 2]

Solution 22:

The passage has three important keywords: sovereign equality, sense of insecurity, and what was done to overcome that insecurity. The passage tells us that people delivered their rights **to a sovereign power in return for the sovereign's provision** of security. This was the only way to overcome the fear of insecurity. After all there is a give and take happening, and therefore **there is a transaction. Thus 1 is the best choice. 2 misses on the people's sense of insecurity. 3** goes out because limiting the power of papacy is not the essence of the discussion. Choice 4 misses the idea of give and take, people give their rights to the sovereign in return for his **protection. It misses the crucial word "transactional relationship".**

[Option: 1]

Solution 23:

This is one of the easiest questions. 2 introduces the idea of VLT and mentions what it has. 1 comes as an addition and mentions the additional things that VLT has. 4 talks about what happens when these are combined. 3 is the result of that combination. Thus 2143 is the right sequence. A very easy question indeed!

[Answer: 2143]

Solution 24:

In the passage the author compares the two factors based on which humans make decisions. The first is intuition and the other is information. The author seems to be

comparing the two without any preference. 1 goes out because it inaccurately says that **"we choose intuition or information based on the time available". Nothing of this** sort has **been given in the passage. Time in not the causative factor here. 2 says "it is better".**

Since the author has not given any preference, it would be wrong to say which one is better. Thus 2 also goes out. 3 is the right summary, and captures the essence by stating that the difference is differential speed and ability to provide a rationale. 4 just focuses on intuition, and ignores the other factor entirely.

[Option: 3]

Solution 25:

There are three important keywords in this paragraph: the challenge posed by rural-urban continuum, the objective methodology with one or two metrics may not be enough to capture the wide diversity, it may require an element of human judgement. 2 captures all the keywords succinctly. 1 misses the element of human judgement, 3 also misses on the same. 4 goes out because it is not about the judgment of objective methodology, but human judgement coming as an additional factor to aid the methodology.

[Option: 2]

Solution 26:

This might a little tricky question, but without doubt 2 will open the paragraph. The resultant ionising radiation in 4 is a consequence of large scale nuclear fission mentioned in

2.   Thus 24 form a pair. 4 and 1 are contrasting ideas, something that justifies the **presence of the conjunction "but"** in 1. The resultant ionising radiation has become the most serious agent of pollution... but the attention of the layman has been captured by the atom **bomb....3 comes as the appropriate conclusion. 3 can't come after 4 because both 4 and 3 talk** nuclear fis**sion, which does not justify the presence of the word "however" in 3. We use** however to contrast two ideas, but both 4 and 3 talk of peaceful uses of atomic energy. Nuclear fission is used for purposes other than atomic bomb. Thus 2413 is the right sequence.

[Answer: 2413]

Solution 27:

As we need to use only two colours, in any row or column these two coloured beads will be placed alternately like

1	2	1	2	1

So we cannot place Red coloured beads at position 1 or two as between any two Red beads there must at least two beads (at least one green and at least one Blue). Hence, we can use only Green and Blue coloured beads.

We can have two possible configurations:

Configuration 1: Green bead is placed at top left corner

G	B	G	B	G
B	G	B	G	B
G	B	G	B	G
B	G	B	G	B
G	B	G	B	G

Configuration 2: Blue bead is placed at top left corner

B	G	B	G	G
G	B	G	B	B
B	G	B	G	G
G	B	G	B	B
B	G	B	G	G

Answer: 2

Solution 28:

Between Any two Red beads there must be at least two Beads. So any Row or column there can be maximum two red beads. If we place two red beads in each row then two columns will have three red bead which cannot be accepted.

R			R	
	R			R
R			R	
	R			R
R			R	

The above configuration is not correct.

So in the third row we will place only one Red bead at the middle of the third row. Also we will adjust other rows so that between any two Red beads there are at least two beads in any column.

R			R	
	R			R
		R		
R			R	
	R			R

So maximum 9 Red beads are possible in any configuration. At remaining places Green and Blue coloured beads can be placed in such way that all the conditions given are satisfied. There are multiple configurations are possible. One of the configurations is given as below.

R	G	B	R	G
G	R	G	B	R
B	G	R	G	B
R	B	G	R	G
G	R	B	G	R

Answer: 9

Solution 29:

To minimise number of Blue beads we need to maximise number of Red and Green beads. From the previous question solution, Maximum no. Red beads can be 9. The row in which has two red beads, we will place two green and one Blue bead additionally.

The row with only one red bead we will place two green and two blue beads additionally. So overall there will be minimum 6 Blue beads.

R	G	B	R	G
G	R	G	B	R
B	G	R	G	B
R	B	G	R	G
G	R	B	G	R

Answer: 6

Solution 30:

We can place maximum 6 more beads as shown below.

R			R	
		R		
	R			R
R			R	
		R		

Answer: 6

From (6)

HomeDecor

Delhi (2018) = 100-20 = 80

Bengaluru (2018) = 80-20 = 60

From (3)

HomeDecor

Let Mumbai (2018) = Kolkata (2018) = a

So, Data for HomeDecor will be as follows

	Sales Amount (Crore Rupees)							
	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
HomeDecor	80	100	a	72	60	80	a	54

From (5)

(80 + a + 60 + a) + 70 = (100 + 72 + 80 + 54)

2a + 210 = 306

2a = 96

a = 48

We have found all the values for HomeDecor. Now we will find values for Apparels

From (1)

Apparels

Let Delhi (2018) = Kolkata (2018) = b

From (2)

Apparels

Let Mumbai (2018) = Bengaluru (2018) = Delhi (2019) = c

	Sales Amount (Crore Rupees)							
	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	b	c	c		c		b	54

From (7)

Apparels

Bengaluru (2019) = c + (c-b) = 2c -b

Also, Mumbai (2019) = c + (54-b) = c-b + 54

	Sales Amount (Crore Rupees)							
	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	b	c	c	c – b + 54	c	2c - b	b	54

Now there are two variables. We need two equations to get their values.

From (8)

Apparels 2019

Delhi - Kolkata = Kolkata - Bengaluru

Delhi + Bengaluru = 2 (Kolkata)

$c + 2c - b = 2(54)$

$3c - b = 108$ ....(I)

From (4) From 2018 to 2019

Total Increase in apparels Sales = Total Increase in Electronics Sales

$[c + (c - b + 54) + (2c - b) + 54] - [b + c + c + b] = [98 + 102 + 70 + 100] - [78 + 82 + 90 + 80]$

$[4c - 2b + 108] - [2b + 2c] = 370 - 330$

$2c - 4b + 108 = 40$

$2c - 4b = - 68$

$c - 2b = - 34$ .... (II)

Solving (I) and (II) we get

$b = 42$ and $c = 50$

Substituting we get

Sales Amount (Crore Rupees)								
	Delhi		Mumbai		Bengaluru		Kolkata	
	2018	2019	2018	2019	2018	2019	2018	2019
Apparels	42	50	50	62	50	58	42	54
Electronics	78	98	82	102	90	70	80	100
HomeDecor	80	100	48	72	60	80	48	54

Solution 31:

HomeDecor 2018 Highest sales in Delhi

HomeDecor 2019 Highest Sales in Delhi

Option: 1

Solution 32:

62-50=12

Option: 1

Solution 33:

Maximum percentage increase is form Mumbai HomeDecor from 2018 to 2019 Percentage Increase $\frac{72-48}{48} \times 100 = \frac{24}{48} \times 100 = 50\%$

Option: 2

Solution 34:

Sales Amount (Crore Rupees)					
	Delhi	Mumbai	Bengaluru	Kolkata	
	2019	2019	2019	2019	
Apparels	50	62	58	54	Total
Electronics	98	102	70	100	
HomeDecor	100	72	80	54	
	248	236	208	208	900

Option: 4

Solution 35:

The parking slots will be numbered as follows.

	1 (SUV)	2	3	4 (SUV)	
Car 1 leaves	V	V	2	3	4 (SUV)	
Car 5 Arrives	5	V	2	3	4 (SUV)	
Car 6 (SUV) Arrives	5	V	2	3	4 (SUV)	6 (SUV)
Car 4 leaves	5	V	2	3	V V	6 (SUV)
Car 7 (SUV) Arrives	5	V	2	3	7 (SUV)	6 (SUV)
Car 8 Arrives	5	8	2	3	7 (SUV)	6 (SUV)

V – Vacant

The cars that are parked next to car 3 are car 2 and car 7.

Option: 4

Solution 36:

When cars 5 and 6 are present, car 7 cannot take a place between them. So , 5,7,6 is not possible.

8,2,3, V, 5,6,7 is possible in the following sequence of arrival of cars.

I. Cars 1,2,3,4,5,6 and 7 arrive one after the other.

II. Car 1 leaves

61.   Car 8 arrives and is parked in the slot vacated by car

1 IV. Car 4 leaves.

V. 2,3,7,5,6,8 is not possible as car 7 (SUV) cannot be parked in place of car 4 (compact) while cars 3 and 5 are still parked. 8, 2, 3, V, 6,5,7 is not possible as car 6 cannot be between a vacant slot and to the left of car 5 for the following reasons.

If no slot is vacant when car 6 is arrived, it would have been parked to the right of car 5.

If car 4 (compact) left by the time car 6 arrives it would either be parked in the slot vacated by car 4 or to the right of car 5.

Option: 2

Solution 37:

From the given arrangement it can be understood that cars 1, 2 and 3 arrived first and then cars 1 and 2 left before cars 4, 5 and 6 arrived. Now, there are four slots to the left of car 3. Hence, cars 1 and 2 are SUVs. Since three out of four slots are occupied by cars 4, 5 and 6,

all these are compact cars. Whether car 3 is a compact car or an SUV, the given arrangement is possible.

Option: 3
Solution 38:

As cars 3 and 5 are still in their positions and that car 4 is not the first car to leave, at least one of cars 1 and 2 left before car 4. Let us consider the following cases. Both cars 1 and 2 left before car 4: In this case car 6, whether it is a compact car or an SUV, would have been parked in the parking lots vacated by cars 1 and 2. Hence, this case is not possible.

Only car 1 left before car 4: As car 6 is parked in the lot vacated by car 4, car 7 would have been parked in place of car 1. But the s lot vacated by car 1 is still vacant. Hence, this case is not possible.

Only 2 left before car 4: If the car 2 is an SUV, car 6 would have been parked in that lot. Hence, cars 2 and 7 are compact cars. Car 1 left after car 7 arrived.

Option: 3
Given,

Students: A, B, C, D, E, F, G, H

Guides: P (2 students), Q (1 student), R (2 students), S (1 student), T (2 students)

Economics (4 students), Sociology (3 students), Anthropology (1 student)

Slots: 9:00, 9:30, 10:00, 10:30

From (1), one economics seminar is held in each of the four slots.

From (1) and (2), A is students of economics and is guided by R. Hence, R is from economics department (given, each student is guided by a guide belonging to their department).

The information from (1), (2), (3) and (4) can be tabulate as follows.

09:00	09:30	10:00	10:30
Eco	Eco	A - Eco - R	Eco
Socio			F - Anth-

From (5), two sociology seminars and one economics seminar are held in the same slot. It cannot be 10:00 slot or 10:30 slot as at most three seminars can be conducted in one slot.

From (5) and (7), seminars of B, G and T are held in 9:30 slot.

From (6) and the given point that students who are guided by the same guide must be scheduled in consecutive slots, C is a sociology student and his/her seminar is held in 9:00 slot.

09:00	09:30	10:00	10:30
Eco	Eco - T	A - Eco - R	Eco
C – Socio - P	B – Socio - P		F - Anth-
	G - Socio		

From the above we also know the following combination of guides, their subject and their students

P (2)	Sociology	B, C
Q (1)		
R (2)	Economics	A
S (1)		
T (2)	Economics	

We know that G is a sociology student and F is an anthropology student. Hence, the rest D, E and H are economics students. Thus, one among D, E and H (economics students) is guided by R and the remaining two are guided by T. Now, G and F are guided by Q and S in any order. We get the following combinations.

P (2)	Sociology	B, C
Q (1)	Anthropology/ Sociology	F/G
R (2)	Economics	A, (one of D, E, H)
S (1)	Sociology/Anthropology	G/F
T (2)	Economics	Two of D, E, H

It is also given that students who are guided by the same guide must be scheduled in consecutive slots. Hence, 9:00 economics seminar is of T and 10:30 seminar is that of R.

09:00	09:30	10:00	10:30
Eco - T	Eco - T	A - Eco - R	Eco - R
Socio	B - Socio		F - Anth-
	G - Socio		

Solution 39:

From the above table, it is clear that the statement that two seminars are scheduled in the first slot is true

Option: 3

Solution 40:

We know that R is guiding an economics student. Hence, choices with R can be are eliminated. None among P, Q and S is guiding an economics student.

Option: 3

Solution 41:

B is scheduled in the second slot. W e are not sure of who are guiding G and F. So, two other choice s are not necessarily true.

Option: 4

Solution 42:

D's seminar is scheduled later than Q's seminar, indicates that Q's seminar cannot be in the last slot. It implies F is guided by S and G by Q. Hence, statement (ii) is true. Now that **Q's seminar is scheduled in the second slot, D's seminar is scheduled in the lost slot. i.e D** is guided by R. Hence, E and H are guided by T. Thus, statement (i) is also true. Both (i) and (ii) are true.

Option: 3

Solution 43:

If E and Q are scheduled in the same slot, it is possible both in the second slot and the last slot. If it is in the second slot, then E is guided by T and one among D and E is also guided by T. If it is in the last slot, then E is guided by R and both D and E are guided by T. Thus, at least one of D and H is guided by T.

Option: 2

Solution 44:

If D is scheduled in the slot immediately before Q's, it is only possible with D is in the first slot and Q is in the second slot. It implies that D is guided by T, G is guided by Q and F is

guided by S. One among E and H is guided by T and the other one b y R, in any order. Hence the statement that E is guided by R is NOT necessarily true.

Option: 2

Solution 45:

Total valid votes in A 5, 00, 000 Minimum no of valid votes required to save the security deposits $\frac{1}{}$ 5, 00, 000 83, 334

As per 1st additional information the gap between 1st and 2nd runners up is 10,000 So the table for A total 5, 00, 000

Winner   2, 75, 000

1st runner up   55, 000

2nd runner up   85, 000

Total   4, 55, 000

The valid votes got by the other 7 candidates 5, 00, 000 4, 55, 000

45, 000

the % of votes by the candidates who lost the security deposit is $\frac{45,000}{5,00,000}$ 100 9%

Answer: 9

Solution 46:

Total valid votes in A=3,25,000

Minimum no of valid votes required to save the security deposits $\frac{1}{6}$ 3, 25, 000 54,167

We can see the winner himself/herself has got 48,750 no of votes which is less than $\frac{1}{6}$ th of the total votes.

all of the candidates got less than $\dfrac{1}{6}$ th of the valid votes.

security deposits will be forfeited for all of the candidates as winner is exempted from this condition. (total no of such candidates 12 1 11)

Answer: 11

Solution 47:

As the additional information in condition (2)

The minimum difference in no of votes between any pair of candidates = 10,000
As there are 5 candidates in c, the possible distribution of valid is as follows.

Additional 30 votes can be distributed among them to maintain the gap at least 10,000. So the possible answer is 1,40,006

Option: 1

Solution 48:

Let the no of valid votes $100x$

The table looks like the following:

Total votes $100x$

Winner $39, 375$

1st $37, 500$

2nd $30, 000$

3rd $10x$

Total $1, 06, 875$

As the winner got 51 more than 1st runner up (as per 3)

Total no of votes has to be more than

$$\frac{39,375\ 37,500\ 30,000}{0.9}$$

1,10, 208

option (62,500) is ruled out.

To eliminate two more options, lets consider 1,50,000 to be the correct one [as one option is less than \& the other one is the greater than this option]

$100\ x \qquad 1, 50, 000$

Total   1, 50, 000

Winner   45, 000

$1_{st} \qquad 37, 500$

$2_{nd} \qquad 30, 000$

$3_{rd} \qquad 15, 000$

Total   1, 06,875

Minimum rates to save security deposits $\quad \dfrac{1\ 1, 50, 000}{25, 000_{6}}$

So we can see except 3 candidates all others have lost their security deposits.

Candidates who saved their security deposits (100 35)% 65% as per 3rd additional inform]

65% of 1, 50, 000 97, 500

which is less than 1,12,500

answer will be more than 1,50,000

Option: 1
Solution 49:
<u>Margins</u>

A   2,75, 000 95, 000 1,80,000

B

C   1,50,000 1, 40,000 10,000

D   39, 375 37, 500 1, 875

Clearly the margin in C is more than that of D. So clearly the sequence B , C , D , A is not possible.

Option: 3
Solution 50:
The no. of votes got by the candidates who has lost their security deposits is as follows

In A   45, 000

In B   3, 25, 000   48, 750   2, 76, 250

In C   0

In D   1, 75, 000   46, 250   37, 500 30, 000   61250

Req %= $\dfrac{3,82, 500}{5, 00, 000\ 3, 25, 000\ 6, 00, 000\ 1, 75, 000} \times 100$

$\dfrac{3, 82, 500}{16,00,000} \times 100$

23.91%

Option: 1
Solution 51:
Let the breadth of the rectangle be b.

Length of the rectangle $3b$

Let a be the side of the equilateral triangle.

Given,

$$R T^2 = 3b^2 = \frac{\sqrt{3}}{4} a^2 = b = a^2\sqrt{3}/4$$

Given,

$2(4b) + 3a = 90$

$8a^2/4 + 3a - 90 = 0$

$2a^2 + 3a - 90 = 0$

$(a-6)(2a+15) = 0$

$a = 6$

$b = 9$

$3b = 27$

[Option: 2]

Solution 52:
Amount spent on rice in May $= 450 \times 1.2 = ?540$.

If the amount spent on wheat in April is w, then in May it would be 1.12w.

Given, $(1.12w + 540) - (w + 450) = 150$

$12w = 60$

$w = 500$

The amount spent on wheat in May =1.12w i.e., ?

560 [Option: 3]

Solution 53:
Let the length of the racetrack be D.

When A covers D km, B covers (D -45) km and C covers (D-90) km

When B covers D km, C covers (D -50) km

The ratio of the speeds of the racers is same as the ratio of the distance travelled in a given time period.

Ratio of speed of B and C is $\dfrac{\text{Speed of } B}{\text{Speed of } C} \dfrac{D\ 45}{D\ 90} \dfrac{D}{D\ 50}$

$D45$

$D50 \qquad 40$

$40D\ 45D\ 50\ 45$

$D\ 450$

[Option: 4]

Solution 54:

Let the individual times taken by John, Jack and Jim to complete the works be a, b and c respectively.

Given, $a\ 2b$ (1)

$\dfrac{bc}{b\ c}\ \dfrac{1}{3}\ (\ a)$ (2)

$a\ \dfrac{abc}{ab\ bc\ ac}\ 3$ (3)

From (1) and (2), we've $c\ 2b$

$$2b \frac{2b \; b \; 2b}{(2b)(b) \; b \; (2b) \; (2b)(2b)} \quad 3$$

b   2

c   4

[Answer: 4]

Solution 55:

T_n 12

T_m $3/4$

$$\frac{T_n}{T_m} \quad \frac{ar^{n-1}}{ar^{m-1}} \quad \frac{12}{\frac{3}{4}}$$

$$r^{n-m} \quad 16 \quad (2)^4 \quad (4)^2$$

To get the minimum value for r^{n-m}, r should be minimum.

r   4

$n-m$ 2

    Required answer =-

2 [Option: 1]

Solution 56:

$AM \quad GM \quad HM$

$$\frac{x+y}{2} \quad \sqrt{xy} \quad \frac{2}{\frac{1}{1}+\frac{x}{y}}$$

Given $x \quad y \quad 102$

$$xy \quad 51^2 \quad \text{or} \quad \frac{1}{xy} \quad \frac{1}{2601}$$

$$\frac{1}{y} \quad \frac{1}{51}^2$$

The minimum value of $\quad 2601\left(1 - \dfrac{1}{x}\right)\left(1 - \dfrac{1}{y}\right) \quad {}^1 (2601)\left(1 - \dfrac{1}{x} - \dfrac{1}{y} - \dfrac{1}{xy}\right)$

$$2601\left(1 - \frac{2}{51} - \frac{1}{2601}\right)$$

=2704

[Answer: 2704]

Solution 57:

$$\log_a \frac{a}{b} - \log b \frac{b}{a}$$

$$\log_a a \log_a b \log_b b \log_b a$$

1 $\qquad \log_a b \quad 1 \quad \log_b a \quad \log_n n \quad 1$

since $\log_a b \log_a b \quad 2$

The above value is $\quad 0$.

1 can't be the answer.

[Option: 2]

Solution 58:

$$x^2 \quad 2|x| \quad |a \quad 2| \quad 0$$

$$|x| \quad \frac{2 \pm \sqrt{4 \quad 4(|a \quad 2|)}}{2}$$

$|x| \quad 1/\sqrt{1|a \quad 2|}$

If $a \quad 2;|a \quad 2| \quad a \quad 2$

$|x| \quad 1/\sqrt{1 \quad (a \quad 2)}$

$1 \quad \sqrt{\sqrt[3]{a}}$

since x is integer $3 \quad a \quad 0$

$a \quad 3$

The possible values of a is $\quad 3$

Then $x \qquad 1;$

If $a \quad 2,|x||1 \quad 1|, \quad x \qquad 2,0$

If $a \quad 2,|a \quad 2| \quad 2 \quad a$

$|x|1 \quad 1/\sqrt{\quad (2 \quad a)}$

$|x|1 \quad \sqrt{a\sqrt{1}}$

Since x is integer $a \quad 1 \quad 0 \quad a \quad 1$

The possible values of a is 1

If a 1,$|x|$ 1 x 1

The possible pairs =(-1,3), (1,3), (1,1), (-1,1), (2,2),(-2,2), (0,2) i.e.,

7 [Option: 4]

Solution 59:

Let a, b, c represent number of students who opted for two subjects - Maths and Chemistry, Maths and Physics and Physics and Chemistry respectively.

Given, $a + b = 23 + 18 + 5$

and $b + c = 25 + 18 + 7$

Since a, b and c cannot be negative the least value for any of the three is 5 .

We get $a + c = 18 + (23 + 25 + 18) - 2b$

Minimum value of number of students who chose chemistry $23 + 25 - 18 - 10 = 20$

[Option: 1]

Solution 60:

$$j = \frac{1}{1 + x^4} + \frac{1}{\frac{1}{x^2} + x^2}$$

$$x^2 + \frac{1}{x^2} \geq 2$$

Hence the maximum value of $\dfrac{1}{\frac{1}{x^2} + x^2}$ is $\dfrac{1}{2}$

[Option: 3]

Solution 61:
Let the price of each pencil be Rs. x and price of each sharpens be Rs. y

Aron $y - x = 2 \Rightarrow x = y - 2$

$a(y - 2) + b(y) = 2a(y - 2) + (b + 10)y$

$10y = a(y - 2) \quad \text{...(1)}$

Required value $= 3a$

From (1) $a \geq \dfrac{10y}{y-2} \geq a \geq I$

Its possible only when $y \geq 22$

$a \geq 11$

Required answer =33

[Option: 2]

Solution 62:
Given ratio of shares of Amal and Sunil is 3: 2

Also the ratio of shares of Sunil and Mita is 4: 5 .

Hence the ratio of shares of Anil, Sunil and Mita is 6: 4: 5

Sunil's share $\dfrac{400 \times 4}{2} = 800 \times 2$

[Answer: 800]

Solution 63:
Let the cost price and marked price of each toy be c and m respectively.

Overall selling price $= 8(0.8m) + 4 \times \dfrac{3}{4} \times 0.8m$ i.e 8.8m.

Given, 110% of $12c = 8.8m$

$c = \dfrac{2m}{3}$

Overall $CP = 12 \times \dfrac{2m}{3}$ i.e 8m

Required profit percentage $= \dfrac{12m - 8m}{8m} \times 100 = 50\% \, 8m$

[Option: 3]

Solution 64:
Time taken by each of them to complete one round

$\dfrac{\text{Circumference of the}}{\text{circle speed}}$

Time taken for Ram to cover one round $\dfrac{2\ 100}{5\ /18}$ 48 15

Time taken for Rahim to cover one round $\dfrac{2\ 20}{5/18}$ 28.8 5

Time taken by Ram and Rahim meet each other for the first time LCM of 48 and 28.8 144

Number of rounds made by Ram before he meets Rahim for the first time $\dfrac{144}{3}$ 48

[Option: 2]

Solution 65:
Consider four blanks

7 is in thousand place, then 3 can be placed in any of the 3 places in 3 ways. Remaining two blanks can be filled with remaining eight digits in ${}^{8}P_2$ ways. The number of numbers that have 7 is in thousand place is $3\ {}^{8}P_2\ 168$

Thousand place cannot be 0,7 and 3, it can be filled with remaining 7 digits in 7 ways. In remaining 3 blanks, 7 and 3 can be arranged in 3 ways. Fourth blank can be filled in 7 ways. The number of numbers that are formed where 7 and 3 is not in thousand place is 7 3 7 147 . Hence total required numbers 168 147 315 .

[Answer: 315]

Solution 66:

$2x5y99$

When $y \ 19, x \ 97$; since $x \ y$; the maximum value of y is 13 and corresponding value of x is 17.

We know that the solutions of y are in arithmetic progression with common difference 2.

Here $a \quad 19, d \quad 2, t_n \ 13$

$t_n \quad a \quad (n \ 1)d$

$19 \quad (n \ 1)(2) \quad 13$

$(n \ 1)2 \quad 32 \ n \quad 17$

Hence number of pairs integers is 17

[Answer: 17]

Solution 67:
Given $x \quad 9 \ z \quad y \ 1$ and $x \quad y \ z \ 5$

$(z \ 9) \ (z \ 1) \ z \ 5$

$z \ 15$

Hence the maximum value of $z \quad 14$, max of $x \quad 5$ and max of $y \quad 13$

Required answer, $2x \ y \quad 2 \ 5 \ 13 \quad 23$

[Answer: 23]

Solution 68:
Required ratio of speeds = Square root of inverse ratio of times taken after crossing each other. $\sqrt{4} : \sqrt{1}$ i.e., 2: 1

[Option: 1]

Solution 69:

Given,

Let the speed of train 1 from A to B be s.

Then the speed of train 2 from A to B is 2s.

Time taken by train 1 to cover A to C = $\dfrac{D}{s}\dfrac{3D}{2s}\dfrac{5D}{2s}$

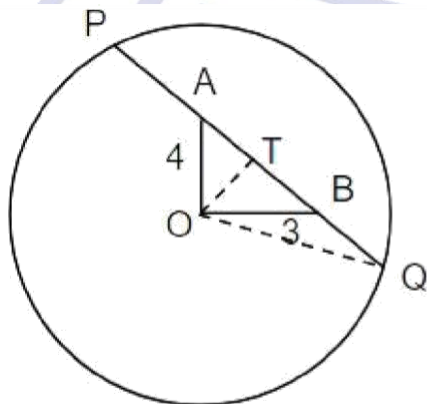And, time taken by train 2 to cover A to C

$$\dfrac{D}{2s}\dfrac{3D}{s}\dfrac{7D}{s} \quad 2 \; s \; s$$

$$2s$$

Required ratio $\dfrac{5D}{2s} : \dfrac{7D}{2s}$ $\quad 5:7$

[Option: 3]

Solution 70:

$AB \sqrt{3}^2 \quad 4^2 \quad 5$

$OT = \dfrac{34}{5} - \dfrac{12}{5}$

$OT = 2.4M$

In $\triangle OTQ$

$OQ^2 = OT^2 + TQ^2 \Rightarrow TQ^2 = OQ^2 - OT^2$

$(5)^2 - (2.4)^2$

$= 19.24$

$TQ = \sqrt{19.24} = 4.4$

$PQ = 2TQ = 8.8m$

[Option: 4]

Solution 71:

$x^2 - 5x + 7^{x-1} = 1$

We know, for $a^b = 1$, if

a = 1 then b is even.

a = 1 then b is any number

$a = 0$ then $b \neq 0$

Case 1: $x - 1 = 0 \Rightarrow x = 1$

Case 2: $x^2 - 5x + 7 = 1 \Rightarrow x^2 - 5x + 6 = 0 \Rightarrow x = 2$ or 3

Case 3: $x^2 - 5x + 7 = -1 \Rightarrow x^2 - 5x + 8 = 0$

but x is not an integer

The number of integers satisfies the equation is

3 [Option: 2]

Solution 72:

$f(x) \ x^2 \ ax \ b$

$g(x) f(x \ 1) \quad f(x \ 1)$

$(x \ 1)^2 \ a(x \ 1) \ b(x \ 1)^2 \ a(x \ 1) \ b$

$g(x) \ 4x \quad 2a$

$g(20) \quad 72$

$80 \ 2 \ a \quad 72 \ a \quad 4$

$f(x) \ x^2 \quad 4x \quad b$

$(x)(x \ 2)^2 \quad b \ 4$

when $b \quad 4 f(x) \quad 0$ for all x

The minimum value of b is

4 [Option: 4]

Solution 73:
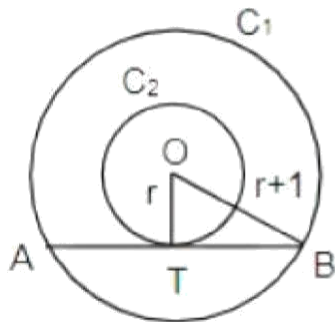
Given, $d = 2$ $D = r + 1 = R$

In the figure $OT = r$ and $OB = r + 1$

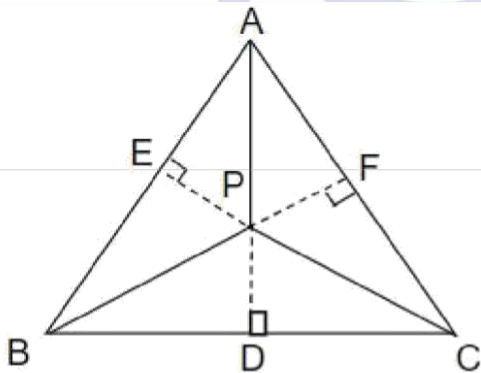$OT \perp AB$ as AB is the tangent

OT bisects AB i.e., $TB = \dfrac{6}{3} = 3$

Now, in $\triangle OTB, OT^2 + TB^2 = OB^2$

$r^2 + 3^2 = (r+1)^2 \Rightarrow r = 4$

$D = 2(R) = 2(r+1) = 10 cm$

[Answer: 10]

Solution 74:

PD + PE + PF = s

Area of

$$\triangle \dfrac{1}{2}ABPE + \dfrac{1}{2}BCPD + \dfrac{1}{2}ACPF =$$

As $AB = BC = CA$, we've

$$\frac{1}{2}AB_{(PD\ PE\ PF)} \qquad \frac{1}{2}AB\ s\ (1)$$

Now \ $\frac{3}{4}AB\ ^2 \qquad \frac{1}{2}AB\ s$

$$AB \qquad ^2\ \frac{S}{3}$$

Required value $\frac{1}{2} \quad \frac{2}{3}S\ ^2 \quad \frac{s^2}{3}$

[Option: 2]

Solution 75:

Let the principal be P.

Given $P \qquad 1\ \dfrac{5}{100}\ ^2 \qquad P \quad \dfrac{P\ 3\ 3}{100} \quad 1125$

$P(0.1025\ 0.09)\ 1125$

P 90, 000

[Answer: 90000]

Solution 76:

Let x_1 be the least number

x_{10} be the largest number

Given $\dfrac{x_2 \quad x_3 \quad x_{10}}{9}$ 47

$x_2\ x_3 \qquad x_9\ x_{10} \quad 423 \quad (1)$

$$\frac{x_1 + x_2 \cdots x_9 + 42}{9}$$

$$x_1 + x_2 \cdots x_9 = 378 \quad (2)$$

$$(1) + (2) \quad x_{10} - x_1 = 45$$

Sum of 10 observations

$$x_1 + x_2 + x_3 \cdots x_{10} = 423 + x_1$$

Since the minimum value of x_{10} is 47, the minimum value of x_1 is 2, minimum average

$$\frac{423 + 2}{10} = 42.5$$

The maximum value of x_1 is 42 ,
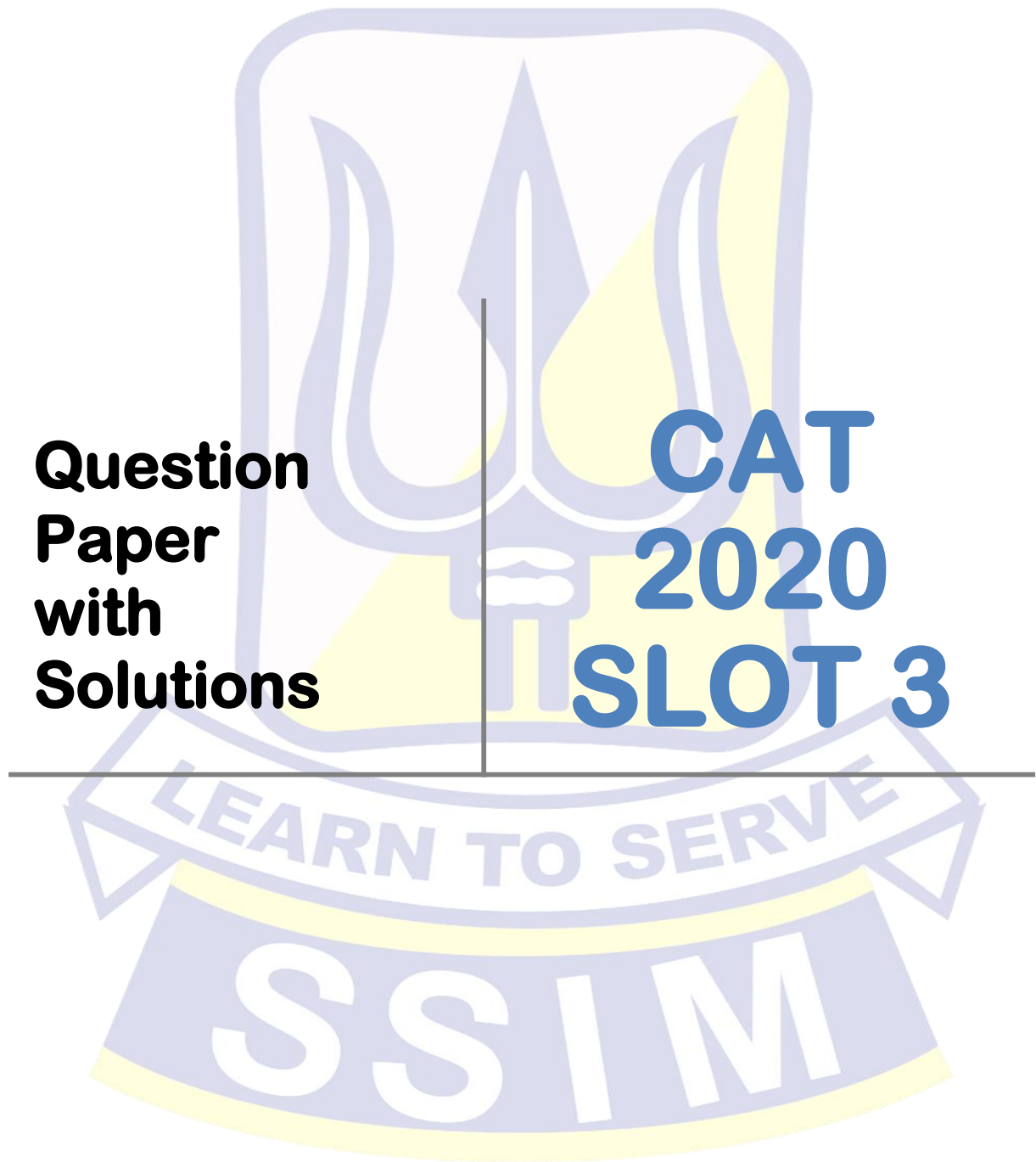
Maximum average $\dfrac{423 + 42}{10} = 46.5$

Required difference =4

[Option: 1]

Question Paper with Solutions

Question Paper with Solutions

CAT 2020 SLOT 3

CAT VARC Section

Direction for Reading Comprehension: The passages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

[There is] a curious new reality: Human contact is becoming a luxury good. As more screens appear in the lives of the poor, screens are disappearing from the lives of the rich. The richer you are, the more you spend to be off-screen. . . .

The joy — at least at first — of the internet revolution was its democratic nature. Facebook is **the same Facebook whether you are rich or poor. Gmail is the same Gmail. And it's all free.**

There is something mass market and unappealing about that. And as studies show that time on these advertisement-support platforms is unhealthy, it all starts to seem déclassé, like drinking soda or smoking cigarettes, which wealthy people do less than poor people. The wealthy can

afford to opt out of having their data and their attention sold as a product. The poor and middle **class don't have the same kind of resources to make that happen.**

Screen exposure starts young. And children who spent more than two hours a day looking at a screen got lower scores on thinking and language tests, according to early results of a landmark study on brain development of more than 11,000 children that the National Institutes of Health is supporting. Most disturbingly, the study is finding that the brains of children who spend a lot of time on screens are different. For some kids, there is premature thinning of their cerebral cortex. In adults, one study found an association between screen time and depression. . . .

Tech companies worked hard to get public schools to buy into programs that required schools to have one laptop per student, arguing that it would better prepare children for **their screenbased future. But this idea isn't how the people who actually build the screen**-based future raise their own children. In Silicon Valley, time on screens is increasingly seen as unhealthy. Here, the popular elementary school is the local Waldorf School, which promises a back-to nature, nearly screen-free education. So as wealthy kids are growing up with less screen time, poor kids are growing up with more. How comfortable someone is with human engagement could become a new class marker.

Human contact is, of course, not exactly like organic food . . . . But with screen time, there has been a concerted effort on the part of Silicon Valley behemoths to confuse the public. The poor and the middle class are told that screens are good and important for them and their children. There are fleets of psychologists and neuroscientists on staff at big tech companies working to hook eyes and minds to the screen as fast as possible and for as long as possible. And so human contact is rare. . . .

There is a small movement to pass a "right to disconnect" bill, which would allow workers to turn their phones off, but for now a worker can be punished for going offline and not being available. There is also the reality that in our culture of increasing isolation, in which so many of the traditional gathering places and social structures have disappeared, screens are filling a crucial void.

Q.1 The author is least likely to agree with the view that the increase in screen-time is fuelled by the fact that:

1. there is a growth in computer-based teaching in public schools.
2. some workers face punitive action if they are not online.
3. with falling costs, people are streaming more content on their devices.
4. screens provide social contact in an increasingly isolating world.

Q.2 The author claims that Silicon Valley tech companies have tried to "confuse the public" by:

1. promoting screen time in public schools while opting for a screen-free education for their own children.
2. pushing for greater privacy while working with advertisement-support platforms to mine data.
3. concealing the findings of psychologists and neuroscientists on screen-time use from the public.
4. developing new work-**efficiency programmes while lobbying for the "right** to **disconnect" bill.**

Q.3 The statement "The richer you are, the more you spend to be off-screen" is supported by which other line from the passage?

1. **"Gmail is the same Gmail. And it's all free."**
2. **". . . screens are filling a crucial void."**
3. **"How** comfortable someone is with human engagement could become a new class **marker."**
4. **". . . studies show that time on these advertisement**-support platforms is unhealthy.

Q.4 Which of the following statements about the negative effects of screen time is the author least likely to endorse?

1. It is designed to be addictive.
2. **It is shown to have adverse effects on young children's learning.**
3. It increases human contact as it fills an isolation void.
4. It can cause depression in viewers.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

I've been following the economic crisis for more than two years now. I began working on the subject as part of the background to a novel, and soon realized that I had stumbled **across the most interesting story I've ever found. While I was beginn**ing to work on it, the **British bank Northern Rock blew up, and it became clear that, as I wrote at the time, "If our** laws are not extended to control the new kinds of super-powerful, super-complex, and potentially superrisky investment vehicles, they will one day cause a financial disaster of global-**systemic proportions." . . . I was both right and too late, because all the groundwork** for the crisis had already been done—**though the sluggishness of the world's governments,** in not preparing for the great unraveling of autumn 2008, was then and still is stupefying. **But this is the first reason why I wrote this book: because what's happened is extraordinarily** interesting. It is an absolutely amazing story, full of human interest and drama, one whose byways of mathematics, economics, and psychology are both central to the story of the last **decades and mysteriously unknown to the general public. We have heard a lot about "the two cultures" of science and the arts**—we heard a particularly large amount about it in 2009, because it was the fiftieth anniversary of the speech during which C. P. Snow first used the **phrase. But I'm not sure the idea of a huge gap between science and the arts is as true as it** was half a century ago—**it's certainly true, for instance, that a g**eneral reader who wants to pick up an education in the fundamentals of science will find it easier than ever before. It seems to me that there is a much bigger gap between the world of finance and that of the general public and that there is a need to narrow that gap, if the financial industry is not to be a kind of priesthood, administering to its own mysteries and feared and resented by the rest of us. Many bright, literate people have no idea about all sorts of economic basics, of a type that financial insiders take as elementary facts of how the world works. I am an outsider to finance and economics, and my hope is that I can talk across that gulf.

My need to understand is the same as yours, whoever you are. That's one of the strangest ironies of this story: after decades in which the ideology of the Western world was **personally and economically individualistic, we've suddenly been hit by a crisis which shows** in the starkest terms that whether we like it or not—and there are large parts of it that you would have to be crazy to like—**we're all in this together. The aftermath of the crisis is going** to dominate the economics and politics of our societies for at least a decade to come and perhaps longer.

Q.5 Which one of the following best captures the main argument of the last paragraph of the passage?

1. The aftermath of the crisis will strengthen the central ideology of individualism in the Western world.

2. Whoever you are, you would be crazy to think that there is no crisis.

3. In the decades to come, other ideologies will emerge in the aftermath of the crisis.

4. The ideology of individualism must be set aside in order to deal with the crisis.

Q.6 Which one of the following, if true, would be an accurate inference from the first sentence of the passage?

1. The author has witnessed many economic crises by travelling a lot for two years.

2. **The author's preoccupation with the economic crisis is not less than two years old.**

3. The author is preoccupied with the economic crisis because he is being followed.

4. **The economic crisis outlasted the author's preoccupation with it.**

Q.7 Which one of the following, if false, could be seen as supporting the author's claims?

1. The economic crisis was not a failure of collective action to rectify economic problems.

2. Most people are yet to gain any real understanding of the workings of the financial world.

3. The huge gap between science and the arts has steadily narrowed over time.

4. The global economic crisis lasted for more than two years.

Q.8 All of the following, if true, could be seen as supporting the arguments in the passage, EXCEPT:

1. The failure of economic systems does not necessarily mean the failure of their ideologies.

2. The story of the economic crisis is also one about international relations, global financial security, and mass psychology.

3. The difficulty with understanding financial matters is that they have become so arcane.

4. Economic crises could be averted by changing prevailing ideologies and beliefs.

Q.9 According to the passage, the author is likely to be supportive of which one of the following programmes?

1. An educational curriculum that promotes developing financial literacy in the masses.

2. The complete nationalisation of all financial institutions.

3. An educational curriculum that promotes economic research.

4. Economic policies that are more sensitively calibrated to the fluctuations of the market.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

Mode of transportation affects the travel experience and thus can produce new types of travel writing and perhaps even new **"identities." Modes of transportation determine the** types and duration of social encounters; affect the organization and passage of space and time; . . . and also affect perception and knowledge—how and what the traveler comes to

know and write about. The completion of the first U.S. transcontinental highway during the 1920s . . . for example, inaugurated a new genre of travel literature about the United States—the automotive or road narrative. Such narratives highlight the experiences of **mostly male protagonists "discovering themselves" on their journeys, emphasizing the** independence of road travel and the value of rural folk traditions.

Travel writing's relationship to empire building— as a type of "colonialist discourse"— has drawn the most attention from academicians. Close connections have been observed between European (and American) political, economic, and administrative goals for the

colonies and their manifestations in the cultural practice of writing travel books. Travel write**rs' descriptions of foreign places have been analysed as attempts to validate, promote,** or challenge the ideologies and practices of colonial or imperial domination and expansion. **Mary Louise Pratt's study of the genres and conventions of 18th**- and 19th-century **exploration narratives about South America and Africa (e.g., the "monarch of all I survey"** trope) offered ways of thinking about travel writing as embedded within relations of power **between metropole and periphery, as did Edward Said's theories of re**presentation and **cultural imperialism. Particularly Said's book, Orientalism, helped scholars understand ways** in which representations of people in travel texts were intimately bound up with notions of

self, in this case, that the Occident defined itself through essentialist, ethnocentric, and **racist representations of the Orient. Said's work became a model for demonstrating cultural** forms of imperialism in travel texts, showing how the political, economic, or administrative fact of dominance relies on legitimating discourses such as those articulated through travel writing. . . .

Feminist geographers' studies of travel writing challenge the masculinist history of geography by questioning who and what are relevant subjects of geographic study and, indeed, what counts as geographic knowledge itself. Such questions are worked through ideological constructs that posit men as explorers and women as travelers—or, conversely, men as travelers and women as tied to the home. Studies of Victorian women who were professional travel writers, tourists, wives of colonial administrators, and other (mostly)

elite women who wrote narratives about their experiences abroad during the 19th century **have been particularly revealing. From a "liberal" feminist perspective, trave**l presented one means toward female liberation for middle- and upper-class Victorian women. Many **studies from the 1970s onward demonstrated the ways in which women's gendered identities were negotiated differently "at home" than they were "away," thereby s**howing **women's self**-development through travel. The more recent poststructural turn in studies **of Victorian travel writing has focused attention on women's diverse and fragmented identities as they narrated their travel experiences, emphasizing women's sen**se of themselves as women in new locations, but only as they worked through their ties to nation, class, whiteness, and colonial and imperial power structures.

Q.10. According to the passage, Said's book, "Orientalism":

1. illustrated how narrow minded and racist westerners were.
2. demonstrated how cultural imperialism was used to justify colonial domination.
3. explained the difference between the representation of people and the actual fact.
4. argued that cultural imperialism was more significant than colonial domination.

Q.11 From the passage, it can be inferred that scholars argue that Victorian women experienced self-development through their travels because:

1. their identity was redefined when they were away from home.
2. they were from the progressive middle- and upper-classes of society.
3. they were on a quest to discover their diverse identities.
4. they developed a feminist perspective of the world.

Q.12 American travel literature of the 1920s:

1. **developed the male protagonists' desire for independence.**
2. **presented travellers' discovery of their identity as different from others.**
3. celebrated the freedom that travel gives.
4. showed participation in local traditions.

Q.13 From the passage, we can infer that feminist scholars' understanding of the

experiences of Victorian women travellers is influenced by all of the following EXCEPT scholars':

1. perspective that they bring to their research.
2. knowledge of class tensions in Victorian society.
3. awareness of gender issues in Victorian society.
4. awareness of the ways in which identity is formed.

Q.14 From the passage, we can infer that travel writing is most similar to:

1. feminist writing.
2. historical fiction.
3. political journalism.
4. autobiographical writing.

Direction for Reading Comprehension: The pass ages given here are followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage

Although one of the most contested concepts in political philosophy, human nature is something on which most people seem to agree. By and large, according to Rutger Bregman in his new book Humankind, we have a rather pessimistic view – not of ourselves exactly, but of everyone else. We see other people as selfish, untrustworthy and dangerous and therefore we behave towards them with defensiveness and suspicion. This was how the

17th-century philosopher Thomas Hobbes conceived our natural state to be, believing that all that stood between us and violent anarchy was a strong state and firm leadership.

But in following Hobbes, argues Bregman, we ensure that the negative view we have of human nature is reflected back at us. He instead puts his faith in Jean-Jacques Rousseau, the 18th-century French thinker, who famously declared that man was born free and it was civilisation – with its coercive powers, social classes and restrictive laws – that put him in chains.

Hobbes and Rousseau are seen as the two poles of the human nature argument and it's no surprise that Bregman strongly sides with the Frenchman. He take**s Rousseau's intuition and** paints a picture of a prelapsarian idyll in which, for the better part of 300,000 years, Homo sapiens lived a fulfilling life in harmony with nature . . . Then we discovered agriculture and for the next 10,000 years it was all property, war, greed and injustice. . . .

It was abandoning our nomadic lifestyle and then domesticating animals, says Bregman, that brought about infectious diseases such as measles, smallpox, tuberculosis, syphilis, malaria, cholera and plague. This may be true, but what Bregman never really seems to get to grips with is that pathogens were not the only things that grew with agriculture – so did **the number of humans. It's one thing to maintain friendly relations and a property**-less mode of living when y**ou're 30 or 40 hunter**-gatherers following the food. But life becomes a great deal more complex and knowledge far more extensive when there are settlements of many thousands.

"Civilisation has become synonymous with peace and progress and wilderness with war and **decline," writes Bregman. "In reality, for most of human existence, it was the other way around." Whereas traditional history depicts the collapse of civilisations as "dark ages" in** which everything gets worse, modern scholars, he claims, see them more as a reprieve, in which the enslaved gain their freedom and culture flourishes. Like much else in this book, the truth is probably somewhere between the two stated positions.

In any case, the fear of civilisational collapse, Bregman believes, is unfou**nded. It's the result of what the Dutch biologist Frans de Waal calls "veneer theory"** – the idea that just below **the surface, our bestial nature is waiting to break out. . . . There's a great deal of reassuring** human decency to be taken from this bold and thought-provoking book and a wealth of evidence in support of the contention that the sense of who we are as a species has been deleteriously distorted. But it seems equally misleading to offer the false choice of Rousseau and Hobbes when, clearly, humanity encompasses both.

Q.15 According to the author, the main reason why Bregman contrasts life in preagricultural societies with agricultural societies is to:

1. bolster his argument that people are basically decent, but progress as we know it can make them selfish.

2. make the argument that an environmentally conscious lifestyle is a more harmonious way of living.

3. highlight the enormous impact that settled farming had on population growth.

4. advocate the promotion of less complex societies as a basis for greater security and prosperity.

Q.16 None of the following views is expressed in the passage EXCEPT that:

1. Hobbes and Rousseau disagreed on the fundamental nature of humans, but both believed in the need for a strong state.

2. Bregman agrees with Hobbes that firm leadership is needed to ensure property rights and regulate strife.

3. the author of the review believes in the veneer theory of human nature.

4. **most people agree with Hobbes' pessimistic view of human nature as being** intrinsically untrustworthy and selfish.

Q.17 According to the passage, **the "collapse of civilisations" is viewed by Bregman as:**

1. a temporary phase which can be rectified by social action.
2. a time that enables changes in societies and cultures.
3. **a sign of regression in society's trajectory.**
4. resulting from a breakdown in the veneer of human nature.

Q.18 The author has differing views from Bregman regarding:

1. the role of pathogens in the spread of infectious diseases.
2. a property-less mode of living being socially harmonious.
3. the role of agriculture in the advancement of knowledge.
4. a civilised society being coercive and unjust.

Q.19 The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. Each one personified a different aspect of good fortune.
2. The others were versions of popular Buddhist gods, Hindu gods and Daoist gods.
3. Seven popular Japanese deities, the Shichi Fukujin, were considered to bring good luck and happiness.
4. Although they were included in the Shinto pantheon, only two of them, Daikoku and Ebisu, were indigenous Japanese gods.

Answer: 3142

Q.20 Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:

1. The logic of **displaying one's inner qualities through outward appearance was based on** a distinction between being a woman and being feminine.

2. 'Appearance' became a signifier of conduct - to look was to be and conformity to the feminine ideal was measured by how well women could use the tools of the fashion and beauty industries.

3. The makeover-centric media sets out subtly and not-so-**subtly, 'good' and 'bad' ways** to be a woman, layering these over inequalities of race and class.

4. The denigration of working-class women and women of colour often centres on their perceived failure to embody feminine beauty.

5. **'Woman' was considered a biological category, but femininity was a 'process' by which** women became specific kinds of women.

Q.21 The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Brown et al. (2001) suggest that 'metabolic theory may provide a conceptual foundation for much of ecology just as genetic theory provides a foundation for much **of evolutionary biology'.**

One of the successes of genetic theory is the diversity of theoretical approaches and models that have been developed and applied. A Web of Science (v. 5.9. Thomson Reuters) search on genetic* + theor* + evol* identifies more than 12000 publications between 2005 and 2012. Considering only the 10 most-cited papers within this 12000 publication set, genetic theory can be seen to focus on genome dynamics, phylogenetic inference, game theory and the regulation of gene expression. There is no one fundamental genetic equation, but rather a wide array of genetic models, ranging from simple to complex, with differing inputs and outputs, and divergent areas of application, loosely connected to each other through the shared conceptual foundation of heritable variation.

1. Genetic theory has a wide range of theoretical approaches and applications and Metabolic theory must have the same in the field of ecology.

2. Genetic theory has evolved to spawn a wide range of theoretical models and applications but Metabolic theory need not evolve in a similar manner in the field of ecology.

3. Genetic theory has a wide range of theoretical approaches and application and is foundational to evolutionary biology and Metabolic theory has the potential to do the same for ecology.

4. Genetic theory provides an example of how a range of theoretical approaches and applications can make a theory successful.

Q.22 The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. It advocated a conservative approach to antitrust enforcement that espouses faith in efficient markets and voiced suspicion regarding the merits of judicial intervention to correct anticompetitive practices.

2. **Many industries have consistently gained market share, the lion's share –** without any official concern; the most successful technology companies have grown into veritable **titans, on the premise that they advance 'public interest'.**

3. That the new anticompetitive risks posed by tech giants like Google, Facebook, and Amazon, necessitate new legal solutions could be attributed to the dearth of enforcement actions against monopolies and the few cases challenging mergers in the USA.

4. **The criterion of 'consumer welfare standard' and the principle that antitrust law should** serve consumer interests and that it should protect competition rather than individual competitors was an antitrust law introduced by, and named after, the 'Chicago school'.

Q.23 The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

The dominant hypotheses in modern science believe that language evolved to allow humans to exchange factual information about the physical world. But an alternative view is that language evolved, in modern humans at least, to facilitate social bonding. It increased **our ancestors' chances of survival by enabling them to hunt more successfully or to** cooperate more extensively. Language meant that things could be explained and that plans and past experiences could be shared efficiently.

1. From the belief that humans invented language to process factual information, scholars now think that language was the outcome of the need to ensure social cohesion and thus human survival.

2. Since its origin, language has been continuously evolving to higher forms, from being used to identify objects to ensuring human survival by enabling our ancestors to bond and cooperate.

3. Most believe that language originated from a need to articulate facts, but others think it emerged from the need to promote social cohesion and cooperation, thus enabling human survival.

4. Experts are challenging the narrow view of the origin of language, as being merely used to describe facts and label objects, to being necessary to promote more complex interactions among humans.

Q.24 The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. **Complex computational elements of the CNS are organized according to a "nested"** hierarchic criterion; the organization is not permanent and can change dynamically from moment to moment as they carry out a computational task.

2. Echolocation in bats exemplifies adaptation produced by natural selection; a function not produced by natural selection for its current use is exaptation --feathers might have originally arisen in the context of selection for insulation.

3. From a structural standpoint, consistent with exaptation, the living organism is **organized as a complex of "Russian Matryoshka Dolls"** -- smaller structures are contained within larger ones in multiple layers.

4. The exaptation concept, and the Russian-doll organization concept of living beings deduced from studies on evolution of the various apparatuses in mammals, can be applied for the most complex human organ: the central nervous system (CNS).

Q.25 The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Aesthetic political representation urges us to realize that 'the representative has autonomy with regard to the people represented' but autonomy then is not an excuse to abandon **one's responsibility. Aesthetic autonomy requires cultivation of 'disinterestedness' on the** part of actors which is not indifference. To have disinterestedness, that is, to have comportment towards the beautiful that is devoid of all ulterior references to use – requires a kind of aesthetic commitment; it is the liberation of ourselves for the release of what has proper worth only in itself.

1. Disinterestedness is different from indifference as the former means a non-subjective evaluation of things which is what constitutes aesthetic political representation.
2. Aesthetic political representation advocates autonomy for the representatives manifested through disinterestedness which itself is different from indifference.
3. Disinterestedness, as distinct from indifference, is the basis of political representation.
4. Aesthetic political representation advocates autonomy for the representatives drawing from disinterestedness, which itself is different from indifference

Q.26. Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:

1. Machine learning models are prone to learning human-like biases from the training data that feeds these algorithms.
2. Hate speech detection is part of the on-going effort against oppressive and abusive language on social media.
3. The current automatic detection models miss out on something vital: context.
4. It uses complex algorithms to flag racist or violent speech faster and better than human beings alone.

5. For instance, algorithms struggle to determine if group identifiers like "gay" or "black" are used in offensive or prejudiced ways because they're trained on imbalanced datasets with unusually high rates of hate speech.

CAT LRDI Section

The Hi-Lo game is a four-player game played in six rounds. In every round, each player chooses to bid Hi or Lo. The bids are made simultaneously. If all four bid Hi, then all four lose 1 point each. If three players bid Hi and one bids Lo, then the players bidding Hi gain 1 point each and the player bidding Lo loses 3 points. If two players bid Hi and two bid Lo, then the players bidding Hi gain 2 points each and the players bidding Lo lose 2 points each. If one player bids Hi and three bid Lo, then the player bidding Hi gains 3 points and the players bidding Lo lose 1 point each. If all four bid Lo, then all four gain 1 point each.

Four players Arun, Bankim, Charu, and Dipak played the Hi-Lo game. The following facts are known about their game:

1. At the end of three rounds, Arun had scored 6 points, Dipak had scored 2 points, Bankim and Charu had scored -2 points each.
2. At the end of six rounds, Arun had scored 7 points, Bankim and Dipak had scored -1 point each, and Charu had scored -5 points.
3. **Dipak's score in the third round was less than his score in the first round but was more** than his score in the second round.
4. In exactly two out of the six rounds, Arun was the only player who bid Hi.

Q.27. What were the bids by Arun, Bankim, Charu and Dipak, respectively in the first round?

1. Hi, Lo, Lo, Lo
2. Lo, Lo, Lo, Hi
3. Hi, Hi, Lo, Lo
4. Hi, Lo, Lo, Hi

Q.28. In how many rounds did Arun bid Hi?

Q.29. In how many rounds did Bankim bid Lo?

Q.30. In how many rounds did all four players make identical bids?

Q.31. In how many rounds did Dipak gain exactly 1 point?

Q.32. In which of the following rounds, was Arun DEFINITELY the only player to bid Hi?

1. First
2. Fourth
3. Third
4. Second

A survey of 600 schools in India was conducted to gather information about their online teaching learning processes (OTLP). The following four facilities were studied.

F1: Own software for OTLP

F2: Trained teachers for OTLP

F3: Training materials for OTLP

F4: All students having Laptops

The following observations were summarized from the survey.

1.   80 schools did not have any of the four facilities – F1, F2, F3, F4.
2.   40 schools had all four facilities.
3.   The number of schools with only F1, only F2, only F3, and only F4 was 25, 30, 26 and 20 respectively.
4.   The number of schools with exactly three of the facilities was the same irrespective of which three were considered.
5.   313 schools had F2.
6.   26 schools had only F2 and F3 (but neither F1 nor F4).
7.   Among the schools having F4, 24 had only F3, and 45 had only F2.
8.   162 schools had both F1 and F2.
9.   The number of schools having F1 was the same as the number of schools having F4.

Q.33. What was the total number of schools having exactly three of the four facilities?

1.   200
2.   50
3.   80
4.   64

Q.34. What was the number of schools having facilities F2 and F4?

5.   185
6.   45
7.   95
8.   85

Q.35. What was the number of schools having only facilities F1 and F3?

Q.36. What was the number of schools having only facilities F1 and F4?

Sixteen patients in a hospital must undergo a blood test for a disease. It is known that exactly one of them has the disease. The hospital has only eight testing kits and has decided to pool blood samples of patients into eight vials for the tests. The patients are numbered 1

through 16, and the vials are labelled A, B, C, D, E, F, G, and H. The following table shows **the vials into which each patient's blood sample is distributed.**

Patient	Vials	Patient	Vials
1	B, D, F, H	9	A, D, F, H
2	B, D, F, G	10	A, D, F, G
3	B, D, E, H	11	A, D, E, H
4	B, D, E, G	12	A, D, E, G
5	B, C, F, H	13	A, C, F, H
6	B, C, F, G	14	A, C, F, G
7	B, C, E, H	15	A, C, E, H
8	B, C, E, G	16	A, C, E, G

If a patient has the disease, then each vial containing his/her blood sample will test positive. If a vial tests positive, one of the patients whose blood samples were mixed in the vial has the disease. If a vial tests negative, then none of the patients whose blood samples were mixed in the vial has the disease.

Q.37. Suppose vial C tests positive and vials A, E and H test negative. Which patient has the disease?

5. Patient 14
6. Patient 2
7. Patient 6
8. Patient 8

Q.38. Suppose vial A tests positive and vials D and G test negative. Which of the following vials should we test next to identify the patient with the disease?

5. Vial E
6. Vial H
7. Vial C
8. Vial B

Q.39. Which of the following combinations of test results is NOT possible?

3. Vials A and G positive, vials D and E negative
4. Vials B and D positive, vials F and H negative
5. Vial B positive, vials C, F and H negative
6. Vials A and E positive, vials C and D negative

Q.40. Suppose one of the lab assistants accidentally mixed two patients' blood samples before they were distributed to the vials. Which of the following correctly represents the set of all possible numbers of positive test results out of the eight vials?

1.   {4,5}
2.   {5,6,7,8}
3.   {4,5,6,7,8}
4.   {4,5,6,7}

XYZ organization got into the business of delivering groceries to home at the beginning of the last month. They have a two-day delivery promise. However, their deliveries are unreliable. An order booked on a particular day may be delivered the next day or the day after. If the order is not delivered at the end of two days, then the order is declared as lost at the end of the second day. XYZ then does not deliver the order, but informs the customer, marks the order as lost, returns the payment and pays a penalty for non-delivery.

The following table provides details about the operations of XYZ for a week of the last month. The first column gives the date, the second gives the cumulative number of orders that were booked up to and including that day. The third column represents the number of orders delivered on that day. The last column gives the cumulative number of orders that were lost up to and including that day.

It is known that the numbers of orders that were booked on the 11th, 12th, and 13th of the last month that took two days to deliver were 4, 6, and 8 respectively.

Day	Cumulative orders booked	Orders delivered on day	Cumulative orders lost
13th	219	11	91
14th	249	27	92
15th	277	23	94
16th	302	11	106
17th	327	21	118
18th	332	13	120
19th	337	14	129

Q.41. Among the following days, the largest fraction of orders booked on which day was lost?

5.   14th
6.   13th
7.   15th
8.   16th

Q.42. On which of the following days was the number of orders booked the highest?

5.   13th
6.   15th
7.   12th

4. 14th

Q.43. The delivery ratio for a given day is defined as the ratio of the number of orders booked on that day which are delivered on the next day to the number of orders booked on that day which are delivered on the second day after booking. On which of the following days, was the delivery ratio the highest?

5. 13th
6. 16th
7. 14th
8. 15th

Q.44. The average time taken to deliver orders booked on a particular day is computed as follows. Let the number of orders delivered the next day be x and the number of orders delivered the day after be y. Then the average time to deliver order is (x+2y)/(x+y). On which of the following days was the average time taken to deliver orders booked the least?

5. 14th
6. 16th
7. 15th
8. 13th

A farmer had a rectangular land containing 205 trees. He distributed that land among his four daughters – Abha, Bina, Chitra and Dipti by dividing the land into twelve plots along three rows (X,Y,Z) and four Columns (1,2,3,4) as shown in the figure below:

The plots in rows X, Y, Z contained mango, teak and pine trees respectively. Each plot had trees in non-zero multiples of 3 or 4 and none of the plots had the same number of trees. Each daughter got an even number of plots. In the figure, the number mentioned in top left corner of a plot is the number of trees in that plot, while the letter in the bottom right corner is the first letter of the name of the daughter who got that plot (For example, Abha got the plot in row Y and column 1 containing 21 trees). Some information in the figure got erased, but the following is known:

5. Abha got 20 trees more than Chitra but 6 trees less than Dipti.
6. The largest number of trees in a plot was 32, but it was not with Abha.

3.   The number of teak trees in Column 3 was double of that in Column 2 but was half of that in Column 4.

4.   Both Abha and Bina got a higher number of plots than Dipti.

5.   Only Bina, Chitra and Dipti got corner plots.

6.   Dipti got two adjoining plots in the same row.

7.   Bina was the only one who got a plot in each row and each column.

8.   Chitra and Dipti did not get plots which were adjacent to each other (either in row / column / diagonal).

9.   The number of mango trees was double the number of teak trees.

Q.45. How many mango trees were there in total?

5.   84
6.   98
7.   49
8.   126

Q.46. Which of the following is the correct sequence of trees received by Abha, Bina, Chitra and Dipti in that order?

5.   50, 69, 30, 56
6.   54, 57, 34, 60
7.   44, 87, 24, 50
8.   60, 39, 40, 66

Q.47. How many pine trees did Chitra receive?

5.   21
6.   30
7.   18
8.   15

Q.48. Who got the plot with the smallest number of trees and how many trees did that plot have?

5.   Dipti, 6 trees
6.   Bina, 4 trees
7.   Abha, 4 trees
8.   Bina, 3 trees

Q.49. Which of the following statements is NOT true?

5.   Dipti got 56 mango trees.
6.   Bina got 32 pine trees.
7.   Chitra got 12 mango trees.

4. Abha got 41 teak trees.

Q.50. Which column had the highest number of trees?

5.   2
6.   3
7.   Cannot be determined
8.   4

CAT Quant Section

Q.51. If $\log_a 30 = A$, $\log_a (5/3) = B$ and $\log_2 a = 1/3$, then $\log_3 a$ equals

1. $\dfrac{2}{A - B} - 3$

2. $\dfrac{A + B - 3}{2} - 2$

3. $\dfrac{A + B - 3}{2}$

4. $\dfrac{A - B}{2} + 3$

Q.52. Dick is thrice as old as Tom and Harry is twice as old as Dick. If Dick's age is 1 year less than the average age of all three, then Harry's age, in years, is

Q.53. A and B are two railway stations 90 km apart. A train leaves A at 9:00 am, heading towards B at a speed of 40 km/hr. Another train leaves B at 10:30 am, heading towards A at a speed of 20 km/hr. The trains meet each other at

5. 11 : 45 am
6. 10 : 45 am
7. 11 : 20 am
8. 11 : 00 am

Q.54. Let k be a constant. The equations kx + y = 3 and 4x + ky = 4 have a unique solution if and only if

5. **|k| ≠ 2**
6. |k| = 2
7. **k ≠ 2**
8. k = 2

Q.55. If $x_1 = -1$ and $x_m = x_{m+1} + (m+1)$ for every positive integer $m,$ then x_{100} equals

6. -5151
7. -5150
8. -5051
9. -5050

Q.56. Vimla starts for office every day at 9 am and reaches exactly on time if she drives at her usual speed of 40 km/hr. She is late by 6 minutes if she drives at 35 km/hr. One day, she covers two-thirds of her distance to office in one-thirds of her usual time to reach office, and then stops for 8 minutes. The speed, in km/hr, at which she should drive the remaining distance to reach office exactly on time is

2.   29
3.   27
4.   28
5.   26

Q.57. A man buys 35 kg of sugar and sets a marked price in order to make a 20% profit. He sells 5 kg at this price, and 15 kg at a 10% discount. Accidentally, 3 kg of sugar is wasted. He sells the remaining sugar by raising the marked price by p percent so as to make an overall profit of 15%. Then p is nearest to

1.   31
2.   22
3.   35
4.   25

Q.58. If $f(x\ y)\ f(x)f(y)$ and $f(5)\quad 4$, then $f(10)\quad f(\ 10)$ is equal to

1. 0
2. 15.9375
3. 3
4. 14.0625

Q.59. If a, b, c are non-zero and $14\ \dfrac{a}{36}\ \dfrac{b}{84}\ c$, then $6b\ \dfrac{1}{c}\ \dfrac{1}{a}$ is equal to

Q.60. A contractor agreed to construct a 6 km road in 200 days. He employed 140 persons for the work. After 60 days, he realized that only 1.5 km road has been completed. How many additional people would he need to employ in order to finish the work exactly on time?

Q.61. Let m and n be positive integers, If $x^2\ mx\ 2n\ 0$ and $x^2\ 2nx\ m\ 0$ have real roots, then the smallest possible value of $m\ n$ is

6.   7
7.   8
8.   5
9.   6

Q.62. A person invested a certain amount of money at 10% annual interest, compounded half-yearly. After one and a half years, the interest and principal together became Rs 18522. The amount, in rupees, that the person had invested is

Q.63. Anil, Sunil, and Ravi run along a circular path of length 3 km, starting from the same point at the same time, and going in the clockwise direction. If they run at speeds of 15 km/hr, 10 km/hr, and 8 km/hr, respectively, how much distance in km will Ravi have run when Anil and Sunil meet again for the first time at the starting point?

4.   4.2
5.   5.2

3.   4.8
4.   4.6

Q.64. The area, in sq. units, enclosed by the lines $x\ 2, y\ |\ x\ 2\ |\ 4$, the X -axis and the Y -axis is equal to

5.   8
6.   12
7.   10
8.   6

Q.65. The vertices of a triangle are (0,0),(4,0) and (3,9). The area of the circle passing through these three points is

1. $\dfrac{14}{3}$

2. $\dfrac{12}{5}$

3. $\dfrac{123}{7}$

4. $\dfrac{205}{9}$

Q.66. How many integers in the set {100, 101, 102, …, 999} have at least one digit repeated?

Q.67. Let N, x and y be positive integers such that $N\quad x\quad y$, $2\quad x\quad 10$ and $14\quad y\quad 23$. If

14.   25, then how many distinct values are possible for N?

Answer:6

Q.68. The points (2,1) and (-3,-4) are opposite vertices of a parallelogram. If the other two vertices lie on the line $x\ 9\ y\ c\ 0$, then c is

5.   12
6.   14
7.   13
8.   15

Q.69. How many pairs (a, b) of positive integers are there such that $a\ b$ and $ab\quad 4^{2017}$?

5.   2017
6.   2019
7.   2020
8.   2018

Q.70. In a trapezium ABCD, AB is parallel to DC, BC is perpendicular to DC and $BAD\ 45$. If DC=5 cm , BC=4 cm, the area of the trapezium in sq cm is

Answer:28

Q.71. How many of the integers 1, 2, … , 120, are divisible by none of 2, 5 and 7?

4. 40
5. 42
6. 43
7. 41

Q.72. Two alcohol solutions, A and B, are mixed in the proportion 1:3 by volume. The volume of the mixture is then doubled by adding solution A such that the resulting mixture has 72% alcohol. If solution A has 60% alcohol, then the percentage of alcohol in solution B is

2. 94%
3. 92%
4. 90%
5. 89%

Q.73. $\log_2 4^{24816} \log_4 8^3 \log_8 16^4$ equals

Answer:24

Q.74. A batsman played n + 2 innings and got out on all occasions. His average score in these n + 2 innings was 29 runs and he scored 38 and 15 runs in the last two innings. The batsman scored less than 38 runs in each of the first n innings. In these n innings, his average score was 30 runs and lowest score was x runs. The smallest possible value of x is

1. 2
2. 3
3. 4
4. 1

Q.75. In the final examination, Bishnu scored 52% and Asha scored 64%. The marks obtained by Bishnu is 23 less, and that by Asha is 34 more to the marks obtained by Ramesh. The marks obtained by Geeta, who scored 84%, is

5. 439
6. 399
7. 357
8. 417

Q.76. Let m and n be natural numbers such that n is even and $0.2 \underline{\quad} \dfrac{n}{20} \underline{\quad} \dfrac{m}{11} \underline{\quad} 0.5$. Then $m - 2n$ equals

5. 3
6. 4

3.   1
4.   2

Answer Keys

1. 3	20. 3	39. 4	58. 2
2. 1	21. 3	40. 3	59. 3
3. 3	22. 4123	41. 3	60. 40
4. 3	23. 3	42. 1	61. 4
5. 4	24. 2431	43. 3	62. 16000
6. 2	25. 4	44. 1	63. 3
7. 1	26. 3	45. 2	64. 3
8. 1	27. 4	46. 1	65. 4
9. 1	28. 4	47. 3	66. 252
10. 2	29. 4	48. 4	67. 6
11. 1	30. 2	49. 2	68. 2
12. 3	31. 1	50. 4	69. 4
13. 2	32. 4	51. 3	70. 28
14. 4	33. 1	52. 18	71. 4
15. 1	34. 1	53. 4	72. 2
16. 4	35. 42	54. 1	73. 24
17. 2	36. 20	55. 4	74. 1
18. 4	37. 3	56. 3	75. 2
19. 3142	38. 1	57. 4	76. 3

Solutions

Solution 1:

This is an overall easy passage to read. This question is a sort of factual question, the answer **of which can be indirectly seen in this passage, but since the question is based on 'the author least likely to agree', the choice that is not there in the passage or the choice that is against the author's contention is likely to be t**he right choice. The question asks us to find the least **likely reason for 'the increase in screen-time". The ones that are stated or implied in the** passage are not the right choices, but the one that is not stated or implied will become the right choice.

The evidence for choice 1 can be seen in the fourth paragraph of the passage: "Tech companies worked hard to get public schools to buy into programs that required schools to have one laptop per student, arguing that it would better prepare children for their screen-**based future"**

The evidence for choice 2 can be seen in the last paragraph of the [passage: "There is a small movement to pass a "right to disconnect" bill, which would allow workers to turn their phones off, but for now a worker can be punish**ed for going offline and not being available".**

The evidence for choice 4 can be seen in the last sentence of the passage: "There is also the reality that in our culture of increasing isolation, in which so many of the traditional gathering places and so**cial structures have disappeared, screens are filling a crucial void"**

In the passage, we don't have any evidence for choice 3. Thus 3 is the best choice.

[Option: 3]

Solution 2:

Since the question asks us a specific detail about Silicon Valley tech, we can go to the part **of the passage where we have the noun 'Silicon Valley'. The second last and the third last** para are likely to have the answers. Two things about Silicon Valley are mentioned, one in the third last para and one in the second last para.

The third last para says "…Tech companies worked hard to get public schools to buy into programs that required schools to have one laptop per student, arguing that it would better prepare children for their screen-**based future. But this idea isn't how the** people who actually build the screen-**based future raise their own children". From this we can derive**

option 1 as the right choice because this is precisely how Silicon Valley tech companies have confused the public.

Some of us may feel like marking choice 3 as the right answer, but what is given in choice 3 **is a complete distortion of what is given in the passage. The passage says "There are fleets** of psychologists and neuroscientists on staff at big tech companies working to hook eyes **and minds to the screen as fast as possible and for as long as possible."**

The above sentence tells us that neuroscientists and the psychologists are working to do something, not to hide something. Nowhere does the sentence imply that they are deliberately trying to conceal findings of something. In fact, they are trying to find ways to hook our mind and attention to the screen. Thus option 3 is not the right choice.

Options 2 and 4 in no way can be connected to Silicon Valley tech companies.

[Option: 1]

Solution 3:

  To answer this question correctly there is no need to read the passage. The options have enough evidence using which we can mark the right answer. The statement in the question **seems to be making a comparison between "the richer, and the not so richer". In other words, option 3 which mentions the phrase 'new class marker' is the right match for the statement given in the question. Moreover, "...comfortable with human engagement", and "the more you spend to be off-screen" are closely connected because "time spent off-screen=time spend in human engagement", as per the passage. The other choices are** nowhere so closely connected with the statement given in the question as option 3 is.

[Option: 3]

Solution 4:

This question is one of the easiest question of the paper. You can mark option 3 even without looking at the other choices. The author is in favour of real-time human contact, not virtual human contact. So if choice 3 speaks positively about on-screen time, the author will definitely not agree with it.

Psychologists and neuroscientists are working to make on-time engagement addictive. The passage does not say that directly but this is definitely implied from the second last para of the passage. The evidence for option 4 and 2 can be seen in the passage. Thus 3 is the best choice.

[Option: 3]

Solution 5:

This question asks us to choose an option that best captures the main argument of the last paragraph of the passage. There are two strong contenders for the right choice, option 2 **and option 4. The point is to decide whether the last para focuses on "the presence or the** absence of the financial cr**isis" or "setting aside the ideology of in**dividualism".

 The best choice is 4. The author clearly states that "after decades in which the ideology of
the western world was personally and economically individualis**tic, we** have been hit by a crisis…in **which we are all together". This is the reason why option 4 clearly matches what**
 is given in the last paragraph. The point is how to disp**rove choice 2.** If you carefully read
choice 2, you will realise that it is the opposite of what **is given in the paragraph. Choice 2 says "you will be crazy to think that there is no crisis", whereas the paragraph in the passage says "…there are large parts of it that you would be crazy to like". So if you like you would**
be crazy, and the option says you would be crazy to think that there is no crisis. This option is a distortion of what is given in the passage.

Option 1 is the opposite of what the author wants to say. The author says that economic **individualism has taken a hit, whereas the option says "the ideology of in**dividualism will **strengthen". Option 3 says "in decades to come other ideologies will emerge". Nothing of**
this sort has been mentioned in the passage.

[Option: 4]

Solution 6:

This question asks to draw an inference from the first sentence of the passage. This is definitely a far less-time-**consuming question. The first sentence says "I have been following the economic crisis for more than two years now".**

Option 1 says "the author has witnessed many economic crisis". Well, we have the phrase "this economic crisis". From this we can't infer that he has witnessed many economic crises. Option 1 goes out.

 Option 2 says "the author's preoccupation with the crisis is not less than two years old."
This seems to be correct. If he says that I have been following for two years, it means that his preoccupation is certainly not less than two years. Too simple to be true, right! But this is how inferences are. You derive something on the basis of a given fact.

Option 3 absurdly suggests that the author is being followed, but here the author is following the crisis.

Option 4 says that the crisis outlasted the author's preoccupation with it. We know that the author is following the cr**isis, but the crisis and the author's preoccupation with it are** happening in two different time periods. The crisis has already happened and passed, whereas the author is learning about it and following it as a historian. The aftermath of the crisis will definitely be seen for years to come, but about the crisis itself there is no such evidence.

Option 1 is the best choice.

[Option: 2]

Solution 7:

This looks like a difficult question because of the way it is worded, but is not a difficult question at all. The choices have to be inversed and then have to be checked whether they support the author. If yes, then that choice is the right choice.

Choice 1 can be the right choice because the choice, when falsified, says "the crisis was failure of collective **action to rectify economic problems". It was indeed a failure of collective action because the author in the passage says "the sluggishness of the world's governments** in not preparing for the crisis was stupefying. The author here suggests that the crisis could **have been prevented by world's governments.**

Choice 2 is correct the way it is. If it is falsified, it would be exactly opposite of what the author wants to say.

Choice3, too, is correct the way it is, but when falsified, it becomes opposite of what the author wants to say.

Choice 4 does not relate to the author's claims. He says that he has followed the crisis for two years, but there is no evidence for how long the crisis lasted.

[Option: 1]

Solution 8:
For this question, we have to pick the **choice that does not support the author's argument. Option 1 is exactly opposite of what the author argues. In the last paragraph he writes "the** ideology of the western world was personally and economically individualistic. But the crisis

shows **that we are all in it together". Thus the author implies that the failure of economic** system is the failure of their ideologies. Option 1 is the exact opposite of this and is thus not supporting the author in any way. Option 1 is the right answer.

All the other choices find support in the passage. For instance, the author towards the end of the first paragraph says that the finance industry is a kind of priesthood administering its own mysteries, something that supports choice 3.

[Option: 1]

Solution 9:

This is one of the easiest questions of the paper, the author right across the passage argues that we all need financial literacy. So if an education curriculum promotes financial literacy in the masses, the author would be very delighted at the prospect. As far as choice 3 is concerned, the author is not so much in favour of economic research as he is in favour of basic economic education for the layman

[Option: 1]

Solution 10:

This is a slightly challenging question. To find the right answer, we have to read the entire second **paragraph. The author towards the end says "Said's work became a model for demonstrating** cultural forms of imperialism in travel texts... legitimating discourses such as those articulated **through travel writing" ...to legitim**ise something means to give approval to something or justify something. Thus choice 2 is the right option, without a shade of doubt. Option 4 goes out because colonial domination and cultural imperialism seem to be one and the same thing. For the other ch**oices we don't see any significant evidence.**

[Option: 2]

Solution 11:

This question is specifically about how Victorian women experienced self-development through their travels. The answer to this question can be found in the last few sentences of the last **paragraph. The second last sentence of the last paragraph says that "...many studies demonstrated the ways in which women's gendered identities were negotiated differently "at home" than they were "away", thereby showing women's self-**development through travel. Thus without the slightest doubt we can mark 1 as the right choice

[Option: 1]

Solution 12:

This is a slightly tricky question. There are a few close choices, but by elimination we can arrive at the right choice. We have to answer for American literature of the 1920s. Option 1 goes out **because it did not develop the desire for male protagonist's desire for independence. Instead it** expressed their sense of independence they experienced through travel. Thus instead of developing the desire, it celebrated the freedom that travel gives, making choice 3 the right answer. There is no reference for discovering a sense of identity different from others. Option 4 goes out bec**ause though there was emphasis on value of rural folk traditions, it doesn't mean** that they participated in it. They could have appreciated the value of rural folk traditions simply by observing those traditions from a distance or by indirectly studying about them. Choice 4 is not as directly stated as option 3 is

[Option: 3]

Solution 13:

This is a challenging question and demands careful reading of the last paragraph. The question wants us to pick a choice that would not have influenced feminist scholars' understanding of the experiences of Victorian women. Choice 1 goes out because what is **given in the choice did influence. The passage says "from a liberal feminist perspective...",** suggesting that there was a liberal perspective brought in by the feminists. Remember we have to mark for the choice that did not influence the feminists. Option 3 goes out because gender issues can be derived from the fact that there were ideological constructs that posited men as explorers and women tied to home. So there were gender issues. Thus 3 can **be ruled out. The fact that "poststructural turn in studies of Victorian travel writing has focussed attention on women's diverse and fragmented identities", suggests that feminists** were aware the ways in which identity was formed. Without being aware of that they would not be able to understand the gendered identities of Victorian women. For option 2 we have the least amount of evidence. The Victorian women were indeed tied to their class, **but that doesn't mean that the f**eminists had knowledge of class tensions in Victorian society

[Option: 2]

Solution 14:

This is the easiest of all questions. The question wants us to answer for travel writing in general. Travel writing, from what is discussed in the passage, is very close to autobiographical writing. There is sense of independence, sense of self development through travel, sense of new identity...all these point towards personal experiences. Thus 4 is the best choice.

[Option: 4]

Solution 15:

This is a slightly difficult passage to read. Bregman contrasts preagriculutral societies with agricultural societies. In answering the first question, we have to find the opinion of Bregman, who clearly supports Rousseau, clearly demonstrated in the third paragraph.

Rousseau believes that "for the better part of 300,000 years, Homo sapiens lived a fulfilling life in harmony with nature . . . Then we discovered agriculture and for the next 10,000 years **it was all property, war, greed and injustice."**

From this we see that there is ample support for choice 1. The rest can go out. Bregman is not an environmentalist; he is more of a social scientist. This eliminates 2. Again, choice 3 takes the focus away from bringing out the difference between pre-agricultural society and post -**agricultural society. Bregman's focus in not on population but on "human nature and human conditions". 1 is the best choice.**

[Option: 1]

Solution 16:

This question asks us to pick the option that finds mention in the passage. We have to simply look for the choices in the passage. Choice 1 goes out because nowhere is it given that both Hobbes and Rousseau believed in the need for a strong state. Option 2 goes out because Bregman does not agree with Hobbes; he instead sides with Rousseau. At the end of the passage, the author makes it very clear that the veneer theory is attributed to the Dutch biologist. Towards the end he says that human nature encompasses both Hobbes and Rousseau. Thus 3 also goes out. We are left with 4 as the only plausible choice, and we have enough

evidence for it in the first paragraph, where the author says "we see other people as selfish...this was how Hobbes conceived our natural state to be...". By using the pronoun 'we', the author suggests that Hobbes views reflect the views of most people.

[Option: 4]

Solution 17:

This is a slightly tricky question, but the answer is implied in the second last para of the **passage. There the author says "in tra**ditional history, the collapse of civilization is seen as **'dark ages', but Bregman says it was the other way round in most of human experience. In other words, Bregman wants to say that "collapse of civilization means time of change". The** author goes on to say that the truth is somewhere in between. We have to answer for Bregman, not for the author. Thus B is the best choice.

[Option: 2]

Solution 18:

In this question, for option 1, as far as the author is concerned, he agrees with Bregman. **We have evidence for that in the fourth paragraph. The author says "this may be true". One might feel that 2 is correct, but the author has not stated any opinion contrary to Bregman's.** In fact, there is no evidence for either agreement or disagreement. We have evidence only **for choice 4 in the second last para of the passage where the author says "the truth is probably somewhere between...". which truth is the he talking about? Bregman be**lieves that collapse of civilization brings changes and has not much to do with peace and progress, as much of conventional history depicts. The author by partially disagreeing with this takes an opposite stand. Thus 4 is the best choice.

[Option: 4]

Solution 19:
We should start this arrangement by fixing the pronoun "each one" in sentence 1. It says "each one personified a different aspect of good fortune". This statement refers to sentence 3 because it is in 3 that we find the "seven popular deities... Considered to bring good luck **and happiness". Thus the ideas of 3 and 1 are similar, with 3 acting as introduction and 1 taking the idea ahead. 4 and 2 form the other unit because in 4 we have the phrase "only two of them were indigenous Japanese gods", while 2 says "the others were...". The** contrast between the two indigenous gods and the other Buddhist gods connects 4 with 2. Thus 3142 forms a logical sequence.

[Answer: 3142]

Solution 20:
This is a slightly difficult question. The theme of the para**graph seems to be "femininity and woman" 4 is the opening sentence because it introduces the idea of feminine beauty. This** idea of feminine beauty is further elaborated in 4. 2 and 1 add to the story of feminine beauty by talking about the importance of feminine beauty and how appearances project feminine beauty. The sequence 4521 form a logical sequence, and 3 becomes the odd one out. 3 and 4 seem to embody the idea of race and class but no other sentence takes ahead the idea of race and class. Thus either 4 or 3 must be the odd one. But since 4 introduces the idea of feminine beauty, it goes well with the other three sentences, but 3 does not. Thus 3 is the right choice.

[Answer: 3]

Solution 21:

For summary questions we must learn to pick the broader keywords and connect them together to form the summary. In this paragraph the author uses two broad keywords **"genetic theory and metabolic theory. The genetic theory was succe**ssful because of the diversity of genetic models, and the same might happen for metabolic theory, which would **provide a conceptual foundation for much of ecology." The contrast in choice 2 makes the** choice an incorrect one because the author stresses on similarity, not contrasts. Option 1 **says "metabolic theory must have the wide range of theoretical mod**els**". The word "must"** makes this choice an incorrect one. The author talks about a possibility, not a necessity. Option 4 goes out it because it misses disc**ussing the keyword "metabolic theory" and how** it is compared with genetic theory. 3 is the right choice.

[Option: 3]

Solution 22:

Sentence 1 says "it advocated a conservative approach". The pronoun "it" refers to the "consumer welfare standard" mentioned in 4. Thus 41 forms a pair. Though subtle, the connection between 1 and 2 can be easily established. Many industries gained market share because of conservative approach to antitrust enforcement (you can check the meaning of antitrust enforcement laws). Thus 1 is the cause and 2 is an effect. 3 is an example of that wherein we have the examples of technology companies such as Google, Facebook and Amazon which have benefitted immensely from dearth of enforcement actions. Thus 4123 is the right sequence.

[Answer: 4123]

Solution 23:

This is a very simple summary question. There are two views pertaining to the evolution of language. One view believes in sharing of factual information as the reason, whereas the other view believes in social bonding as the reason. The former being the dominant view, while the latter being the less dominant. Choice 1 does not being out this distinction. Choice 2 also misses on this comparison. Option 4 incorrectly mentions that the views were challenged by one group. There is no such thing in the passage

[Option: 3]

Solution 24:

This question has two possible right sequences. Though the right answer is 2431, the sequence 2341 is also a logical sequence. 2 will definitely open the paragraph. Now the point is should we have **3 or 4 next in sequence. 4 introduces the idea of "Russian Doll" and**

elaborates on that further in 4. This makes 34 a logical pair. The idea of CNS connects 4 with 5. Thus 2341 seems perfectly logical. However, when we take the official answer, which is **2431, the sequence 31 is also logical because 3 mentions "hierarchy of complex structure**-smaller **structures contained within larger ones" ...1 says that a similar hierarchy might** be there in CNS as well. We believe that this question has two possible sequences.

[Answer: 2431]

Solution 25:

This is one of the most difficult questions of this paper. There are three keywords in this paragraph: aesthetic political representation, disinterestedness and indifference. The

author seems to prefer disinterestedness for aesthetic political representation. Option 1 is **wrong because it inaccurately states that "aesthetic political representation constitutes of disinterestedness". But the pa**ssage says that aesthetic political representation should be

seen from the angle of disinterestedness. 3 is too short a summary and misses on the crucial **word "aesthetic". 2 and 4 are very close choices, with only a slight difference. 2 says "manifested through indifference", while 4 says "drawing from indifference". Now what is** the difference between the two? When X is manifested through y, it is y that dominates. God is manifested through human beings, means that God is hidden within the human being and the human being dominates the outward appearance. Whereas drawing from something means, aesthetic political representation should have a tinge of disinterestedness. There is little to choose between 2 and 4, but the right choice is 4 because disinterestedness is just an outward shade which must be cultivated, but not necessarily allowed to dominate.

[Option: 4]

Solution 26:
5 says 'for instance'. We must find the sentence that logically connects with 5. Also, we must connect the pronoun 'it' in sentence 4 with some noun. The pronoun cannot refer to the **plural "models" in 1 or the plural 'algorithms' in 5. It can refer to the singular noun "hate speech detection" in 2. Thus 24 form a pair. Similarly, 1 and 5 form a pair because the example of 'human**-like bi**ases" in 1 can be found in 5. Also, both the sentences speak about** algorithms. Thus 2415 form a logical pair, and 3 is the odd one out.

[Answer: 3]

From the given information, we can see that the points scored by the players in a round has the following possibilities:

HHHH: (-1, -1, -1, -1)

HHHL: (1, 1, 1, -3)

HHLL: (2, 2, -2, -2)

HLLL: (3, -1, -1, -1)

LLLL: (1, 1, 1, 1)

Also, the total points scored by the four players in a round can only be -4 or 0 or 4.

From (1), the total points scored by the four players combined in the first three rounds is 6 + 2-2-2=4.

Hence, in the first three rounds, the total points scored by the four players must be either (-4, 4, 4) OR (0, 0, 4), in any order.

Also, from (1), in the first three rounds, Arun scored 6 points. And from (2), Arun scored 7 points at the end of round 6. Hence, in the 4th , 5th and 6th rounds, he must have scored 1 point.

From (4), Arun scored 3 points in exactly 2 rounds.

These two rounds cannot both be among 4th , 5th and 6th rounds because he scored a net of only 1 point in these three rounds combined.

Hence, Arun must have scored 3 points in one round among 1st , 2nd and 3 rd rounds. If Arun scored 3 points in the first three rounds, then in that round, the total points scored by the four players combined must be 0 (in the case of HLLL).

Hence, the total points scored by the four players in the first three rounds must be (0, 0, 4). Among the first three rounds, in one round, the three players must have scored (3, -1, -1, - 1), with Arun scoring 3 points.

Since in another round, the four players scored a total of 4 points, they must have bid LLLL (as it is the only case in which they can score 4 points in total). They must have scored (1, 1, 1, 1).

Since Arun scored a total of 6 points in the first three rounds, and he scored 3 points and 1 point in two of these rounds, he must have score 2 points in the other round. This is possible only if the players bid HHLL and the scores of the four players must be (2, 2, - 2, - 2).

In the round that the players scored (3, - 1, - 1, - 1), Dipak must have scored - 1 points (since Arun scored 3 points).

In the round that the players scored (1, 1, 1, 1), Dipak must have scored 1 point.

In the round that the players scored (2, 2, - 2, - 2), Dipak must have scored 2 points (since the total points that Dipak scored in the first three rounds is 2).

From (3), Dipak must have scored 2 points in the first round, - 1 points in the second round and 1 point in the third round.

From this, we can fill the points for the first three rounds, as shown below

Player	Round 1	Round 2	Round 3
Arun	2 (H)	3 (H)	1 (L)
Bankim	-2 (L)	-1 (L)	1 (L)
Charu	-2 (L)	-1 (L)	1 (L)
Dipak	2 (H)	-1 (L)	1 (L)
TOTAL	0	0	4

(Note that with this information, the first question of the set can be answered)

In the next three rounds, from (1) and (2), Arun must have scored 1 point, Bankim must have scored 1 point, Charu must have scored - 3 points and Dipak must have scored - 3 points.

The total points scored by the four players are - 4. This is possible if the total points scored by the four players in the three rounds are (0, 0, - 4) OR (4, - 4, - 4) in any order.

However, we know that Arun must have scored 3 points in one of these three rounds (from (4)). Hence, the total points scored by the players in this round must be 0.

Hence, the four players must have scored (0, 0, - 4) points in these three rounds. In one round the points scored by the players must be (3, - 1, - 1, - 1), with Arun scoring 3 points.

In the round in which the total points scored by the four players is 4, they must have scored (-1,-1,-1,-1).

Since Bankim scored a total of 1 point in these three rounds, and he scored - 1 point and - 1 point in the two rounds mentioned above, he must have scored 3 points in the other third.

Hence, in the remaining round, the four players must have scored (3, - 1, - 1, - 1), with Bankim scoring 3 points.

However, with the given information, we cannot deduce the round number corresponding to the above rounds.

Hence, we get the following table:

Player	Round 1	Round 2	Round 3	Round 4/5/6	Round 4/5/6	Round 4/5/6	TOTAL
Arun	2 (H)	3 (H)	1 (L)	3 (H)	-1 (H)	-1 (L)	7
Bankim	-2 (L)	-1 (L)	1 (L)	-1 (L)	-1 (H)	3 (H)	-1
Charu	-2 (L)	-1 (L)	1 (L)	-1 (L)	-1 (H)	-1 (L)	-5
Dipak	2 (H)	-1 (L)	1 (L)	-1 (L)	-1 (H)	-1 (L)	-1
TOTAL	0	0	4	0	-4	0	

Solution 27:
The bids by Arun, Bankim, Charu, Dipak in the first round were Hi, Lo, Lo, Hi.

Option: 4
Solution 28:
Arun bid Hi in 4 rounds

Answer: 4
Solution 29:
Bankim bid Lo in 4 rounds

Answer: 4
Solution 30:
All four players made identical bids in 2 rounds

Answer: 2
Solution 31:
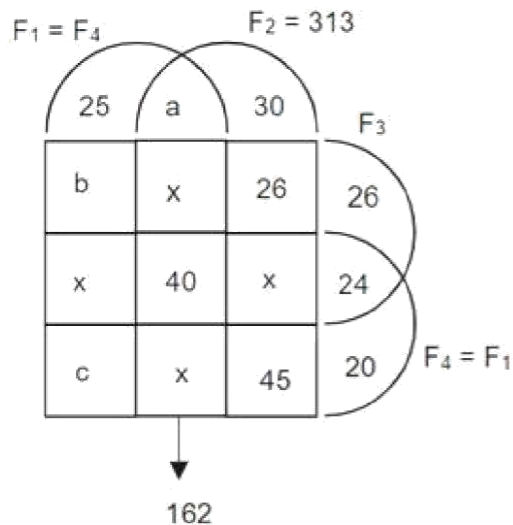Dipak gained exactly 1 point in 1 round

Answer: 1

Solution 32:

In the second round, Arun was the only player to bid Hi.

Option: 4

The given information can be represented in the following Venn diagram.

Solution 33:

Given,

$F_2 = (a + x + 40 + x) + (30 + 26 + x + 45) = 313.$

It is also given that F_1 and $F_2 = a + x + 40 + x = 162.$

Hence, $30 + 26 + x + 45 = 313 - 162 = 151$

Hence, $x = 151 - (30 + 26 + 45) = 50$

The number of schools that have exactly three facilities $= 4x = 200$

Option: 1

Solution 34:

The number of schools having facilities F_2 and $F_4 = 40 + x + 45 + x = 185$

Option: 1

Solution 35:

Only F_1 and F_3 b

Given F_1 F_4

25 b x c a x 40 x

24 20 x 45 40 x x c

Hence, a b 64

It is given that a x 40 x 162 .

As x 50, a 22

Hence, only F_1 and F_3 b 64 22 42.

Answer: 42

Solution 36:

Only F_1 and F_4 c

Exactly 1   Exactly 2 Exactly 3   Exactly 4   600 80 520

(25 30   26 20)   Exactly 2   200   40   520

Hence, Exactly 2   179 a 24 b c 26   45

As a 22 and b 42, c only F_1 and F_4 20 .

Answer: 20

The vials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A									✓	✓	✓	✓	✓	✓	✓	✓
B	✓	✓	✓	✓	✓	✓	✓	✓								
C					✓	✓	✓	✓					✓	✓	✓	✓
D	✓	✓	✓	✓					✓	✓	✓	✓				
E			✓	✓			✓	✓			✓	✓			✓	✓
F	✓	✓			✓	✓			✓	✓			✓	✓		
G		✓		✓		✓		✓		✓		✓		✓		✓
H	✓		✓		✓		✓		✓		✓		✓		✓	

This table helps to figure out that vials A & B, viable C & D, Vials E & F, Vials G & H cannot be negative simultaneously. As each group consists exclusive set of patients

Solution 37:

If vial C tests positive vials A , E and H test negative . If vial C tests positive following patients can have disease.

Patient No. 5, 6, 7, 8, 13, 14, 15 & 16

If vials A, E & H test negative   following **patients can't have disease**

Patients who can't have disease are :

Patient No. 5, 7, 8, 13, 14, 15 & 16   Patient 6 must have disease

Option: 3
Solution 38:
If vial a tests positive, then following patients can have disease.

Patient No. 9,10,11,12,13,14,15,16   (1)

Vials D \& G test negative

    Following patients, can't have disease patients

No : 1, 2, 3, 4, 6,8, 9,10,11,12,14, \&16 (2)

From both 1 \&2, we ca say that patient No .13 or patient No. 15 can have disease.

Now we have eliminate or find out who among patient 13 or patient 15 has disease. So we should test vials E or F

Option: 1
Solution 39:

If vials C & D test negative, that means none of the patients through 16 have diseases. But its given in the questions, that exactly one of the patients has disease. This is not possible

Option: 4
Solution 40:

5.   **Let's assume one of the patients, patient 1 or patient 16 has disease and that patients** blood is mixed with other them all 8 vials will test positive. 8 has to be one of the answers.

6.   **If patient 2 and patients 16's blood is mixed of one of them has** disease then 7 of the 8 vials will test positive. So 7 has to be there in the option.

7.   **Let's assume patient 1 has disease, if his blood is not mixed, then 4 vials will definitely** show positive. So 4 also has to be there in answer. So the answer must definitely contain 4, 7 and 8

Option: 3

	Booked		Delivered	Lost	
n^{th} day	Cumulative	n^{th} day	Delivered [n – 1, n – 2]	Cumulative	n^{th} day
11	174				
12	188	14			
13	219	31	11 [7, 4]	91	
14	249	30	27 [21, 6]	92	1
15	277	28	23 [15, 8]	94	2
16	302	25	11 [8, 3]	106	12
17	327	25	21 [13, 8]	118	12
18	332	5	13 [3, 10]	120	2
19	337	5	14 [1, 13]	129	9

Days	Booked	Next day	Day after	Delivered	Lost
12	14				
13	31	7	4	11	
14	30	21	6	27	1
15	28	15	8	23	2
16	25	8	3	11	12
17	25	13	8	21	12
18	5	3	10	13	2
19	5	1	13	14	9

Solution 41:

14th day   30 Booked 12 loss   12

$$\overline{30}$$

$13^{th}\ day$ 31 Booked   2 loss $$\frac{2}{31}$$

16th day   25 Booked   2 loss $\dfrac{2}{25}$

15th day   28 Booked   12 loss $\dfrac{12}{28}$

The highest value is $\dfrac{12}{28}$, on the 15th day.

Option: 3

Solution 42:

Highest order Booked on 13th day.

nth day	Booked Cumulative	nth day	Delivered Delivered [n – 1, n – 2]	Lost Cumulative	nth day
11	174				
12	188	14			
13	219	31	11 [7, 4]	91	
14	249	30	27 [21, 6]	92	1
15	277	28	23 [15, 8]	94	2
16	302	25	11 [8, 3]	106	12
17	327	25	21 [13, 8]	118	12
18	332	5	13 [3, 10]	120	2
19	337	5	14 [1, 13]	129	9

Option: 1

Solution 43:

Delivery ratio   Next day day after

a. 13th day $\dfrac{21}{8}$

b. 15th day $\dfrac{8}{8}$

c. 14th day $\dfrac{15}{3}$

d. 16th day $\dfrac{13}{10}$

The highest ratio is $\dfrac{15}{3}$, on 14th day

Option: 3

Solution 44:

Next day = x	Day after = y
Avg time = $\dfrac{(x+2y)}{x+y}$	
16th day $\Rightarrow \dfrac{x}{13}$	$\dfrac{y}{10} \Rightarrow \dfrac{13+20}{23} \Rightarrow \dfrac{33}{23} = 1.43$
15th day $\Rightarrow 8$	$8 = \dfrac{24}{16} \Rightarrow = 1.5$
14th day $\Rightarrow 15$	$3 = \dfrac{21}{18} \Rightarrow 1.16$
13th day $\Rightarrow 21$	$8 \Rightarrow \dfrac{37}{29} = 1.27$

The least is on the 14th day.

Option: 1

Let each plot in the grid be represented by its row label and column label. For example, (X, 2) represents the plot in row X and column 2.

From (8), Chitra and Dipti did not get plots which were adjacent to each other.

From the figure, we can see that Chitra has the plot (X, 1). Hence, Dipti cannot have the plots (X, 2) and (Y, 2).

Also, Chitra ha s the plot (Z, 2). Hence, Dipti cannot have the plots (Z, 3) and (Y, 3). From (6), Dipti has two adjoining plots in the same row. Hence, the only possibility for Dipti to have such plots is if she has the plots (X, 3) and (X, 4).

It is given that each daughter got an even number of plots. Also, from (4), Abha and Bina had a higher number of plots than Dipti.

Since Dipti already has 2 plots, Abha and Bina must have at least 4 plots each. Chitra already has 2 plots. Hence, Abha and Bina cannot have a higher n umber of plots. Hence, the number of plots that Abha, Bina, Chitra and Dipti must be 4, 4, 2 and 2, respectively.

We already know the positions of all the plots of Chitra and Dipti. Hence, the remaining plots must belong to Abha or Bina.

From (5), the corner plot, (Z, 4) must belong to Bina.

From (7), Bina got a plot in each row. In the first row, Chitra got (X, 1) and Dipti got (X, 3) and (X, 4). Hence, Bina must have gotten (X, 2). Bina has a total of 4 plots and we know the positions of three plots.

For Bina to have a plot in each row and each column, she must still have plot(s) in row Y and column 3. Since she can have only one more plot, she must have a plot at the intersection of this row and column.

Hence, Bina must have gotten the plot (Y, 3). A should have the remaining two plots, i.e., (Y, 2) and (Z, 3). Let the number of trees in (Y, 2) be a.

From (3), the number of trees in (Y, 3) must be 2a and the number of trees in (Y, 4) must be 4a.

From (2), 4a cannot be more than 32 and since (Y, 4) is owned by Abha, it cannot be 32. Hence, a can be at most 7.

Also, a should be a multiple of 3 or 4. Hence, the possible values for a are 3, 4 and 6. However, a cannot be 3, since 4a will be 12 and (X, 1) has 12 trees (each plot has distinct number of trees).

Also, a cannot be 6, since 2a will be 12. Hence, a must be 4.

The number of trees in (Y, 2), (Y, 3) and (Y, 4) must be 4, 8 and 16. The total number of trees in row Y is 21 + 4 + 8 + 16 = 49.

From (9), the total number of trees in row X = $49 \times 2 = 98$.

The number of trees in row Z = 205 - 49 - 98 = 58.

The total number of trees in the plots that Abha got is 21 + 4 + 16 + 9 = 50 (adding the trees in (Y, 1), (Y, 2), (Y, 4) and (Z, 3).

From (1), Chitra must have 30 trees and Dipti must have 56 trees. Since Chitra has 30 trees, and Chitra has 12 trees in (X, 1), there must be 18 trees in (Z, 2) (the only other plot that Chitra got).

The number of trees in (Z, 2), (Z, 3) and (Z, 4) are 18, 9 and 28 respectively. Since there must be 58 trees in row Z, the number of trees in (Z, 1) must be 3.

The number of trees with Bina must be 205 - 50 - 56 - 30 = 69. Bina has 3 trees in (Z, 1), 8 trees in (Y, 3) and 28 trees in (Z, 4).

In the last plot that Bina owns, i.e., in (X, 2), there must be 69 - 3 - 8 - 28 = 30 trees. In row X, in the plots that Dipti owns, (X, 3) and (X, 4), there must be a total of 56 trees.

Since the maximum possible number of trees in only 32, the maximum possible number of trees in these two plots can be if they have 32 trees in one plot and 24 trees in the other plot (since 30 and 28 trees are already present in other plots).

Hence, the plots (X, 3) and (X, 4) must have 32 and 24 trees in any order.

The following table provides the distribution of plots and trees

	1		2		3		4		Total
X (Mango)	12	C	30	B	32/24	D	24/32	D	98
Y (Teak)	21	A	4	A	8	B	16	A	49
Z (Pine)	3	B	18	C	9	A	28	B	58
Total	36		52		49/41		68/76		205

Solution 45:
The total number of mango trees are 98

Option: 2
Solution 46:
The correct sequence of trees received by Abha, Bina, Chitra and Dipti are 50, 69, 30, 56.

Option: 1
Solution 47:
The number of pine trees received by Chitra = 18

Option: 3
Solution 48:

Bina got the plot with the smallest number of trees, which had 3 trees

Option: 4
Solution 49:
Bina did not 32 pine trees. She got 31 pine trees

Option: 2
Solution 50:
Column 4 has the highest number of trees

Option: 4
Solution 51:

$\log_a 5 \log_a 3 \log_a 2\ A$

$\log_a 5 \log_a 3 \quad A \quad 3$

But $\log_a 5 \log_a 3 \quad B$

Hence $2 \log_a 3 \quad A\ B\ 3$

$$\log_3 a \quad A\ B \quad 3$$

[Option: 3]

Solution 52:
Let the age of Tom be t.

Ages of Dick and Harry are 3t and 6t respectively.

$t\ 3t\ 6t$

Given, $3t \qquad 1\ 9t\ 10t\ 3\ t\ 3$

Age of Harry   6 3 18

[Answer: 18]

Solution 53:

The distance travelled by A before B starts his journey   40   1.5   60

The time taken by them to meet each other $\dfrac{9060}{40 \quad 20 \quad 60}$ $\dfrac{30}{}$ 0.5 hours

Required answer =10: 30 a.m. +30 min =11: 00 a.m.

[Option: 4]

Solution 54:

Simultaneous equation have a unique solution only if $\dfrac{a_1}{a_2} \dfrac{b_1}{b_2}$

From the given equations, a unique solution would exist only if $\dfrac{k}{2} \dfrac{2}{k}$

k^2 $4 \mid k \mid 2$

[Option: 1]

Solution 55:

x_m 1 x_m $(m\,1)$

x_2 x_1 2   1 2   3

x_3 x_2 3   1 2 3   6

Similarly,

x_n $(1\,2\,3n)$ $\dfrac{n(n\,1)}{2}$

Hence x_{100} $\dfrac{100(101)}{}$ 5050

[Option: 4]

Solution 56:

Let the original time taken by Vimla be t minutes $40t/60 = 35 = (t-6)/60$

$$t = 35 \frac{6}{5} = 42 \min$$

The distance to office $= 28$ km

Required answer $\dfrac{28-\frac{1}{3}}{42-\frac{2}{3}8} \times 60 = 28\,kmph$

[Option: 3]

Solution 57:

Let the CP and MP of each kg of sugar be 10x and 12x respectively.

Total cost price $= 35 \times 10x = 350x$

Total selling price $= 35 \times 10 \times 1.15 = 402.5x$

Selling price already realized $= 5 \times 12x + 15 \times 12x \times 0.9 + 30 \times 12 \times 12x(1+p/100) = 402.5x$

$60 + 162 + 0.144(1+p/100) = 402.5$

$p = 25.34\% \approx 25\%$

[Option: 4]

Solution 58:

Given $f(x+y) = f(x)f(y)$

$f(x) = a^x$ (where a is a constant) Given, $f(5) = 4 = a^5 = 4 = a = 2^{2/5}$

$f(10) = f(10) = a^{10} = a^{10} = 2^{\frac{2}{5} \times 10} = 2^{\frac{2}{5} \times 10}$

$$2^4 \quad 2^4 \quad 16 \qquad \frac{1}{15.9375} \quad 16$$

[Option: 2]

Solution 59:

Let $14^a \quad 36^b \quad 84^c \quad k$

$$a \log_{14} k \qquad \frac{1}{\log_k 14} \quad a$$

Similarly, $\quad \frac{1}{\log_k 84}$ and $b \log_{36} k \quad c$

Required answer, $6b$ $\qquad \dfrac{1}{c} \quad \dfrac{1}{a} \qquad 6 \log_{36} k \log_k 84 \log_k 14$

$$6 \log_k \log 6 \qquad 3$$
$$\log 36 \log k$$

[Answer: 3]

Solution 60:

	Men	Tunnel	Days
Initial	140	1.5 km	60
Remaining	X	4.5 km	140

24. $\quad 140 \quad \dfrac{4.5 \quad 60}{140} \quad 180 \quad 1.5$

140

Additional men required $180 \qquad 140 \quad 40$

[Answer: 40]

Solution 61:

Since the roots are real $m^2 \quad 8n \qquad 0$ and $(2n)^2 \quad 4m \quad 0 \quad n^2 \quad m \quad 0$

$$n^4 \qquad m^2 \quad 8n$$

n $\geq$ 2 and m $\geq$ 4

Hence the least value of $m + n = 2 + 4 = 6$

[Option: 4]

Solution 62:
Let the sum be P.

Given, $P\left(1+\dfrac{10}{200}\right)^3 = 18522$

$P = 18522 \times \left(\dfrac{20}{21}\right)^3 = 16000$

[Answer: 16000]

Solution 63:

Time taken by Anil and Sunil meet at the starting point $= LCM\left(\dfrac{3}{15}, \dfrac{3}{10}\right) = 3/5$

   Distance run by Ravi in $3/5$ hours $= (3/5) \times 8 = 24/5 = 4.8$ km

[Option: 3]

Solution 64:
The line $y = |x-2| + 4$ intersects the y-axis at (0,6) and intersects $x = 2$ at (2,4)

The other vertices are (0,0) and (2,0)

The figure formed is a trapezium of parallel sides 6 and 4 and the distance between the parallel sides is 2.

Required answer $= \dfrac{1}{2}(6+4)2 = 10$

[Option: 3]

Solution 65:

5. $4, b\ 90; c\ 82$

$$1$$

Area of the triangle   4918

The circumradius of the triangle (R) abc

$$4$$

Area of the circle$R$ $_2$ $\dfrac{abc}{4}^2$ $\dfrac{(4\ \overline{90}\ \overline{82})^2}{(41\ 8)}$

16   90 82   205

1618189

[Option: 4]

Solution 66:
The given set is a set of all three-digit numbers and the number of numbers in the set =900.

The number of three-digit numbers having no digits repeating 9 9 8   648

Required answer =900-648=252

[Answer: 252]

Solution 67:
Given, 2 x 10 and 14 y 23   17 $(x\ y)$ 32 i.e. 17 N 32

But N 25 hence 25 N 32

N can take 6 distinct values.

[Answer: 6]

Solution 68:

The given line also passes through the point of intersection of the diagonals of the parallelogram, which is the mid-point of (2,1) and (-3,-4) The mid-point of the given two points is (-1/2, -3/2).

Substituting the point in the given equation $\frac{1}{2} \quad 9 \frac{3}{2} \quad c \; 0 \qquad c \; 14$

[Option: 2]

Solution 69:

Given, $a \; b \quad 4^{2017} \; 2^{4034}$

Since $a \; b \quad 4^{2017}$, is a perfect square the number of factors of 2^{4034} is odd.

Required answer, the number of values of $A \qquad \frac{4034 \; 1 \; 1}{2} \quad 2018$

[Option: 4]

Solution 70:

Dropping a perpendicular DE onto AB, the figure is divided into two parts - a rectangle of dimensions 4 5 and an isosceles triangle AED.

Required answer = Area of rectangle + Area of triangle $4 \quad 5 \quad \frac{1}{2} (4 \; 4) \; 28 cm_2$

[Answer: 28]

Solution 71:

The required answer $120 \qquad 1 \quad \frac{1}{2} \; 1 \quad \frac{1}{5} \; 1 \quad \frac{1}{7} \quad 41.14$

Required answer is the integral part of 41.14 41

[Option: 4]

Solution 72:
Let the quantity of solutions A and B mixed initially be p and 3p respectively.

After an additional 4p of solution A is added 60% of $(1 \; p \; 4 \; p \;)$ x% of $3 \; p \; 72$% of $(1 \; p \; 4 \; p \; 3 \; p)$
x 92

[Option: 2]

Solution 73:

$\log_2 4 = 2; \log_4 8 = \dfrac{3}{2}; \log_8 16 = \dfrac{4}{3}$

$$\dfrac{24816}{\log_2 4^2 \ \log_4 8^3 \ \log_8 16^4} = \dfrac{24816}{(2)^2 \ (3/2)^3 \ (4/3)^4 \ 24}$$

[Answer: 24]

Solution 74:

Total score in $(n-2)$ innings $= 29 \ (n-2)$

The total score in n innings $= 29(n-2) + 38 + 15$

$29n - 5 = 30n \ n = 5$

Total score in 5 innings $= 30 \times 5 = 150 = 37 \times 4 + 2$

[Option: 1]

Solution 75:

Let the total marks be T and scores of Bishnu, Asha and Ramesh be a, b and c respectively.

Given, $a = 52\%$ of $T = c + 23$ and $b = 64\%$ of $T = c + 34$

Hence, $(64 - 52)\%$ of $T = (c + 34) - (c + 23) = 57$

i.e. 12% of $T = 57$

Hence, score of Geeta $= 84\%$ of $T = 7 \times 57 = 399$

[Option: 2]

Solution 76:

Given $0.2 = \dfrac{m}{0.5} \Rightarrow 4 \ m = 10$
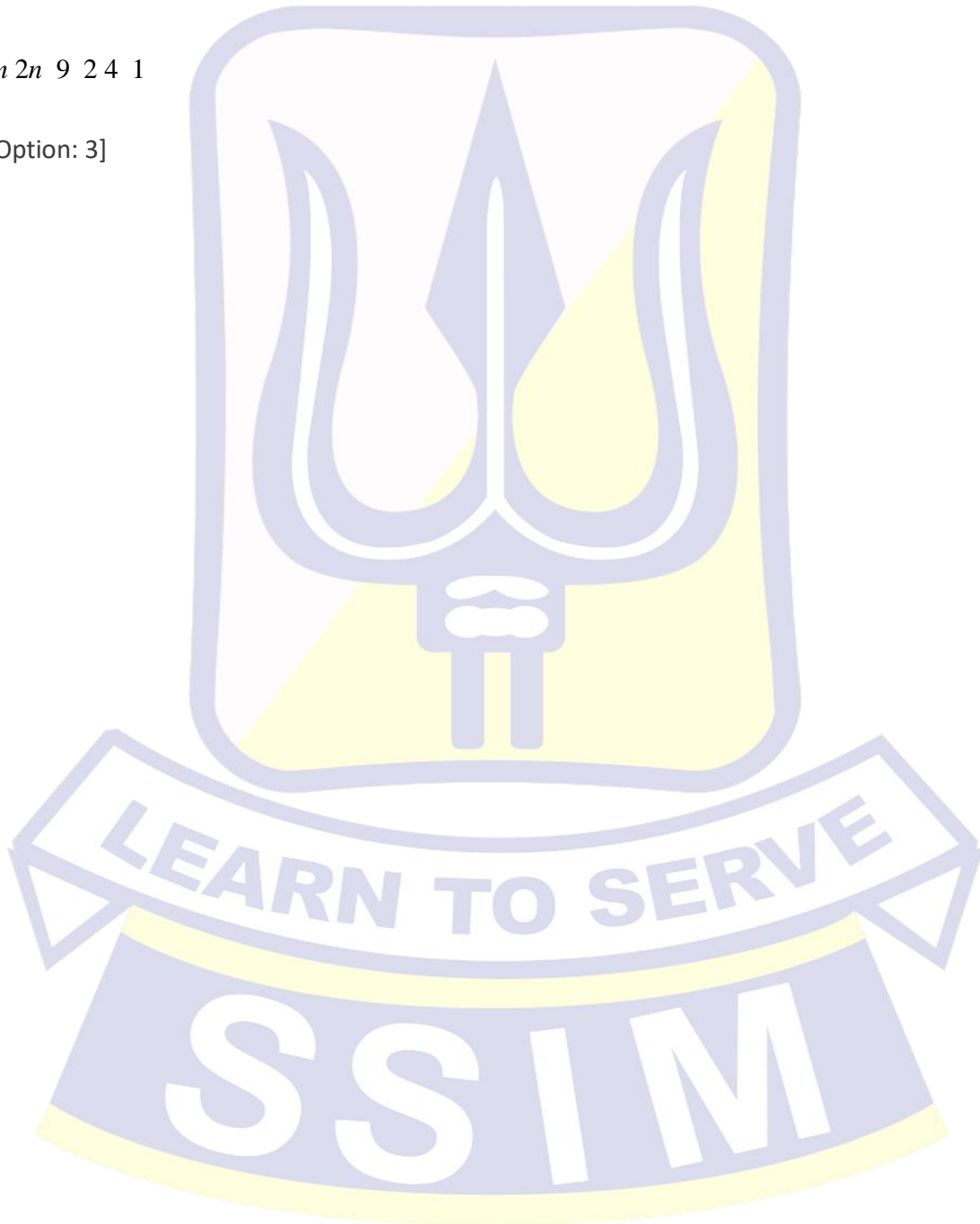
$$n$$

$$0.2 \quad 0.5 \quad 2.2 \; n \; 5.5 \quad n \; 4$$

$$n$$

since $0.2 \quad 0.5$ and $n \quad 4, m \quad 9$

$m \; 2n \; 9 \; 2 \; 4 \; 1$

[Option: 3]