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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 screenbased 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 beginning 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 general 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 writers' 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 representation 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, travel 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 showing women's selfdevelopment 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 sense 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 takes 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 you'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 unfounded. 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?

1. 185

2. 45

3. 95

4. 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?

1. Patient 14

2. Patient 2

3. Patient 6

4. 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?

1. Vial E

2. Vial H

3. Vial C

4. Vial B

Q.39. Which of the following combinations of test results is NOT possible?

1. Vials A and G positive, vials D and E negative

2. Vials B and D positive, vials F and H negative

3. Vial B positive, vials C, F and H negative

4. 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?

1. 14th

 2. 13th

3. 15th

4. 16th

Q.42. On which of the following days was the number of orders booked the highest?

1. 13th

2. 15th

3. 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?

 1. 13th

2. 16th

3. 14th

4. 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?

1. 14th

2. 16th

3. 15th

4. 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:

	1	2	3	4
X	12 C			
Y	21 A			A
Z	B	C	9	28

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:

1. Abha got 20 trees more than Chitra but 6 trees less than Dipti.

2. 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?

1. 84

 2. 98

3. 49

4. 126

Q.46. Which of the following is the correct sequence of trees received by Abha, Bina, Chitra and Dipti in that order?

1. 50, 69, 30, 56

2. 54, 57, 34, 60

3. 44, 87, 24, 50

4. 60, 39, 40, 66

Q.47. How many pine trees did Chitra receive?

1. 21

2. 30

3. 18

4. 15

Q.48. Who got the plot with the smallest number of trees and how many trees did that plot have?

1. Dipti, 6 trees

2. Bina, 4 trees

3. Abha, 4 trees

4. Bina, 3 trees

Q.49. Which of the following statements is NOT true?

1. Dipti got 56 mango trees.

2. Bina got 32 pine trees.

3. Chitra got 12 mango trees.

4. Abha got 41 teak trees.

Q.50. Which column had the highest number of trees?

1. 2

2. 3

3. Cannot be determined

4. 4

CAT Quant Section

Q.51. If $\log_a 30 = A, \log_A \left(\frac{5}{3}\right) = -B \ AND \ \log_2 a = \frac{1}{3}, then \ \log_3 a \ equals$

1. $\frac{2}{A+B} - 3$

2. $\frac{A+B-3}{2}$

3. $\frac{2}{A+B-3}$

$4. \dfrac{A+B}{2} - 3$

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

1. 11 : 45 am

2. 10 : 45 am

3. 11 : 20 am

4. 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

1. |k| ≠ 2

2. |k| = 2

3. k ≠ 2

4. k = 2

Q. 55. If x(base 1) = -1 and x(base m) = x(base m+1) + (m+1) for every positive integer m, then x(base 100) equals?

1. -5151

2. -5150

3. -5051

4. -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

1. 29

2. 27

3. 28

4. 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) = 4, then f(10)-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 $14^a = 36^b = 84^c$, then $6b\left(\frac{1}{c} - \frac{1}{a}\right)$ 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?

1. 7

2. 8

3. 5

4. 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?

1. 4.2

2. 5.2

3. 4.8

4. 4.6

Q.64. The area, in sq. units, enclosed y the lines x =2, y=|x-2|+4, the X-axis and the Y-axis is equal to?

1. 8

2. 12

3. 10

4. 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. 14 π /3

2. 12 π/5

3. 123 π/7

4. 205π/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 = x + y, 2 < x < 10 and 14 < y < 23. If N > 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 y c + + = 9 0 , then c is

1. 12

2. 14

3. 13

4. 15

Q.69. How many pairs (a, b) of positive integers are there such that a b $\leq$ and ab=4^{2017}?

1. 2017

2. 2019

3. 2020

4. 2018

Q.70. In a trapezium ABCD, AB is parallel to DC, BC is perpendicular to DC and $\angle$ 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?

1. 40

2. 42

3. 43

4. 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

1. 94%

2. 92%

3. 90%

4. 89%

Q.73. $\dfrac{2 \times 4 \times 8 \times 16}{(\log_2 4)^2 (\log_4 8)^3 (\log_8 16)^2}$ 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 than the marks obtained by Ramesh. The marks obtained by Geeta, who scored 84%, is

1. 439

2. 399

3. 357

4. 417

Q.76. Let m and n be natural numbers such that n is even and $0.2 < \dfrac{m}{20}, \dfrac{n}{m}, \dfrac{n}{11} < 0.5. Then\ m - 2n\ equals$

1. 3

2. 4

3. 1

4. 2

Answer Keys

1. 3

2. 1

3. 3

4. 3

5. 4

6. 2

7. 1

8. 1

9. 1

10. 2

11. 1

12. 3

13. 2

14. 4

15. 1

16. 4

17. 2

18. 4

19. 3142

20. 3

21. 3

22. 4123

23. 3

24. 2431

25. 4

26. 3

27. 4

28. 4

29. 4

30. 2

31. 1

32. 4

33. 1 34. 1

35. 42

36. 20

37. 3

38. 1

39. 4

40. 3

41. 3

42. 1

43. 3

44. 1 45. 2

46. 1

47. 3

48. 4

49. 2

50. 4

51. 3

52. 18

53. 4

54. 1

55. 4

56. 3

57. 4

58. 2

59. 3

60. 40

61. 4

62. 16000

63. 3

64. 3

65. 4

66. 252

67. 6

68. 2

69. 4

70. 28

71. 4

72. 2

73. 24

74. 1

75. 2

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 the 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 screenbased 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 punished 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 social 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 offscreen=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 crisis" or "setting aside the ideology of individualism".

 The best choice is 4. The author clearly states that "after decades in which the ideology of the western world was personally and economically individualistic, 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 disprove 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 individualism 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 crisis, 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 legitimise 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 choices 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 because 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 of 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 feminists 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 traditional 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 believes 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 paragraph 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 successful 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 models". 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 discussing 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 1. 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 structuresmaller 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 passage 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 biases' 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

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.

(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:

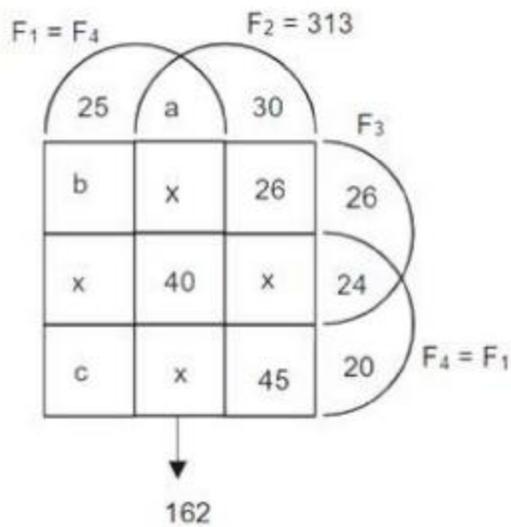All four players made identical bids in 2 rounds

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 F1 and F4=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 $\Rightarrow$ following patients can't have disease

Patients who can't have disease are :

Patient No. 5, 7, 8, 13, 14, 15 & 16 $\Rightarrow$ 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 $\rightarrow$(1)

Vials D \& G test negative

$\Rightarrow$ Following patients, can't have disease patients

No : $-\rightarrow$ 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:

i) 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. $\Rightarrow$ 8 has to be one of the answers.

ii) 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.

iii) 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 $\Rightarrow$ 30 Booked $\Rightarrow$ 12 loss $\Rightarrow \dfrac{12}{30}$

13th day $\Rightarrow$ 31 Booked $\Rightarrow$ 2 loss $= \dfrac{2}{31}$

16th day $\Rightarrow$ 25 Booked $\Rightarrow$ 2 loss $\Rightarrow \dfrac{2}{25}$

15th day $\Rightarrow$ 28 Booked $\Rightarrow$ 12 loss $\Rightarrow \dfrac{12}{28}$

The highest value is $\dfrac{12}{28}$, on the 15th day.

Option: 3

Solution 42:

Highest order Booked on 13th day.

Highest order Booked on th 13 day.

	Booked		Delivered	Lost	
nth day	Cumulative	nth day	Delivered [n − 1, n − 2]	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:

$$\text{Delivery ratio} = \frac{\text{Next day}}{\text{day after}}$$

a. 13th day $\Rightarrow \dfrac{21}{8}$

b. 15th day $\Rightarrow \dfrac{8}{8}$

c. 14th day $\Rightarrow \dfrac{15}{3}$

d. 16th day $\Rightarrow \dfrac{13}{10}$

The highest ratio is $\frac{15}{3}$, on 14th day

Option: 3

Solution 44:

Next day = x	Day after = y
Avg time = $\frac{(x+2y)}{x+y}$	
16th day $\Rightarrow \frac{x}{13}$	$\frac{y}{10} \Rightarrow \frac{13+20}{23} \Rightarrow \frac{33}{23} = 1.43$
15th day $\Rightarrow 8$	$8 = \frac{24}{16} \Rightarrow = 1.5$
14th day $\Rightarrow 15$	$3 = \frac{21}{18} \Rightarrow 1.16$
13th day $\Rightarrow 21$	$8 \Rightarrow \frac{37}{29} = 1.27$

The least is on the 14th day.

The least is on the th 14 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:

$$\log_a 5 + \log_a 3 + \log_a 2 = A$$

$$\log_a 5 + \log_a 3 = A - 3$$

But $\log_a 5 - \log_a 3 = -B$

Hence $2\log_a 3 = A + B - 3$

$$\log_3 a = \frac{2}{A + B - 3}$$

[Option: 3]

Solution 52:

Let the age of Tom be t.

Ages of Dick and Harry are 3t and 6t respectively.

Given, $3t = \dfrac{t + 3t + 6t}{3} - 1 \Rightarrow 9t = 10t - 3 \Rightarrow t = 3$

Age of Harry $= 6 \times 3 = 18$

[Answer: 18]

Solution 53:

The distance travelled by A before B starts his journey $= 40 \times 1.5 = 60$

The time taken by them to meet each other $= \dfrac{90 - 60}{40 + 20} = \dfrac{30}{60} = 0.5$ 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 $\dfrac{a_1}{a_2} \neq \dfrac{b_1}{b_2}$

From the given equations, a unique solution would exist only if $\dfrac{k}{2} \neq \dfrac{2}{k}$

$\Rightarrow k^2 \neq 4 \Rightarrow |k| \neq 2$

[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,

$x_n = -(1 + 2 + 3 + \ldots + n) = -\dfrac{n(n+1)}{2}$

Hence $x_{100} = -\dfrac{100(101)}{2} = -5050$

[Option: 4]

Solution 56:

Let the original time taken by Vimla be t minutes $40t/60 = 35 \times (t+6)/60$

$$\Rightarrow t = 35 \times \frac{6}{5} = 42min$$

The distance to office =28 km

$$\text{Required answer} = \frac{28 \times \frac{1}{3}}{42 \times \frac{2}{3} - 8} \times 60 = 28kmph$$

[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 $= 35 \times 10 \times \times 1.15 = 402.5x$

Selling price already realized $= 5 \times 12x + 15 \times 12x \times 0.9 + 3 \times 0 + 12 \times 12x \times (1 + p/100) = 402.5x$

$60 + 162 + 0 + 144(1 + p/100) = 402.5$

$p = 25.34\% \approx 25\%$

[Option: 4]

Solution 58: Given f(x+y)=f(x)f(y)

$\Rightarrow f(x) = a^x$ (where a is a constant) Given, $f(5) = 4 \Rightarrow a^5 = 4 \Rightarrow a = 2^{2/5}$

$$f(10) - f(-10) = a^{10} - a^{-10} = \left(2^{\frac{2}{5}}\right)^{10} - \left(2^{\frac{2}{5}}\right)^{-10}$$

$$= 2^4 - 2^{-4} = 16 - \frac{1}{16} = 15.9375$$

[Option: 2]

Solution 59:

Let $14^a = 36^b = 84^c = k$

$$\Rightarrow a = \log_{14} k \Rightarrow \frac{1}{a} = \log_k 14$$

Similarly, $\frac{1}{c} = \log_k 84$ and $b = \log_{36} k$

Required answer, $6b\left(\frac{1}{c} - \frac{1}{a}\right) = 6\left(\log_{36} k\right) \times \left(\log_k 84 - \log_k 14\right)$

$$= 6 \times \frac{\log k}{\log 36} \times \frac{\log 6}{\log k} = 3$$

[Answer: 3]

Solution 60:

	Men	Tunnel	Days
Initial	140	1.5 km	60
Remaining	X	4.5 km	140

$$X = 140 \times \frac{4.5}{1.5} \times \frac{60}{140} = 180$$

Additional men required $= 180 - 140 = 40$

[Answer: 40]

Solution 61:

Since the roots are real $m^2 - 8n \geq 0$ and $(2n)^2 - 4m \geq 0 \Rightarrow n^2 - m \geq 0$

$$\Rightarrow n^4 \geq m^2 \geq 8n$$

$$\Rightarrow n \geq 2 \text{ and } m \geq 4$$

Hence the least value of $m + n = 2 + 4 = 6$

[Option: 4]

Solution 62:

Let the sum be P.

Given, $P \times \left(1 + \dfrac{10}{200}\right)^3 = 18522$

$$\Rightarrow P = 18522 \times \left(\frac{20}{21}\right)^3 = 16000$$

[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 $= \dfrac{1}{2}\times 2\times(6+4) = 10$

[Option: 3]

Solution 65:

$a = 4, b = \sqrt{90}; c = \sqrt{82}$

Area of the triangle $= \dfrac{1}{2}\times 4\times 9 = 18$

The circumradius of the triangle $(R) = \dfrac{abc}{4\Delta}$

Area of the circle $= \pi R^2 = \pi\left(\dfrac{abc}{4\Delta}\right)^2 = \dfrac{\pi(4\cdot\sqrt{90}\cdot\sqrt{82})^2}{(4\cdot 18)^2}$

$= \pi \times \dfrac{16\times 90\times 82}{16\times 18\times 18} = \dfrac{205}{9}\pi$

[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 = $9 \times 9 \times 8 = 648$

 Required answer =900-648=252

[Answer: 252]

Solution 67:

Given, $2 < x < 10$ and $14 < y < 23 \Rightarrow 17 < (x+y) < 32$ 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 $-\dfrac{1}{2} + 9 \times \dfrac{-3}{2} + c = 0 \Rightarrow c = 14$

[Option: 2]

Solution 69:
Given, $a \cdot b = 4^{2017} = 2^{4034}$

Since $a \cdot b = 4^{2017}$, is a perfect square the number of factors of 2^{4034} is odd.

Required answer, the number of values of $A = \dfrac{4034+1+1}{2} = 2018$

[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 $= 4 \times 5 + \frac{1}{2}(4 \times 4) = 28 cm^2$

[Answer: 28]

Solution 71:

The required answer $= 120 \times \left(1 - \frac{1}{2}\right) \times \left(1 - \frac{1}{5}\right) \times \left(1 - \frac{1}{7}\right) = 41.14$

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 $(1p + 4p) + x\%$ of $3p = 72\%$ of $(1p + 4p + 3p) \Rightarrow x = 92$

[Option: 2]

Solution 73:

$$\log_2 4 = 2; \log_4 8 = \frac{3}{2}; \log_8 16 = \frac{4}{3}$$

$$\frac{2 \times 4 \times 8 \times 16}{(\log_2 4)^2 \times (\log_4 8)^3 \times (\log_8 16)^4} = \frac{2 \times 4 \times 8 \times 16}{(2)^2 \times (3/2)^3 \times (4/3)^4} = 24$$

[Answer: 24]

Solution 74:

Total score in $(n+2)$ innings $= 29 \times (n+2)$

The total score in n innings $= 29(n+2) - 38 - 15$

$$= 29n + 5 = 30n \Rightarrow n = 5$$

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 $0.2 < \frac{m}{20} < 0.5 \Rightarrow 4 < m < 10$

$0.2 < \dfrac{n}{11} < 0.5 \Rightarrow 2.2 < n < 5.5 \Rightarrow n = 4$

since $0.2 < \dfrac{n}{m} < 0.5$ and $n = 4, m = 9$

$m - 2n = 9 - 2 \times 4 = 1$

[Option: 3]