

CAT 2023 Slot 1

VARC

Argumentative/Persuasive(1-4)

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

Many human phenomena and characteristics – such as behaviors, beliefs, economies, genes, incomes, life expectancies, and other things – are influenced both by geographic factors and by non-geographic factors. Geographic factors mean physical and biological factors tied to geographic location, including climate, the distributions of wild plant and animal species, soils, and topography. Non-geographic factors include those factors subsumed under the term culture, other factors subsumed under the term history, and decisions by individual people. . . .

[T]he differences between the current economies of North and South Korea . . . cannot be attributed to the modest environmental differences between [them] . . . They are instead due entirely to the different [government] policies . . . At the opposite extreme, the Inuit and other traditional peoples living north of the Arctic Circle developed warm fur clothes but no agriculture, while equatorial lowland peoples around the world never developed warm fur clothes but often did develop agriculture. The explanation is straightforwardly geographic, rather than a cultural or historical quirk unrelated to geography. . . . Aboriginal Australia remained the sole continent occupied only by hunter/gatherers and with no indigenous farming or herding . . . [Here the] explanation is biogeographic: the Australian continent has no domesticable native animal species and few domesticable native plant species. Instead, the crops and domestic animals that now make Australia a food and wool exporter are all non-native (mainly Eurasian) species such as sheep, wheat, and grapes, brought to Australia by overseas colonists.

Today, no scholar would be silly enough to deny that culture, history, and individual choices play a big role in many human phenomena. Scholars don't react to cultural, historical, and individual-agent explanations by denouncing "cultural determinism," "historical determinism," or "individual determinism," and then thinking no further. But

many scholars do react to any explanation invoking some geographic role, by denouncing "geographic determinism" . . .

Several reasons may underlie this widespread but nonsensical view. One reason is that some geographic explanations advanced a century ago were racist, thereby causing all geographic explanations to become tainted by racist associations in the minds of many scholars other than geographers. But many genetic, historical, psychological, and anthropological explanations advanced a century ago were also racist, yet the validity of newer non-racist genetic etc. explanations is widely accepted today.

Another reason for reflex rejection of geographic explanations is that historians have a tradition, in their discipline, of stressing the role of contingency (a favorite word among historians) based on individual decisions and chance. Often that view is warranted . . . But often, too, that view is unwarranted. The development of warm fur clothes among the Inuit living north of the Arctic Circle was not because one influential Inuit leader persuaded other Inuit in 1783 to adopt warm fur clothes, for no good environmental reason.

A third reason is that geographic explanations usually depend on detailed technical facts of geography and other fields of scholarship . . . Most historians and economists don't acquire that detailed knowledge as part of the professional training.

MODERATE

Q1. All of the following can be inferred from the passage EXCEPT:

- A. agricultural practices changed drastically in the Australian continent after it was colonised.
- B. individual dictat and contingency were not the causal factors for the use of fur clothing in some very cold climates.
- C. while most human phenomena result from culture and individual choice, some have bio-geographic origins.
- D. several academic studies of human phenomena in the past involved racist interpretations.

Answer Key: C

MODERATE

Q2. All of the following are advanced by the author as reasons why non-geographers disregard geographic influences on human phenomena EXCEPT their:

- A. dismissal of explanations that involve geographical causes for human behaviour.
- B. belief in the central role of humans, unrelated to physical surroundings, in influencing phenomena.
- C. lingering impressions of past geographic analyses that were politically offensive.
- D. disciplinary training which typically does not include technical knowledge of geography.

Answer Key: A

HARD

Q3. The examples of the Inuit and Aboriginal Australians are offered in the passage to show:

- A. how environmental factors lead to comparatively divergent paths in livelihoods and development.
- B. human resourcefulness across cultures in adapting to their surroundings.
- C. how physical circumstances can dictate human behaviour and cultures.
- D. that despite geographical isolation, traditional societies were self-sufficient and adaptive.

Answer Key: C

HARD

Q4. The author criticises scholars who are not geographers for all of the following reasons EXCEPT:

- A. their rejection of the role of biogeographic factors in social and cultural phenomena.
- B. their outdated interpretations of past cultural and historical phenomena.
- C. their labelling of geographic explanations as deterministic.
- D. the importance they place on the role of individual decisions when studying human phenomena.

Answer Key: B

Analytical (5-8)

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

For early postcolonial literature, the world of the novel was often the nation. Postcolonial novels were usually [concerned with] national questions. Sometimes the whole story of the novel was taken as an allegory of the nation, whether India or Tanzania. This was important for supporting anti-colonial nationalism, but could also be limiting – land-focused and inward-looking.

My new book "Writing Ocean Worlds" explores another kind of world of the novel: not the village or nation, but the Indian Ocean world. The book describes a set of novels in which the Indian Ocean is at the centre of the story. It focuses on the novelists Amitav Ghosh, Abdulrazak Gurnah, Lindsey Collen and Joseph Conrad [who have] centred the Indian Ocean world in the majority of their novels. . . . Their work reveals a world that is outward-looking – full of movement, border-crossing and south-south interconnection. They are all very different – from colonially inclined (Conrad) to radically anti-capitalist (Collen), but together draw on and shape a wider sense of Indian Ocean space through themes, images, metaphors and language. This has the effect of remapping the world in the reader's mind, as centred in the interconnected global south. . . .

The Indian Ocean world is a term used to describe the very long-lasting connections among the coasts of East Africa, the Arab coasts, and South and East Asia. These connections were made possible by the geography of the Indian Ocean. For much of history, travel by sea was much easier than by land, which meant that port cities very far apart were often more easily connected to each other than to much closer inland cities. Historical and archaeological evidence suggests that what we now call globalisation first appeared in the Indian Ocean. This is the interconnected oceanic world referenced and produced by the novels in my book. . . .

For their part Ghosh, Gurnah, Collen and even Conrad reference a different set of histories and geographies than the ones most commonly found in fiction in English. Those [commonly found ones] are mostly centred in Europe or the US, assume a background of Christianity and whiteness, and mention places like Paris and New York. The novels in [my] book highlight instead a largely Islamic space, feature characters of colour and centralise the ports of Malindi, Mombasa, Aden, Java and Bombay. . . . It is a

densely imagined, richly sensory image of a southern cosmopolitan culture which provides for an enlarged sense of place in the world.

This remapping is particularly powerful for the representation of Africa. In the fiction, sailors and travellers are not all European. . . . African, as well as Indian and Arab characters, are traders, nakhodas (dhow ship captains), runaways, villains, missionaries and activists. This does not mean that Indian Ocean Africa is romanticised. Migration is often a matter of force; travel is portrayed as abandonment rather than adventure, freedoms are kept from women and slavery is rife. What it does mean is that the African part of the Indian Ocean world plays an active role in its long, rich history and therefore in that of the wider world.

MODERATE

Q5. All of the following claims contribute to the "remapping" discussed by the passage, EXCEPT:

- A. the global south, as opposed to the global north, was the first centre of globalisation.
- B. the world of early international trade and commerce was not the sole domain of white Europeans.
- C. cosmopolitanism originated in the West and travelled to the East through globalisation.
- D. Indian Ocean novels have gone beyond the specifics of national concerns to explore rich regional pasts.

Answer Key: C

MODERATE

Q6. Which one of the following statements is not true about migration in the Indian Ocean world?

- A. Geographical location rather than geographical proximity determined the choice of destination for migrants.
- B. The Indian Ocean world's migration networks were shaped by religious and commercial histories of the region.
- C. The Indian Ocean world's migration networks connected the global north with the global south.

D. Migration in the Indian Ocean world was an ambivalent experience.

Answer Key: C

MODERATE

Q7. On the basis of the nature of the relationship between the items in each pair below, choose the odd pair out:

- A. Postcolonial novels : Border-crossing
- B. Postcolonial novels : Anti-colonial nationalism
- C. Indian Ocean world : Slavery
- D. Indian Ocean novels : Outward-looking

Answer Key: A

MODERATE

Q8. All of the following statements, if true, would weaken the passage's claim about the relationship between mainstream English-language fiction and Indian Ocean novels EXCEPT:

- A. most mainstream English-language novels have historically privileged the Christian, white, male experience of travel and adventure.
- B. the depiction of Africa in most Indian Ocean novels is driven by an Orientalist imagination of its cultural crudeness.
- C. very few mainstream English-language novels have historically been set in American and European metropolitan centres.
- D. the depiction of Africa in most Indian Ocean novels is driven by a postcolonial nostalgia for an idyllic past.

Answer Key: A

ANALYTICAL (9-12)

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

[Fifty] years after its publication in English [in 1972], and just a year since [Marshall] Sahlins himself died—we may ask: why did [his essay] "Original Affluent Society" have such an impact, and how has it fared since? . . . Sahlins's principal argument was simple but counterintuitive: before being driven into marginal environments by colonial powers, hunter-gatherers, or foragers, were not engaged in a desperate struggle for meager survival. Quite the contrary, they satisfied their needs with far less work than people in agricultural and industrial societies, leaving them more time to use as they wished. Hunters, he quipped, keep bankers' hours. Refusing to maximize, many were "more concerned with games of chance than with chances of game." . . . The so-called Neolithic Revolution, rather than improving life, imposed a harsher work regime and set in motion the long history of growing inequality . . .

Moreover, foragers had other options. The contemporary Hadza of Tanzania, who had long been surrounded by farmers, knew they had alternatives and rejected them. To Sahlins, this showed that foragers are not simply examples of human diversity or victimhood but something more profound: they demonstrated that societies make real choices. Culture, a way of living oriented around a distinctive set of values, manifests a fundamental principle of collective self-determination. . . .

But the point [of the essay] is not so much the empirical validity of the data—the real interest for most readers, after all, is not in foragers either today or in the Paleolithic—but rather its conceptual challenge to contemporary economic life and bourgeois individualism. The empirical served a philosophical and political project, a thought experiment and stimulus to the imagination of possibilities.

With its title's nod toward *The Affluent Society* (1958), economist John Kenneth Galbraith's famously skeptical portrait of America's postwar prosperity and inequality, and dripping with New Left contempt for consumerism, "The Original Affluent Society" brought this critical perspective to bear on the contemporary world. It did so through the classic anthropological move of showing that radical alternatives to the readers' lives really exist. If the capitalist world seeks wealth through ever greater material production to meet infinitely expansive desires, foraging societies follow "the Zen road to affluence": not by getting more, but by wanting less. If it seems that foragers have been left behind by "progress," this is due only to the ethnocentric self-congratulation of the West. Rather than accumulate material goods, these societies are guided by other values: leisure, mobility, and above all, freedom. . . .

Viewed in today's context, of course, not every aspect of the essay has aged well. While acknowledging the violence of colonialism, racism, and dispossession, it does not thematize them as heavily as we might today. Rebuking evolutionary anthropologists for

treating present-day foragers as "left behind" by progress, it too can succumb to the temptation to use them as proxies for the Paleolithic. Yet these characteristics should not distract us from appreciating Sahlins's effort to show that if we want to conjure new possibilities, we need to learn about actually inhabitable worlds.

MODERATE

Q9. We can infer that Sahlins's main goal in writing his essay was to:

- A. highlight the fact that while we started off as a fairly contented egalitarian people, we have progressively degenerated into materialism.
- B. put forth the view that, despite egalitarian origins, economic progress brings greater inequality and social hierarchies.
- C. hold a mirror to an acquisitive society, with examples of other communities that have chosen successfully to be non-materialistic.
- D. counter Galbraith's pessimistic view of the inevitability of a capitalist trajectory for economic growth.

Answer Key: C

HARD

Q10. The author of the passage criticises Sahlins's essay for its:

- A. failure to supplement its thesis with robust empirical data.
- B. outdated values regarding present-day foragers versus ancient foraging communities.
- C. critique of anthropologists who disparage the choices of foragers in today's society.
- D. cursory treatment of the effects of racism and colonialism on societies.

Answer Key: D

MODERATE

Q11. The author mentions Tanzania's Hadza community to illustrate:

- A. how two vastly different ways of living and working were able to coexist in proximity for centuries.
- B. that forager communities' lifestyles derived not from ignorance about alternatives, but from their own choice.

C. that hunter-gatherer communities' subsistence-level techniques equipped them to survive well into contemporary times.

D. how pre-agrarian societies did not hamper the emergence of more advanced agrarian practices in contiguous communities.

Answer Key: B

MODERATE

Q12. The author of the passage mentions Galbraith's "The Affluent Society" to:

A. document the influence of Galbraith's cynical views on modern consumerism on Sahlins's analysis of pre-historic societies.

B. show how Galbraith's theories refute Sahlins's thesis on the contentment of pre-huntergatherer communities.

C. contrast the materialist nature of contemporary growth paths with the pacifist content ways of living among the foragers.

D. show how Sahlins's views complemented Galbraith's criticism of the consumerism and inequality of contemporary society

Answer Key: D

Analytical (13-16)

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

RESIDENTS of Lozère, a hilly department in southern France, recite complaints familiar to many rural corners of Europe. In remote hamlets and villages, with names such as Le Bacon and Le Bacon Vieux, mayors grumble about a lack of local schools, jobs, or phone and internet connections. Farmers of grazing animals add another concern: the return of wolves. Eradicated from France last century, the predators are gradually creeping back to more forests and hillsides. "The wolf must be taken in hand," said an aspiring parliamentarian, Francis Palombi, when pressed by voters in an election campaign early this summer. Tourists enjoy visiting a wolf park in Lozère, but farmers fret over their livestock and their livelihoods. . . .

As early as the ninth century, the royal office of the Luparii—wolf-catchers—was created in France to tackle the predators. Those official hunters (and others) completed their job in the 1930s, when the last wolf disappeared from the mainland. Active hunting and

improved technology such as rifles in the 19th century, plus the use of poison such as strychnine later on, caused the population collapse. But in the early 1990s the animals reappeared. They crossed the Alps from Italy, upsetting sheep farmers on the French side of the border. Wolves have since spread to areas such as Lozère, delighting environmentalists, who see the predators' presence as a sign of wider ecological health. Farmers, who say the wolves cause the deaths of thousands of sheep and other grazing animals, are less cheerful. They grumble that green activists and politically correct urban types have allowed the return of an old enemy.

Various factors explain the changes of the past few decades. Rural depopulation is part of the story. In Lozère, for example, farming and a once-flourishing mining industry supported a population of over 140,000 residents in the mid-19th century. Today the department has fewer than 80,000 people, many in its towns. As humans withdraw, forests are expanding. In France, between 1990 and 2015, forest cover increased by an average of 102,000 hectares each year, as more fields were given over to trees. Now, nearly one-third of mainland France is covered by woodland of some sort. The decline of hunting as a sport also means more forests fall quiet. In the mid-to-late 20th century over 2m hunters regularly spent winter weekends tramping in woodland, seeking boars, birds and other prey. Today the Fédération Nationale des Chasseurs, the national body, claims 1.1m people hold hunting licences, though the number of active hunters is probably lower. The mostly protected status of the wolf in Europe—hunting them is now forbidden, other than when occasional culls are sanctioned by the state—plus the efforts of NGOs to track and count the animals, also contribute to the recovery of wolf populations.

As the lupine population of Europe spreads westwards, with occasional reports of wolves seen closer to urban areas, expect to hear of more clashes between farmers and those who celebrate the predators' return. Farmers' losses are real, but are not the only economic story. Tourist venues, such as parks where wolves are kept and the animals' spread is discussed, also generate income and jobs in rural areas.

MODERATE

Q13. Which one of the following statements, if true, would weaken the author's claims?

- A. The old mining sites of Lozère are now being used as grazing pastures for sheep.
- B. Unemployment concerns the residents of Lozère.
- C. Wolf attacks on tourists in Lozère are on the rise.
- D. Having migrated out in the last century, wolves are now returning to Lozère

Answer Key: C

EASY

Q14. The inhabitants of Lozère have to grapple with all of the following problems, EXCEPT:

- A. decline in the number of hunting licences.
- B. livestock losses.
- C. lack of educational facilities.
- D. poor rural communication infrastructure.

Answer Key: A

EASY

Q15. Which one of the following has NOT contributed to the growing wolf population in Lozère?

- A. The granting of a protected status to wolves in Europe.
- B. An increase in woodlands and forest cover in Lozère.
- C. A decline in the rural population of Lozère.
- D. The shutting down of the royal office of the Luparii.

Answer Key: D

EASY

Q16. The author presents a possible economic solution to an existing issue facing Lozère that takes into account the divergent and competing interests of:

- A. politicians and farmers.
- B. environmentalists and politicians.
- C. farmers and environmentalists.
- D. tourists and environmentalists.

Answer Key: C

MODERATE

Q17. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide where (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: This philosophical cut at one's core beliefs, values, and way of life is difficult enough.

Paragraph: The experience of reading philosophy is often disquieting. When reading philosophy, the values around which one has heretofore organised one's life may come to look provincial, flatly wrong, or even evil. ___(1)__. When beliefs previously held as truths are rendered implausible, new beliefs, values, and ways of living may be required. ___(2)__. What's worse, philosophers admonish each other to remain unsutured until such time as a defensible new answer is revealed or constructed. Sometimes philosophical writing is even strictly critical in that it does not even attempt to provide an alternative after tearing down a cultural or conceptual citadel. ___(3)__. The reader of philosophy must be prepared for the possibility of this experience. While reading philosophy can help one clarify one's values, and even make one self-conscious for the first time of the fact that there are good reasons for believing what one believes, it can also generate unremediated doubt that is difficult to live with. ___(4)__.

- A. Option 2
- B. Option 4
- C. Option 3
- D. Option 1

Answer Key: A

MODERATE

Q18. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide where (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: The discovery helps to explain archeological similarities between the Paleolithic peoples of China, Japan, and the Americas.

Paragraph: The researchers also uncovered an unexpected genetic link between Native Americans and Japanese people. ___(1)__. During the deglaciation period,

another group branched out from northern coastal China and travelled to Japan. ____ (2) ____ . "We were surprised to find that this ancestral source also contributed to the Japanese gene pool, especially the indigenous Ainu," says Li. ____ (3) ____ . They shared similarities in how they crafted stemmed projectile points for arrowheads and spears. ____ (4) ____ . "This suggests that the Pleistocene connection among the Americas, China, and Japan was not confined to culture but also to genetics," says senior author Qing-Peng Kong, an evolutionary geneticist at the Chinese Academy of Sciences.

- A. Option 4
- B. Option 3
- C. Option 2
- D. Option 1

Answer Key: B

MODERATE

Q19. Five jumbled up sentences (labelled 1, 2, 3, 4 and 5), related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd sentence and key in the number of that sentence as your answer.

1. In English, there is no systematic rule for the naming of numbers; after ten, we have "eleven" and "twelve" and then the teens: "thirteen", "fourteen", "fifteen" and so on.
2. Even more confusingly, some English words invert the numbers they refer to: the word "fourteen" puts the four first, even though it appears last.
3. It can take children a while to learn all these words, and understand that "fourteen" is different from "forty".
4. For multiples of 10, English speakers switch to a different pattern: "twenty", "thirty", "forty" and so on.
5. If you didn't know the word for "eleven", you would be unable to just guess it – you might come up with something like "one-teen".

Answer Key: 3

HARD

Q20. Five jumbled up sentences (labelled 1, 2, 3, 4 and 5), related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd sentence and key in the number of that sentence as your answer.

1. Having an appreciation for the workings of another person's mind is considered a prerequisite for natural language acquisition, strategic social interaction, reflexive thought, and moral judgment.
2. It is a 'theory of mind' though some scholars prefer to call it 'mentalizing' or 'mindreading', which is important for the development of one's cognitive abilities.
3. Though we must speculate about its evolutionary origin, we do have indications that the capacity evolved sometime in the last few million years.
4. This capacity develops from early beginnings in the first year of life to the adult's fast and often effortless understanding of others' thoughts, feelings, and intentions.
5. One of the most fascinating human capacities is the ability to perceive and interpret other people's behaviour in terms of their mental states.

Answer Key: 2

HARD

Q21. The four sentences (labelled 1, 2, 3 and 4) given 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. Algorithms hosted on the internet are accessed by many, so biases in AI models have resulted in much larger impact, adversely affecting far larger groups of people.
2. Though "algorithmic bias" is the popular term, the foundation of such bias is not in algorithms, but in the data; algorithms are not biased, data is, as algorithms merely reflect persistent patterns that are present in the training data.
3. Despite their widespread impact, it is relatively easier to fix AI biases than human-generated biases, as it is simpler to identify the former than to try to make people unlearn behaviors learnt over generations.
4. The impact of biased decisions made by humans is localised and geographically confined, but with the advent of AI, the impact of such decisions is spread over a much wider scale.

Answer Key: 4123

HARD

Q22. The four sentences (labelled 1, 2, 3 and 4) given 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. What precisely are the “unusual elements” that make a particular case so attractive to a certain kind of audience?
- 2 . It might be a particularly savage or unfathomable level of depravity, very often it has something to do with the precise amount of mystery involved.
3. Unsolved, and perhaps unsolvable cases offer something that “ordinary” murder doesn’t.
4. Why are some crimes destined for perpetual re-examination and others locked into permanent obscurity?

Answer Key: 4123

EASY

Q23. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Manipulating information was a feature of history long before modern journalism established rules of integrity. A record dates back to ancient Rome, when Antony met Cleopatra and his political enemy Octavian launched a smear campaign against him with “short, sharp slogans written upon coins.” The perpetrator became the first Roman Emperor and “fake news had allowed Octavian to hack the republican system once and for all”. But the 21st century has seen the weaponization of information on an unprecedented scale. Powerful new technology makes the fabrication of content simple, and social networks amplify falsehoods peddled by States, populist politicians, and dishonest corporate entities. The platforms have become fertile ground for computational propaganda, ‘trolling’ and ‘troll armies’.

- A. Disinformation, which is mediated by technology today, is not new and has existed since ancient times.
- B. Octavian used fake news to manipulate people and attain power and influence, just as people do today.

C. Use of misinformation for attaining power, a practice that is as old as the Octavian era, is currently fueled by technology.

D. People need to become critical of what they read, since historically, weaponization of information has led to corruption.

Answer Key: C

EASY

Q24. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Colonialism is not a modern phenomenon. World history is full of examples of one society gradually expanding by incorporating adjacent territory and settling its people on newly conquered territory. In the sixteenth century, colonialism changed decisively because of technological developments in navigation that began to connect more remote parts of the world. The modern European colonial project emerged when it became possible to move large numbers of people across the ocean and to maintain political control in spite of geographical dispersion. The term colonialism is used to describe the process of European settlement, violent dispossession and political domination over the rest of the world, including the Americas, Australia, and parts of Africa and Asia.

A. As a result of developments in navigation technology, European colonialism, led to the displacement of indigenous populations and global political changes in the 16th century.

B. Colonialism surged in the 16th century due to advancements in navigation, enabling British settlements abroad and global dominance.

C. Technological advancements in navigation in the 16th century, transformed colonialism, enabling Europeans to establish settlements and exert political dominance over distant regions.

D. Colonialism, conceptualized in the 16th century, allowed colonizers to expand their territories, establish settlements, and exercise political power.

Answer Key: C

CAT 2023 Slot 1

LRDI

SET 1. Read the information given below and answer the question that follows:

Faculty members in a management school can belong to one of four departments – Finance and Accounting (F&A), Marketing and Strategy (M&S), Operations and Quants (O&Q) and Behaviour and Human Resources (B&H). The numbers of faculty members in F&A, M&S, O&Q and B&H departments are 9, 7, 5 and 3 respectively.

Prof. Pakrasi, Prof. Qureshi, Prof. Ramaswamy and Prof. Samuel are four members of the school's faculty who were candidates for the post of the Dean of the school. Only one of the candidates was from O&Q.

Every faculty member, including the four candidates, voted for the post. In each department, all the faculty members who were not candidates voted for the same candidate. The rules for the election are listed below.

1. There cannot be more than two candidates from a single department.
2. A candidate cannot vote for himself/herself.
3. Faculty members cannot vote for a candidate from their own department.

After the election, it was observed that Prof. Pakrasi received 3 votes, Prof. Qureshi received 14 votes, Prof. Ramaswamy received 6 votes and Prof. Samuel received 1 vote. Prof. Pakrasi voted for Prof. Ramaswamy, Prof. Qureshi for Prof. Samuel, Prof. Ramaswamy for Prof. Qureshi and Prof. Samuel for Prof. Pakrasi.

Q1. Which two candidates can belong to the same department?

- A. Prof. Pakrasi and Prof. Qureshi
- B. Prof. Pakrasi and Prof. Samuel
- C. Prof. Ramaswamy and Prof. Samuel
- D. Prof. Qureshi and Prof. Ramaswamy

Answer Key: A

Q2. Which of the following can be the number of votes that Prof. Qureshi received from a single department?

- A. 9
- B. 7
- C. 8
- D. 6

Answer Key: A

Q3. If Prof. Samuel belongs to B&H, which of the following statements is/are true?

Statement A: Prof. Pakrasi belongs to M&S.

Statement B: Prof. Ramaswamy belongs to O&Q.

- A. Only statement A
- B. Both statements A and B
- C. Neither statement A nor statement B
- D. Only statement B

Answer Key: B

Q4. What best can be concluded about the candidate from O&Q?

- A. It was either Prof. Ramaswamy or Prof. Samuel.
- B. It was Prof. Samuel.
- C. It was either Prof. Pakrasi or Prof. Qureshi.
- D. It was Prof. Ramaswamy.

Answer Key: A

Q5. Which of the following statements is/are true?

Statement A: Non-candidates from M&S voted for Prof. Qureshi.

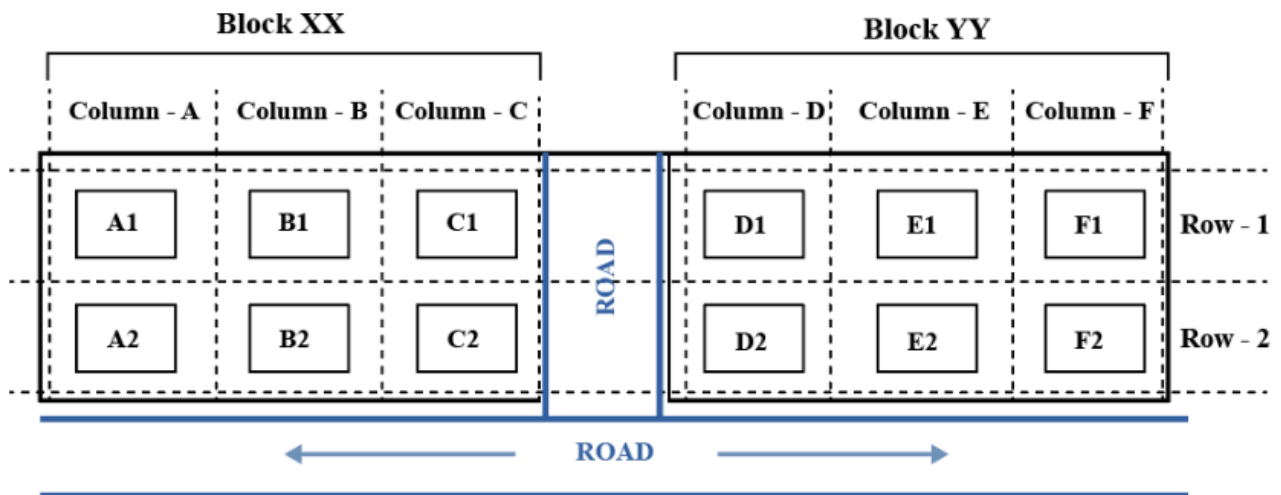
Statement B: Non-candidates from F&A voted for Prof. Qureshi.

- A. Neither statement A nor statement B
- B. Only statement B
- C. Both statements A and B
- D. Only statement A

Answer Key: B

SET 2. Read the information given below and answer the question that follows:

The schematic diagram below shows 12 rectangular houses in a housing complex. House numbers are mentioned in the rectangles representing the houses. The houses are located in six columns – Column-A through Column-F, and two rows – Row-1 and Row-2. The houses are divided into two blocks - Block XX and Block YY. The diagram also shows two roads, one passing in front of the houses in Row-2 and another between the two blocks.



Some of the houses are occupied. The remaining ones are vacant and are the only ones available for sale.

The road adjacency value of a house is the number of its sides adjacent to a road. For example, the road adjacency values of C2, F2, and B1 are 2, 1, and 0, respectively. The neighbour count of a house is the number of sides of that house adjacent to occupied houses in the same block. For example, E1 and C1 can have the maximum possible neighbour counts of 3 and 2, respectively.

The base price of a vacant house is Rs. 10 lakhs if the house does not have a parking space, and Rs. 12 lakhs if it does. The quoted price (in lakhs of Rs.) of a vacant house is calculated as (base price) + 5 × (road adjacency value) + 3 × (neighbour count).

The following information is also known.

1. The maximum quoted price of a house in Block XX is Rs. 24 lakhs. The minimum quoted price of a house in block YY is Rs. 15 lakhs, and one such house is in Column-E.
2. Row-1 has two occupied houses, one in each block.
3. Both houses in Column-E are vacant. Each of Column-D and Column-F has at least one occupied house.
4. There is only one house with parking space in Block YY.

Q6. How many houses are vacant in Block XX? (TITA)

Answer Key: 3

Q7. Which of the following houses is definitely occupied?

- A. A1 and D2
- B. F2 and A2
- C. D2 and B2
- D. B1 and D2

Answer Key: D

Q8. Which of the following options best describes the number of vacant houses in Row-2?

- A. Exactly 2
- B. Either 3 or 4
- C. Either 2 or 3
- D. Exactly 3

Answer Key: C

Q9. What is the maximum possible quoted price (in lakhs of Rs.) for a vacant house in Column-E? (TITA)

Answer Key: 21

Q10. Which house in Block YY has parking space?

- A. E2
- B. F1
- C. F2
- D. E1

Answer Key: D

SET 3. Read the information given below and answer the question that follows:

A visa processing office (VPO) accepts visa applications in four categories – US, UK, Schengen, and Others. The applications are scheduled for processing in twenty 15-minute slots starting at 9:00 am and ending at 2:00 pm. Ten applications are scheduled in each slot.

There are ten counters in the office, four dedicated to US applications, and two each for UK applications, Schengen applications and Others applications. Applicants are called in for processing sequentially on a first-come-first-served basis whenever a counter gets freed for their category. The processing time for an application is the same within each category. But it may vary across the categories. Each US and UK application requires 10 minutes of processing time. Depending on the number of applications in a category and time required to process an application for that category, it is possible that an applicant for a slot may be processed later.

On a particular day, Ira, Vijay and Nandini were scheduled for Schengen visa processing in that order. They had a 9:15 am slot but entered the VPO at 9:20 am. When they entered the office, exactly six out of the ten counters were either processing applications, or had finished processing one and ready to start processing the next.

Mahira and Osman were scheduled in the 9:30 am slot on that day for visa processing in the Others category.

The following additional information is known about that day.

1. All slots were full.
2. The number of US applications was the same in all the slots. The same was true for the other three categories.
3. 50% of the applications were US applications.
4. All applicants except Ira, Vijay and Nandini arrived on time.
5. Vijay was called to a counter at 9:25 am

Q11. How many UK applications were scheduled on that day? (TITA)

Answer Key: 0

Q12. What is the maximum possible value of the total time (in minutes, nearest to its integer value) required to process all applications in the Others category on that day? (TITA)

Answer Key: 200

Q13. Which of the following is the closest to the time when Nandini's application process got over?

- A. 9:35 am
- B. 9:45 am
- C. 9:50 am
- D. 9:37 am

Answer Key: B

Q14. Which of the following statements is false?

- A. The application process of Mahira started after Nandini's.
- B. The application process of Mahira was completed before Nandini's.
- C. The application process of Osman was completed before 9:45 am.
- D. The application process of Osman was completed before Vijay's.

Answer Key: A

Q15. When did the application processing for all US applicants get over on that day?

- A. 2:25 pm
- B. 2:00 pm
- C. 2:05 pm
- D. 3:40 pm

Answer Key: C

SET 4. Read the information given below and answer the question that follows:

Five restaurants, coded R1, R2, R3, R4 and R5 gave integer ratings to five gig workers – Ullas, Vasu, Waman, Xavier and Yusuf, on a scale of 1 to 5.

The means of the ratings given by R1, R2, R3, R4 and R5 were 3.4, 2.2, 3.8, 2.8 and 3.4 respectively.

The summary statistics of these ratings for the five workers is given below.

	Ullas	Vasu	Waman	Xavier	Yusuf
Mean rating	2.2	3.8	3.4	3.6	2.6
Median rating	2	4	4	4	3
Modal rating	2	4	5	5	1 and 4
Range of rating*	3	3	4	4	3

* Range of ratings is defined as the difference between the maximum and minimum ratings awarded to a worker.

The following is partial information about ratings of 1 and 5 awarded by the restaurants to the workers.

(a) R1 awarded a rating of 5 to Waman, as did R2 to Xavier, R3 to Waman and Xavier, and R5 to Vasu.

(b) R1 awarded a rating of 1 to Ullas, as did R2 to Waman and Yusuf, and R3 to Yusuf.

Q16. How many individual ratings cannot be determined from the above information? (TITA)

Answer Key: 0

Q17. To how many workers did R2 give a rating of 4? (TITA)

Answer Key: 0

Q18. What rating did R1 give to Xavier? (TITA)

Answer Key: 3

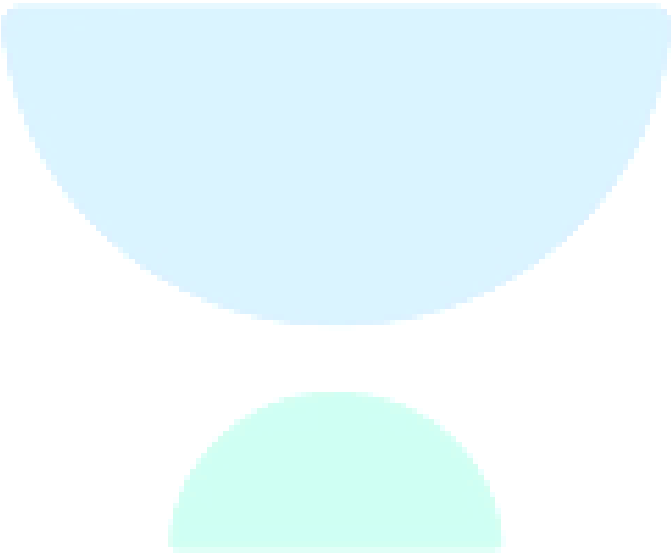
Q19. What is the median of the ratings given by R3 to the five workers? (TITA)

Answer Key: 4

Q20. Which among the following restaurants gave its median rating to exactly one of the workers?

- A. R2
- B. R3
- C. R5
- D. R4

Answer Key: D



CAT 2023 Slot 1

QUANT

Topic: Arithmetic

Subtopic: Compound Interest and Simple Interest (Successive Investment Comparison)

Question Type: Numerical Based

Level of Difficulty: Moderate

Q1. Anil invests Rs. 22000 for 6 years in a certain scheme with 4% interest per annum, compounded half-yearly. Sunil invests in the same scheme for 5 years, and then reinvests the entire amount received at the end of 5 years for one year at 10% simple interest. If the amounts received by both at the end of 6 years are same, then the initial investment made by Sunil, in rupees, is (TITA)

Answer Key: 20808

Topic: Arithmetic

Subtopic: Compound Interest and Simple Interest (Successive Investment Comparison)

Question Type: Numerical Based

Level of Difficulty: Moderate

Q2. Gita sells two objects A and B at the same price such that she makes a profit of 20% on object A and a loss of 10% on object B. If she increases the selling price such that objects A and B are still sold at an equal price and a profit of 10% is made on object B, then the profit made on object A will be nearest to

- A. 45%
- B. 49%
- C. 42%
- D. 47%

Answer Key: D

Topic: Arithmetic

Subtopic: Ratio and Percentage (Successive Salary Increments)

Question Type: Numerical Based

Level of Difficulty: Moderate

Q3. The salaries of three friends Sita, Gita and Mita are initially in the ratio 5: 6:7, respectively. In the first year, they get salary hikes of 20%, 25% and 20%, respectively. In the second year, Sita and Mita get salary hikes of 40% and 25%, respectively, and the salary of Gita becomes equal to the mean salary of the three friends. The salary hike of Gita in the second year is

A.26%

B.28%

C. 30%

D.25%

Answer Key: A

Topic: Arithmetic

Subtopic: Mixtures and Replacement

Question Type: Concept-Based

Level of Difficulty: Moderate

Q4. A mixture P is formed by removing a certain amount of coffee from a coffee jar and replacing the same amount with cocoa powder. The same amount is again removed from mixture P and replaced with same amount of cocoa powder to form a new mixture Q. If the ratio of coffee and cocoa in the mixture Q is 16 : 9, then the ratio of cocoa in mixture P to that in mixture Q is

A. 4:9

B. 1:3

C. 1:2

D. 5:9

Answer Key: D

Topic: Arithmetic

Subtopic: Averages with Constraints (Integer Possibilities)

Question Type: Numerical Based

Level of Difficulty: Difficult

Q5. In an examination, the average marks of 4 girls and 6 boys is 24. Each of the girls has the same marks while each of the boys has the same marks. If the marks of any girl is at most double the marks of any boy, but not less than the marks of any boy, then the number of possible distinct integer values of the total marks of 2 girls and 6 boys is

- A.19
- B.20
- C.21
- D.22

Answer Key: C

Topic: Algebra

Subtopic: Linear Equations and Simplification

Question Type: Concept-Based

Level of Difficulty: Easy

Q6. The amount of job that Amal, Sunil and Kamal can individually do in a day, are in harmonic progression. Kamal takes twice as much time as Amal to do the same amount of job. If Amal and Sunil work for 4 days and 9 days, respectively, Kamal needs to work for 16 days to finish the remaining job. Then the number of days Sunil will take to finish the job working alone, is (TITA)

Answer Key: 27

Topic: Arithmetic

Subtopic: Time, Speed and Distance (Average Speed with Constraints)

Question Type: Numerical Based

Level of Difficulty: Difficult

Q7. Brishti went on an 8-hour trip in a car. Before the trip, the car had travelled a total of x km till then, where x is a whole number and is palindromic, i.e., x remains unchanged when its digits are reversed. At the end of the trip, the car had travelled a total of 26862 km till then, this number again being palindromic. If Brishti never drove at more than 110 km/h, then the greatest possible average speed at which she drove during the trip, in km/h, was

- A. 90
- B. 100

- C. 80
- D. 110

Answer key : B

Topic: Arithmetic
Subtopic: Relative Speed (Meeting Point Property)
Question Type: Concept-Based
Level of Difficulty: Moderate

Q8. Arvind travels from town A to town B, and Surbhi from town B to town A, both starting at the same time along the same route. After meeting each other, Arvind takes 6 hours to reach town B while Surbhi takes 24 hours to reach town A. If Arvind travelled at a speed of 54 km/h, then the distance, in km, between town A and town B is (TITA)

Answer key : 972

Topic: Algebra
Subtopic: Linear Equations and Simplification
Question Type: Concept-Based
Level of Difficulty: Easy

Q9. If $\sqrt{(5x + 9)} + \sqrt{(5x - 9)} = 3(2 + \sqrt{2})$ then $\sqrt{(10x + 9)}$ is equal to

- A. $3\sqrt{31}$
- B. $4\sqrt{5}$
- C. $2\sqrt{7}$
- D. $3\sqrt{7}$

Answer Key:D

Topic: Algebra
Subtopic: Algebraic Identities and Simplification
Question Type: Concept-Based
Level of Difficulty: Moderate

Q10. If x and y are real numbers such that $x^2 + (x - 2y - 1)^2 = -4y(x + y)$, then the value $x - 2y$ is?

- A. 2
- B. -1
- C. 0
- D. 1

Answer Key: D

Topic: Algebra

Subtopic: Cubic Equations and Nature of Roots

Question Type: Concept-Based

Level of Difficulty: Moderate

Q11. The equation $x^3 + (2r + 1)x^2 + (4r - 1)x + 2 = 0$ has - 2 as one of the roots. If the other two roots are real, then the minimum possible non-negative integer value of r is (TITA)

Answer Key: 2

Topic: Algebra

Subtopic: Quadratic Equations and Relation Between Roots

Question Type: Concept-Based

Level of Difficulty: Moderate

Q12. Let α and β be the two distinct roots of the equation $2x^2 - 6x + k = 0$, such that $(\alpha + \beta)$ and $\alpha\beta$ are the distinct roots of the equation $x^2 + px + p = 0$. Then, the value of $8(k - p)$ is (TITA)

Answer Key: 6

Topic: Algebra

Subtopic: Logarithms and Exponential Relations

Question Type: Concept-Based

Level of Difficulty: Moderate

Q13. If x and y are positive real numbers such that $\log_x(x^2 + 12) = 4$ and $3\log_y x = 1$, then x+y equals

- A. 20
- B. 68

- C. 11
- D. 10

Answer Key: D

Topic: Algebra

Subtopic: Polynomial Equations (Integer Solutions)

Question Type: Numerical Based

Level of Difficulty: Easy

Q14. The number of integer solutions of equation $2|x|(x^2 + 1) = 5x^2$ is (TITA)

Answer Key: 3

Topic: Algebra

Subtopic: Means and Sequences (Arithmetic Progression Relation)

Question Type: Concept-Based

Level of Difficulty: Moderate

Q15. For some positive and distinct real numbers x, y and z , if $\frac{1}{\sqrt{y} + \sqrt{z}}$ is the arithmetic mean of $\frac{1}{\sqrt{x} + \sqrt{z}}$ and $\frac{1}{\sqrt{x} + \sqrt{y}}$, then the relationship which will always hold true, is

- A. \sqrt{x} , \sqrt{z} and \sqrt{y} are in arithmetic progression
- B. \sqrt{x} , \sqrt{y} and \sqrt{z} are in arithmetic progression
- C. y , x and z are in arithmetic progression
- D. x , y and z are in arithmetic progression

Answer key : C

Topic: Modern Mathematics

Subtopic: Recurrence Relations / Sequences and Series

Question Type: Numerical Based

Level of Difficulty: Moderate

Q16. A lab experiment measures the number of organisms at 8 am every day. Starting with 2 organisms on the first day, the number of organisms on any day is equal to 3 more than twice the number on the previous day. If the number of

organisms on the n^{th} day exceeds one million, then the lowest possible value of n is (TITA)

Answer key : 19

Topic: Number System

Subtopic: Prime Factorization and Divisibility

Question Type: Concept-Based

Level of Difficulty: Moderate

Q17. Let n be the least positive integer such that 168 is a factor of 1134^n . If m is the least positive integer such that 1134^n is a factor of 168^m , then $m+n$ equals

- A.9
- B.15
- C.24
- D.12

Answer key : B

Topic: Geometry

Subtopic: Triangle Areas and Arithmetic Progression

Question Type: Concept-Based

Level of Difficulty: Moderate

Q18. In a right-angled triangle $\triangle ABC$, the altitude AB is 5 cm, and the base BC is 12 cm. P and Q are two points on BC such that the areas of $\triangle ABP$, $\triangle ABQ$ and $\triangle ABC$ are in arithmetic progression. If the area of $\triangle ABC$ is 1.5 times the area of $\triangle ABP$, the length of PQ , in cm, is (TITA)

Answer Key: 2

Topic: Geometry

Subtopic: Triangle Areas and Arithmetic Progression

Question Type: Concept-Based

Level of Difficulty: Moderate

Q19. A quadrilateral $ABCD$ is inscribed in a circle such that $AB:CD = 2:1$ and $BC:AD = 5:4$. If AC and BD intersect at the point E , then $AE:CE$ equals

- A. 8:5
- B. 5:8
- C. 1:2
- D. 2:1

Answer Key: A

Topic: Modern Mathematics

Subtopic: Clock Angle Problems

Question Type: Numerical Based

Level of Difficulty: Moderate

Q20. The minor angle between the hours hand and minutes hand of a clock was observed at 8:48 am. The minimum duration, in minutes, after 8.48 am when this angle increases by 50% is

- A. 4
- B. 36/11
- C. 2
- D. 24/11

Answer Key: D

Topic: Geometry

Subtopic: Circle Geometry (Locus and Pair of Tangents)

Question Type: Concept-Based

Level of Difficulty: Difficult

Q21. Let C be the circle $x^2 + y^2 + 4x - 6y - 3 = 0$ and L be the locus of the point of intersection of a pair of tangents to C with the angle between the two tangents equal to 60° . Then, the point at which L touches the line $x = 6$ is

- A. (6,8)
- B. (6,4)
- C. (6,3)
- D. (6,6)

Answer Key: C

Topic: Modern Mathematics

Subtopic: Permutations and Counting (Numbers with Non-Repeating Digits)

Question Type: Concept-Based

Level of Difficulty: Easy

Q22. The number of all natural numbers up to 1000 with non-repeating digits is

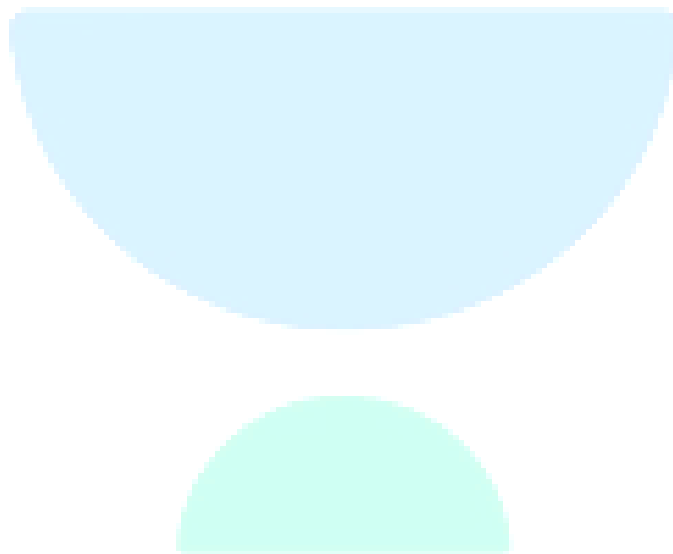
A. 585

B. 504

C. 648

D. 738

Answer Key: D



CAT 2022 Slot 2

VARC

DESCRIPTIVE (1-4)

The passage below is accompanied by a set of questions. Choose the best answer to each question.

[Octopuses are] misfits in their own extended families . . . They belong to the Mollusca class Cephalopoda. But they don't look like their cousins at all. Other molluscs include sea snails, sea slugs, bivalves - most are shelled invertebrates with a dorsal foot. Cephalopods are all arms, and can be as tiny as 1 centimetre and as large at 30 feet. Some of them have brains the size of a walnut, which is large for an invertebrate. . . .

It makes sense for these molluscs to have added protection in the form of a higher cognition; they don't have a shell covering them, and pretty much everything feeds on cephalopods, including humans. But how did cephalopods manage to secure their own invisibility cloak? Cephalopods fire from multiple cylinders to achieve this in varying degrees from species to species. There are four main catalysts - chromatophores, iridophores, papillae and leucophores. . . .

[Chromatophores] are organs on their bodies that contain pigment sacs, which have red, yellow and brown pigment granules. These sacs have a network of radial muscles, meaning muscles arranged in a circle radiating outwards. These are connected to the brain by a nerve. When the cephalopod wants to change colour, the brain carries an electrical impulse through the nerve to the muscles that expand outwards, pulling open the sacs to display the colours on the skin. Why these three colours? Because these are the colours the light reflects at the depths they live in (the rest is absorbed before it reaches those depths). . . .

Well, what about other colours? Cue the iridophores. Think of a second level of skin that has thin stacks of cells. These can reflect light back at different wavelengths. . . . It's using the same properties that we've seen in hologram stickers, or rainbows on puddles of oil. You move your head and you see a different colour. The sticker isn't doing anything but reflecting light - it's your movement that's changing the appearance of the

colour. This property of holograms, oil and other such surfaces is called "iridescence". . .

Papillae are sections of the skin that can be deformed to make a texture bumpy. Even humans possess them (goosebumps) but cannot use them in the manner that cephalopods can. For instance, the use of these cells is how an octopus can wrap itself over a rock and appear jagged or how a squid or cuttlefish can imitate the look of a coral reef by growing miniature towers on its skin. It actually matches the texture of the substrate it chooses.

Finally, the leucophores: According to a paper, published in Nature, cuttlefish and octopuses possess an additional type of reflector cell called a leucophore. They are cells that scatter full spectrum light so that they appear white in a similar way that a polar bear's fur appears white. Leucophores will also reflect any filtered light shown on them . . . If the water appears blue at a certain depth, the octopuses and cuttlefish can appear blue; if the water appears green, they appear green, and so on and so forth.

MODERATE

Q1. All of the following are reasons for octopuses being "misfits" EXCEPT that they:

- A. have several arms.
- B. are consumed by humans and other animals.
- C. do not possess an outer protective shell.
- D. exhibit higher intelligence than other molluscs.

Answer Key: B

HARD

Q2. Based on the passage, we can infer that all of the following statements, if true, would weaken the camouflaging adeptness of Cephalopods EXCEPT:

- A. The hydrostatic pressure at the depths at which Cephalopods reside renders radial muscle movements difficult.
- B. The temperature of water at the depths at which Cephalopods reside renders the transmission of neural signals difficult.
- C. Light reflects the colours red, green, and yellow at the depths at which Cephalopods reside.

D. The number of chromatophores in Cephalopods is half the number of iridophores and leucophores.

Answer Key: D

EASY

Q3. Based on the passage, it can be inferred that camouflaging techniques in an octopus are most dissimilar to those in:

- A. polar bears
- B. sea snails
- C. squids
- D. cuttlefish

Answer Key: B

EASY

Q4. Which one of the following statements is not true about the camouflaging ability of Cephalopods?

- A. Cephalopods can take on the colour of their predator.
- B. Cephalopods can blend into the colour of their surroundings.
- C. Cephalopods can change their colour.
- D. Cephalopods can change their texture.

Answer Key: A

Argumentative/Persuasive (5-8)

The passage below is accompanied by a set of questions. Choose the best answer to each question.

When we teach engineering problems now, we ask students to come to a single "best" solution defined by technical ideals like low cost, speed to build, and ability to scale. This way of teaching primes students to believe that their decision-making is purely objective, as it is grounded in math and science. This is known as technical-social dualism, the idea that the technical and social dimensions of engineering problems are

readily separable and remain distinct throughout the problem-definition and solution process.

Nontechnical parameters such as access to a technology, cultural relevancy or potential harms are deemed political and invalid in this way of learning. But those technical ideals are at their core social and political choices determined by a dominant culture focused on economic growth for the most privileged segments of society. By choosing to downplay public welfare as a critical parameter for engineering design, we risk creating a culture of disengagement from societal concerns amongst engineers that is antithetical to the ethical code of engineering.

In my field of medical devices, ignoring social dimensions has real consequences. . . . Most FDA-approved drugs are incorrectly dosed for people assigned female at birth, leading to unexpected adverse reactions. This is because they have been inadequately represented in clinical trials.

Beyond physical failings, subjective beliefs treated as facts by those in decision-making roles can encode social inequities. For example, spirometers, routinely used devices that measure lung capacity, still have correction factors that automatically assume smaller lung capacity in Black and Asian individuals. These racially based adjustments are derived from research done by eugenicists who thought these racial differences were biologically determined and who considered nonwhite people as inferior. These machines ignore the influence of social and environmental factors on lung capacity.

Many technologies for systemically marginalized people have not been built because they were not deemed important such as better early diagnostics and treatment for diseases like endometriosis, a disease that afflicts 10 percent of people with uteruses. And we hardly question whether devices are built sustainably, which has led to a crisis of medical waste and health care accounting for 10 percent of U.S. greenhouse gas emissions.

Social justice must be made core to the way engineers are trained. Some universities are working on this. . . . Engineers taught this way will be prepared to think critically about what problems we choose to solve, how we do so responsibly and how we build teams that challenge our ways of thinking.

Individual engineering professors are also working to embed societal needs in their pedagogy. Darshan Karwat at the University of Arizona developed activist engineering to challenge engineers to acknowledge their full moral and social responsibility through practical self-reflection. Khalid Kadir at the University of California, Berkeley, created the

popular course Engineering, Environment, and Society that teaches engineers how to engage in place-based knowledge, an understanding of the people, context and history, to design better technical approaches in collaboration with communities. When we design and build with equity and justice in mind, we craft better solutions that respond to the complexities of entrenched systemic problems.

MODERATE

Q5. In this passage, the author is making the claim that:

- A. technical-social dualism has emerged as a technique for engineering students to incorporate social considerations into their technical problem-solving processes.
- B. the objective of best solutions in engineering has shifted the focus of pedagogy from humanism and social obligations to technological perfection.
- C. engineering students today are trained to be non-subjective in their reasoning as this best enables them to develop much-needed universal solutions.
- D. engineering students today are taught to focus on objective technical outcomes, independent of the social dimensions of their work.

Answer Key: D

MODERATE

Q6. The author gives all of the following reasons for why marginalised people are systematically discriminated against in technology-related interventions EXCEPT:

- A. "And we hardly question whether devices are built sustainably, which has led to a crisis of medical waste and health care accounting for 10 percent of U.S. greenhouse gas emissions."
- B. "These racially based adjustments are derived from research done by eugenicists who thought these racial differences were biologically determined and who considered nonwhite people as inferior."
- C. "Beyond physical failings, subjective beliefs treated as facts by those in decision-making roles can encode social inequities."
- D. "But those technical ideals are at their core social and political choices determined by a dominant culture focused on economic growth for the most privileged segments of society."

Answer Key: A

MODERATE

Q7. All of the following are examples of the negative outcomes of focusing on technical ideals in the medical sphere EXCEPT the:

- A. incorrect assignment of people as female at birth which has resulted in faulty drug interventions.
- B. exclusion of non-privileged groups in clinical trials which leads to incorrect drug dosages.
- C. neglect of research and development of medical technologies for the diagnosis and treatment of diseases that typically afflict marginalised communities.
- D. continuing calibration of medical devices based on past racial biases that have remained unadjusted for changes.

Answer Key: A

HARD

Q8. We can infer that the author would approve of a more evolved engineering pedagogy that includes all of the following EXCEPT:

- A. moving towards technical-social dualism where social community needs are incorporated in problem-definition and solutions.
- B. making considerations of environmental sustainability intrinsic to the development of technological solutions.
- C. design that is based on the needs of communities using local knowledge and responding to local priorities.
- D. a more responsible approach to technical design and problem-solving than a focus on speed in developing and bringing to scale.

Answer Key: A

Abstract (9-12)

The passage below is accompanied by a set of questions. Choose the best answer to each question.

We begin with the emergence of the philosophy of the social sciences as an arena of thought and as a set of social institutions. The two characterisations overlap but are not congruent. Academic disciplines are social institutions. . . . My view is that institutions are all those social entities that organise action: they link acting individuals into social

structures. There are various kinds of institutions. Hegelians and Marxists emphasise universal institutions such as the family, rituals, governance, economy and the military. These are mostly institutions that just grew. Perhaps in some imaginary beginning of time they spontaneously appeared. In their present incarnations, however, they are very much the product of conscious attempts to mould and plan them. We have family law, established and disestablished churches, constitutions and laws, including those governing the economy and the military. Institutions deriving from statute, like joint-stock companies are formal by contrast with informal ones such as friendships. There are some institutions that come in both informal and formal variants, as well as in mixed ones. Consider the fact that the stock exchange and the black market are both market institutions, one formal one not. Consider further that there are many features of the work of the stock exchange that rely on informal, noncodifiable agreements, not least the language used for communication. To be precise, mixtures are the norm . . . From constitutions at the top to by-laws near the bottom we are always adding to, or tinkering with, earlier institutions, the grown and the designed are intertwined.

It is usual in social thought to treat culture and tradition as different from, although alongside, institutions. The view taken here is different. Culture and tradition are sub-sets of institutions analytically isolated for explanatory or expository purposes. Some social scientists have taken all institutions, even purely local ones, to be entities that satisfy basic human needs - under local conditions . . . Others differed and declared any structure of reciprocal roles and norms an institution. Most of these differences are differences of emphasis rather than disagreements. Let us straddle all these versions and present institutions very generally . . . as structures that serve to coordinate the actions of individuals. . . . Institutions themselves then have no aims or purpose other than those given to them by actors or used by actors to explain them . . .

Language is the formative institution for social life and for science . . . Both formal and informal language is involved, naturally grown or designed. (Language is all of these to varying degrees.) Languages are paradigms of institutions or, from another perspective, nested sets of institutions. Syntax, semantics, lexicon and alphabet/character-set are all institutions within the larger institutional framework of a written language. Natural languages are typical examples of what Ferguson called 'the result of human action, but not the execution of any human design'[:] reformed natural languages and artificial languages introduce design into their modifications or refinements of natural language. Above all, languages are paradigms of institutional tools that function to coordinate.

MODERATE

Q9. "Consider the fact that the stock exchange and the black market are both market institutions, one formal one not." Which one of the following statements best explains this quote, in the context of the passage?

- A. The stock exchange and the black market are both organised to function by rules.
- B. Market instruments can be formally traded in the stock exchange and informally traded in the black market.
- C. The stock exchange and the black market are both dependent on the market to survive.
- D. The stock exchange and the black market are examples of how, even within the same domain, different kinds of institutions can co-exist.

Answer Key: D

MODERATE

Q10. All of the following inferences from the passage are false, EXCEPT:

- A. "natural language" refers to that stage of language development where no conscious human intent is evident in the formation of language.
- B. the institution of friendship cannot be found in the institution of joint-stock companies because the first is an informal institution, while the second is a formal one.
- C. as concepts, "culture" and "tradition" have no analytical, explanatory or expository power, especially when they are treated in isolation.
- D. institutions like the family, rituals, governance, economy, and the military are natural and cannot be consciously modified.

Answer Key: A

MODERATE

Q11. Which of the following statements best represents the essence of the passage?

- A. Institutions are structures that serve to coordinate the actions of individuals.
- B. It is usual in social thought to treat culture and tradition as different from institutions.
- C. Language is the fundamental formal institution for social life and for science.
- D. The stock exchange and the black market are both market institutions.

Answer Key: A

HARD

Q12. In the first paragraph of the passage, what are the two "characterisations" that are seen as overlapping but not congruent?

- A. "the philosophy of the social sciences" and "a set of social institutions".
- B. "academic disciplines" and "institutions".
- C. "an arena of thought" and "academic disciplines".
- D. "individuals" and "social structures".

Answer Key: B

Analytical (13-16)

The passage below is accompanied by a set of questions. Choose the best answer to each question.

Humans today make music. Think beyond all the qualifications that might trail after this bald statement: that only certain humans make music, that extensive training is involved, that many societies distinguish musical specialists from nonmusicians, that in today's societies most listen to music rather than making it, and so forth. These qualifications, whatever their local merit, are moot in the face of the overarching truth that making music, considered from a cognitive and psychological vantage, is the province of all those who perceive and experience what is made. We are, almost all of us, musicians - everyone who can entrain (not necessarily dance) to a beat, who can recognize a repeated tune (not necessarily sing it), who can distinguish one instrument or one singing voice from another. I will often use an antique word, recently revived, to name this broader musical experience. Humans are musicking creatures. . . .

The set of capacities that enables musicking is a principal marker of modern humanity. There is nothing polemical in this assertion except a certain insistence, which will figure often in what follows, that musicking be included in our thinking about fundamental human commonalities. Capacities involved in musicking are many and take shape in complicated ways, arising from innate dispositions . . . Most of these capacities overlap with nonmusical ones, though a few may be distinct and dedicated to musical perception and production. In the area of overlap, linguistic capacities seem to be particularly important, and humans are (in principle) language-makers in addition to music-makers - speaking creatures as well as musicking ones.

Humans are symbol-makers too, a feature tightly bound up with language, not so tightly with music. The species Cassirer dubbed *Homo symbolicus* cannot help but tangle musicking in webs of symbolic thought and expression, habitually making it a component of behavioral complexes that form such expression. But in fundamental features musicking is neither language-like nor symbol-like, and from these differences come many clues to its ancient emergence.

If musicking is a primary, shared trait of modern humans, then to describe its emergence must be to detail the coalescing of that modernity. This took place, archaeologists are clear, over a very long *durée*: at least 50,000 years or so, more likely something closer to 200,000, depending in part on what that coalescence is taken to comprise. If we look back 20,000 years, a small portion of this long period, we reach the lives of humans whose musical capacities were probably little different from our own. As we look farther back we reach horizons where this similarity can no longer hold - perhaps 40,000 years ago, perhaps 70,000, perhaps 100,000. But we never cross a line before which all the cognitive capacities recruited in modern musicking abruptly disappear. Unless we embrace the incredible notion that music sprang forth in full-blown glory, its emergence will have to be tracked in gradualist terms across a long period.

This is one general feature of a history of music's emergence . . . The history was at once sociocultural and biological . . . The capacities recruited in musicking are many, so describing its emergence involves following several or many separate strands.

MODERATE

Q13. Which one of the following sets of terms best serves as keywords to the passage?

- A. Musicking; Cognitive psychology; Antique; Symbol-makers; Modernity.
- B. Humans; Psychological vantage; Musicking; Cassirer; Emergence of music.
- C. Humans; Capacities; Language; Symbols; Modernity.
- D. Humans; Musicking; Linguistic capacities; Symbol-making; Modern humanity.

Answer Key: D

MODERATE

Q14. Based on the passage, which one of the following statements is a valid argument about the emergence of music/musicking?

- A. Anyone who can perceive and experience music must be considered capable of musicking.
- B. Although musicking is not language-like, it shares the quality of being a form of expression.
- C. 20,000 years ago, human musical capacities were not very different from what they are today.
- D. All musical work is located in the overlap between linguistic capacity and music production.

Answer Key: C

MODERATE

Q15. "Think beyond all the qualifications that might trail after this bald statement . . ." In the context of the passage, what is the author trying to communicate in this quoted extract?

- A. A bald statement is one that is trailed by a series of qualifying clarifications and caveats.
- B. Although there may be many caveats and other considerations, the statement is essentially true.
- C. Thinking beyond qualifications allows us to give free reign to musical expressions.
- D. A bald statement is one that requires no qualifications to infer its meaning.

Answer Key: B

HARD

Q16. Which one of the following statements, if true, would weaken the author's claim that humans are musicking creatures?

- A. Musical capacities are primarily socio-cultural, which explains the wide diversity of musical forms.
- B. Nonmusical capacities are of far greater consequence to human survival than the capacity for music.
- C. As musicking is neither language-like nor symbol-like, it is a much older form of expression.
- D. From a cognitive and psychological vantage, musicking arises from unconscious dispositions, not conscious ones.

Answer Key: A

HARD

Q17. The four sentences (labelled 1, 2, 3 and 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. The trajectory of cheerfulness through the self is linked to the history of the word 'cheer' which comes from an Old French meaning 'face'.
2. Translations of the Bible into vernacular languages, expanded the noun 'cheer' into the more abstract 'cheerful-ness', something that circulates as an emotional and social quality defining the self and a moral community.
3. When you take on a cheerful expression, no matter what the state of your soul, your cheerfulness moves into the self: the interior of the self is changed by the power of cheer.
4. People in the medieval 'Canterbury Tales' have a 'piteous' or a 'sober' cheer; 'cheer' is an expression and a body part, lying at the intersection of emotions and physiognomy.

Answer Key: 3142

MODERATE

Q18. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide in which blank (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: Most were first-time users of a tablet and a digital app.

Paragraph: Aage Badhein's USP lies in the ethnographic research that constituted the foundation of its development process. Customizations based on learning directly from potential users were critical to making this self-paced app suitable for both a literate and non-literate audience. ___(1)___ The user interface caters to a Hindi-speaking audience who have minimal to no experience with digital services and devices. ___(2)___ The content and functionality of the app are suitable for a wide audience. This includes youth preparing for an independent role in life or a student ready to create a strong foundation of financial management early in her life. ___(3)___ Household members desirous of improving their family's financial strength to reach their aspirations can also

benefit. We piloted Aage Badhein in early 2021 with over 400 women from rural areas.
____(4)____ The digital solution generated a large amount of interest in the communities.

- A. Option 1
- B. Option 2
- C. Option 3
- D. Option 4

Answer Key: D

HARD

Q19. The four sentences (labelled 1, 2, 3 and 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. Women may prioritize cooking because they feel they alone are responsible for mediating a toxic and unhealthy food system.
2. Food is commonly framed through the lens of individual choice: you can choose to eat healthily.
3. This is particularly so in a neoliberal context where the state has transferred the responsibility for food onto individual consumers.
4. The individualized framing of choice appeals to a popular desire to experience agency, but draws away from the structural obstacles that stratify individual food choices.

Answer Key: 2431

MODERATE

Q20. The four sentences (labelled 1, 2, 3 and 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. From chemical pollutants in the environment to the damming of rivers to invasive species transported through global trade and travel, every environmental issue is different and there is no single tech solution that can solve this crisis.

2. Discourse on the threat of environmental collapse revolves around cutting down emissions, but biodiversity loss and ecosystem collapse are caused by myriad and diverse reasons.
3. This would require legislation that recognises the rights of future generations and other species that allows the judiciary to uphold a much higher standard of environmental protection than currently possible.
4. Clearly, our environmental crisis requires large political solutions, not minor technological ones, so, instead of focusing on infinite growth, we could consider a path of stable-state economies, while preserving markets and healthy competition.

Answer Key: 2143

MODERATE

Q21. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

There's a common idea that museum artworks are somehow timeless objects available to admire for generations to come. But many are objects of decay. Even the most venerable Old Master paintings don't escape: pigments discolour, varnishes crack, canvases warp. This challenging fact of art-world life is down to something that sounds more like a thread from a morality tale: inherent vice. Damien Hirst's iconic shark floating in a tank - entitled *The Physical Impossibility of Death in the Mind of Someone Living* - is a work that put a spotlight on inherent vice. When he made it in 1991, Hirst got himself in a pickle by not using the right kind of pickle to preserve the giant fish. The result was that the shark began to decompose quite quickly - its preserving liquid clouding, the skin wrinkling, and an unpleasant smell wafting from the tank.

- A. Museums are left with the moral responsibility of restoring and preserving the artworks since artists cannot preserve their works beyond their life.
- B. Artworks may not last forever; they may deteriorate with time, and the challenge is to slow down their degeneration.
- C. The role of museums has evolved to ensure that the artworks are preserved forever in addition to guarding and displaying them.
- D. Museums have to guard timeless art treasures from intrinsic defects such as the deterioration of paint, polish and canvas.

Answer Key: B

HARD

Q22. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Today, many of the debates about behavioural control in the age of big data echo Cold War-era anxieties about brainwashing, insidious manipulation and repression in the 'technological society'. In his book Psychopolitics, Han warns of the sophisticated use of targeted online content, enabling 'influence to take place on a pre-reflexive level'. On our current trajectory, "freedom will prove to have been merely an interlude." The fear is that the digital age has not liberated us but exposed us, by offering up our private lives to machine-learning algorithms that can process masses of personal and behavioural data. In a world of influencers and digital entrepreneurs, it's not easy to imagine the resurgence of a culture engendered through disconnect and disaffiliation, but concerns over the threat of online targeting, polarisation and big data have inspired recent polemics about the need to rediscover solitude and disconnect.

- A. Rather than freeing us, digital technology is enslaving us by collecting personal information and influencing our online behaviour.
- B. With big data making personal information freely available, the debate on the nature of freedom and the need for privacy has resurfaced.
- C. The notion of freedom and privacy is at stake in a world where artificial intelligence is capable of influencing behaviour through data gathered online.
- D. The role of technology in influencing public behaviour is reminiscent of the manner in which behaviour was manipulated during the Cold War.

Answer Key: B

HARD

Q23. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Several of the world's earliest cities were organised along egalitarian lines. In some regions, urban populations governed themselves for centuries without any indication of the temples and palaces that would later emerge; in others, temples and palaces never emerged at all, and there is simply no evidence of a class of administrators or any other sort of ruling stratum. It would seem that the mere fact of urban life does not, necessarily, imply any particular form of political organization, and never did. Far from resigning us to inequality, the picture that is now emerging of humanity's past may open our eyes to egalitarian possibilities we otherwise would have never considered.

- A. We now have the evidence in support of the existence of an egalitarian urban life in some ancient cities, where political and civic organisation was far less hierarchical.
- B. The emergence of a class of administrators and ruling stratum transformed the egalitarian urban life of ancient cities to the hierarchical civic organisations of today.
- C. Contrary to our assumption that urban settlements have always involved hierarchical political and administrative structures, ancient cities were not organised in this way.
- D. The lack of hierarchical administration in ancient cities can be deduced by the absence of religious and regal structures such as temples and palaces.

Answer Key: A

MODERATE

Q24. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide in which blank (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: This was years in the making but fast-tracked during the pandemic, when "people started being more mindful about their food", he explained.

Paragraph: For millennia, ghee has been a venerated staple of the subcontinental diet, but it fell out of favour a few decades ago when saturated fats were largely considered to be unhealthy. ___(1)___ But more recently, as the thinking around saturated fats is shifting globally, Indians are finding their own way back to this ingredient that is so integral to their cuisine. ___(2)___ For Karmakar, a renewed interest in ghee is emblematic of a return-to-basics movement in India. ___(3)___ This movement is also part of an overall trend towards "slow food". In keeping with the movement's philosophy, ghee can be produced locally (even at home) and has inextricable cultural ties. ___(4)___ At a basic level, ghee is a type of clarified butter believed to have originated in India as a way to preserve butter from going rancid in the hot climate.

- A. Option 1
- B. Option 2
- C. Option 3
- D. Option 4

Answer Key: C

CAT 2022 Slot 2

QUANT

Topic: Arithmetic

Subtopic: Simple Interest (Weighted Investment)

Question Type: Numerical Based

Level of Difficulty: Moderate

Q1. Mr. Pinto invests one-fifth of his capital at 6%, one-third at 10% and the remaining at 1%, each rate being simple interest per annum. Then, the minimum number of years required for the cumulative interest income from these investments to equal or exceed his initial capital is (TITA)

Answer Key: 20

Topic: Arithmetic

Subtopic: Averages (Sequence Properties)

Question Type: Concept Based

Level of Difficulty: Difficult

Q2. The average of a non-decreasing sequence of N numbers a_1, a_2, \dots, a_N is 300. If a_N is replaced by $6a_1$, the new average becomes 400. Then, the number of possible values of a_1 is (TITA)

Answer Key: 14

Topic: Algebra

Subtopic: Polynomial Equations (Integer Solutions)

Question Type: Concept Based

Level of Difficulty: Moderate

Q3. The number of integer solutions of the equation $(x^2 - 10)^{(x^2 - 3x - 10)} = 1$ is (TITA)

Answer Key: 4

Topic: Arithmetic

Subtopic: Averages and Income–Expenditure

Question Type: Numerical Based

Level of Difficulty: Easy

Q4. Manu earns ₹4000 per month and wants to save an average of ₹550 per month in a year. In the first nine months, his monthly expense was ₹3500, and he foresees that, tenth month onward, his monthly expense will increase to ₹3700. In order to meet his yearly savings target, his monthly earnings, in rupees, from the tenth month onward should be

- A. 4350
- B. 4400
- C. 4300
- D. 4200

Answer Key: B

Topic: Geometry

Subtopic: Triangles (Altitudes and Trigonometric Relations)

Question Type: Concept-Based

Level of Difficulty: Moderate

Q5. In triangle ABC, altitudes AD and BE are drawn to the corresponding bases. If $\angle BAC = 45^\circ$ and $\angle ABC = \theta$, then AD/BE equals

- A. $\sqrt{2}\cos \theta$
- B. 1
- C. $\sqrt{2}\sin \theta$
- D. $\frac{(\sin \theta + \cos \theta)}{\sqrt{2}}$

Answer Key: C

Topic: Algebra

Subtopic: Quadratic Polynomials (Minimum Condition)

Question Type: Concept Based

Level of Difficulty: Easy

Q6. Let $f(x)$ be a quadratic polynomial in x such that $f(x) \geq 0$ for all real numbers x . If $f(2)=0$ and $f(4)=6$, then $f(-2)$ is equal to

- A. 36
- B. 12
- C. 24
- D. 6

Answer Key: C

Topic: Algebra

Subtopic: Polynomial Roots (Relations Between Roots and Coefficients)

Question Type: Concept-Based

Level of Difficulty: Moderate

Q7. Let r and c be real numbers. If r and $-r$ are roots of $5x^3 + cx^2 - 10x + 9 = 0$ then c equals

- A. 4
- B. -4
- C. $-\frac{9}{2}$
- D. $\frac{9}{2}$

Answer Key: C

Topic: Arithmetic

Subtopic: Time Speed Distance (Relative Motion in Perpendicular Directions)

Question Type: Numerical Based

Level of Difficulty: Easy

Q8. Two ships meet mid-ocean, and then, one ship goes south and the other ship goes west, both travelling at constant speeds. Two hours later, they are 60 km apart. If the speed of one of the ships is 6 km per hour more than the other one, then the speed, in km per hour, of the slower ship is

- a) 24
- b) 18
- c) 20
- d) 12

Answer Key: B

Topic: Arithmetic

Subtopic: Time Speed Distance (Relative Motion in Perpendicular Directions)

Question Type: Numerical Based

Level of Difficulty: Easy

Q9. Suppose for all integers x , there are two functions f and g such that

$f(x) + f(x-1) - 1 = 0$ and $g(x) = x^2$. If $f(x^2 - x) = 5$, then the value of the sum $f(g(5)) + g(f(5))$ is

Answer Key: 12

Topic: Arithmetic

Subtopic: Marks, Scoring System and Linear Constraints

Question Type: Numerical Based

Level of Difficulty: Moderate

Q10. In an examination, there were 75 questions. 3 marks were awarded for each correct answer, 1 mark was deducted for each wrong answer and 1 mark was awarded for each unattempted question. Rayan scored a total of 97 marks in the examination. If the number of unattempted questions was higher than the number of attempted questions, then the maximum number of correct answers that Rayan could have given in the examination is

Answer Key: 24

Topic: Geometry

Subtopic: Polygons (Interior Angle Formula)

Question Type: Concept Based

Level of Difficulty: Moderate

Q11. Regular polygons A and B have number of sides in the ratio 1 : 2 and interior angles in the ratio 3 : 4. Then the number of sides of B equals

Answer Key: 10

Topic: Geometry

Subtopic: Polygons (Interior Angle Formula)

Question Type: Concept-Based

Level of Difficulty: Moderate

Q12. In an election, there were four candidates and 80% of the registered voters casted their votes. One of the candidates received 30% of the casted votes while the other three candidates received the remaining casted votes in the proportion 1 : 2 : 3. If the winner of the election received 2512 votes more than the candidate with the second highest votes, then the number of registered voters was

- A. 62800
- B. 50240
- C. 40192
- D. 60288

Answer Key: A

Topic: Number System

Subtopic: Recurrence / Growth Process

Question Type: Concept Based

Level of Difficulty: Moderate

Q13. On day one, there are 100 particles in a laboratory experiment. On day n , where $n \geq 2$, one out of every n particles produces another particle. If the total number of particles in the laboratory experiment increases to 1000 on day m , then m equals

- A. 19
- B. 17
- C. 16
- D. 18

Answer key : A

Topic: Modern Mathematics

Subtopic: Permutation of Digits with Restrictions

Question Type: Concept-Based

Level of Difficulty: Moderate

Q14. The number of integers greater than 2000 that can be formed with the digits 0, 1, 2, 3, 4, 5, using each digit at most once, is

- A. 1480

- B. 1440
- C. 1200
- D. 1420

Answer Key: B

Topic: Number System

Subtopic: Factorials and Divisibility

Question Type: Concept-Based

Level of Difficulty: Difficult

Q15. For some natural number n , assume that $(15,000)!$ is divisible by $(n!)!$. The largest possible value of n is

- A. 5
- B. 4
- C. 6
- D. 7

Answer Key: D

Topic: Arithmetic

Subtopic: Time and Work (Variable Working Hours)

Question Type: Numerical Based

Level of Difficulty: Difficult

Q16. Working alone, the times taken by Anu, Tanu and Manu to complete any job are in the ratio $5 : 8 : 10$. They accept a job which they can finish in 4 days if they all work together for 8 hours per day. However, Anu and Tanu work together for the first 6 days, working 6 hours 40 minutes per day. Then, the number of hours that Manu will take to complete the remaining job working alone is

Answer Key: 6

Topic: Arithmetic

Subtopic: Mixtures and Replacement

Question Type: Concept-Based

Level of Difficulty: Moderate

Q17. There are two containers of the same volume, first container half-filled with sugar syrup and the second container half-filled with milk. Half the content of the first container is transferred to the second container, and then the half of this mixture is transferred back to the first container. Next, half the content of the first container is transferred back to the second container. Then the ratio of sugar syrup and milk in the second container is \

- A. 6 : 5
- B. 5 : 6
- C. 4 : 5
- D. 5 : 4

Answer Key: B

Topic: Algebra

Subtopic: Arithmetic Progression (Series Manipulation)

Question Type: Concept-Based

Level of Difficulty: Moderate

Q18. Consider the arithmetic progression 3,7,11,... and let A_n denote the sum of the first n terms of this progression.

Then the value of $\frac{1}{25} \sum_{n=1}^{25} A_n$ is

- a) 442
- b) 404
- c) 455
- d) 415

Answer key: C

Topic: Algebra

Subtopic: Logarithmic Inequalities

Question Type: Concept-Based

Level of Difficulty: Difficult

Q19. The number of distinct integer values of n satisfying, $\frac{4-\log_2 n}{3-\log_4 n} < 0$ is

Answer Key: 47

Topic: Algebra

Subtopic: Linear Constraints / Optimization

Question Type: Concept-Based

Level of Difficulty: Easy

Q20. If a and b are non-negative real numbers such that $a+2b = 6$, then the average of the maximum and minimum possible values of $(a+b)$ is

A. 3.5

B. 4.5

C. 3

D. 4

Answer Key: B

Topic: Arithmetic

Subtopic: Averages with Constraints

Question Type: Concept-Based

Level of Difficulty: Difficult

Q21. Five students, including Amit, appear for an examination in which possible marks are integers between 0 and 50, both inclusive. The average marks for all the students is 38 and exactly three students got more than 32. If no two students got the same marks and Amit got the least marks among the five students, then the difference between the highest and lowest possible marks of Amit is

A. 22

B. 20

C. 21

D. 24

Answer Key: B

Topic: Geometry

Subtopic: Triangle Area Ratio and Length Calculation

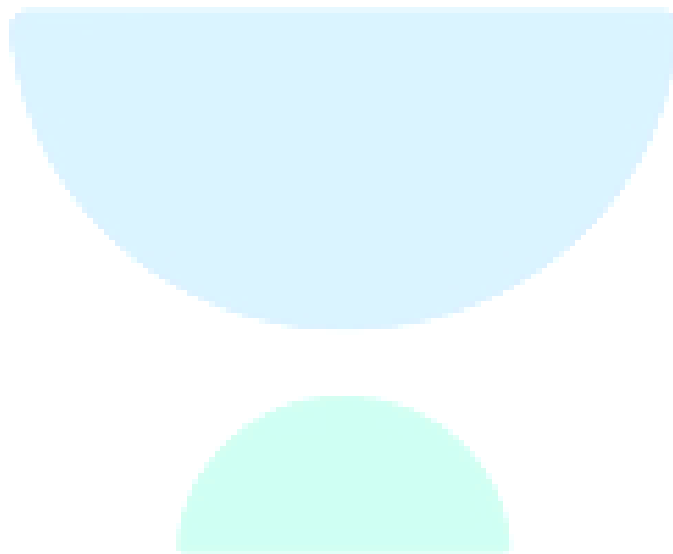
Question Type: Concept-Based

Level of Difficulty: Moderate

Q22. The length of each side of an equilateral triangle ABC is 3 cm. Let D be a point on BC such that the area of triangle ADC is half the area of triangle ABD. Then the length of AD, in cm, is

- A. $\sqrt{7}$
- B. $\sqrt{6}$
- C. $\sqrt{8}$
- D. $\sqrt{5}$

Answer Key: A



CAT 2022 Slot 2

LRDI

SET 1. Read the information given below and answer the question that follows:

A few salesmen are employed to sell a product called TRICCEK among households in various housing complexes. On each day, a salesman is assigned to visit one housing complex. Once a salesman enters a housing complex, he can meet any number of households in the time available. However, if a household makes a complaint against the salesman, then he must leave the housing complex immediately and cannot meet any other household on that day. A household may buy any number of TRICCEK items or may not buy any item. The salesman needs to record the total number of TRICCEK items sold as well as the number of households met in each day. The success rate of a salesman for a day is defined as the ratio of the number of items sold to the number of households met on that day.

Some details about the performances of three salesmen - Tohri, Hokli and Lahur, on two particular days are given below.

1. Over the two days, all three of them met the same total number of households, and each of them sold a total of 100 items.
2. On both days, Lahur met the same number of households and sold the same number of items.
3. Hokli could not sell any item on the second day because the first household he met on that day complained against him.
4. Tohri met 30 more households on the second day than on the first day.
5. Tohri's success rate was twice that of Lahur's on the first day, and it was 75% of Lahur's on the second day

Q1. What was the total number of households met by Tohri, Hokli and Lahur on the first day? (TITA)

Answer: 84

Q2. How many TRICCEK items were sold by Tohri on the first day? (TITA)

Answer: 40

Q3. How many households did Lahur meet on the second day?

- A. more than 35
- B. between 30 and 35
- C. 20 or less
- D. between 21 and 29

Answer: D

Q4. How many households did Tohri meet on the first day?

- A. more than 40
- B. 10 or less
- C. between 21 and 40
- D. between 11 and 20

Answer: B

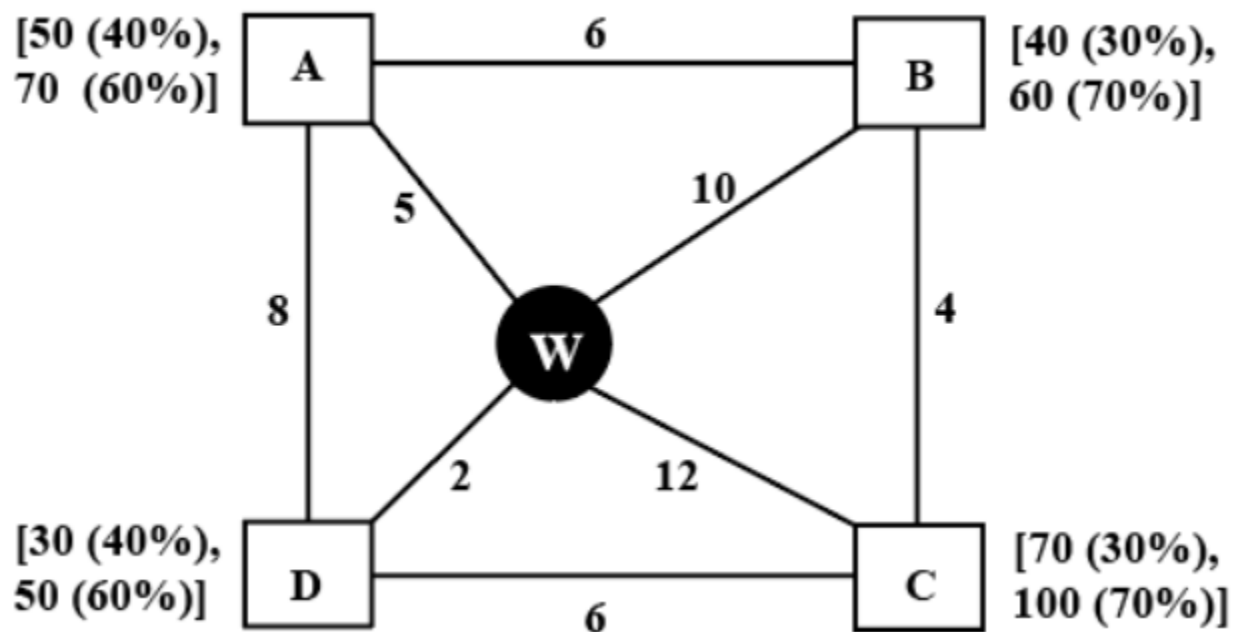
Q5. Which of the following statements is FALSE?

- A. Tohri had a higher success rate on the first day compared to the second day.
- B. Among the three, Tohri had the highest success rate on the first day.
- C. Among the three, Tohri had the highest success rate on the second day.
- D. Among the three, Lahur had the lowest success rate on the first day.

Answer: C

SET 2- Read the information given below and answer the question that follows:

Every day a widget supplier supplies widgets from the warehouse (W) to four locations – Ahmednagar (A), Bikrampore (B), Chitrachak (C), and Deccan Park (D). The daily demand for widgets in each location is uncertain and independent of each other. Demands and corresponding probability values (in parenthesis) are given against each location (A, B, C, and D) in the figure below. For example, there is a 40% chance that the demand in Ahmednagar will be 50 units and a 60% chance that the demand will be 70 units. The lines in the figure connecting the locations and warehouse represent two-way roads connecting those places with the distances (in km) shown beside the line. The distances in both the directions along a road are equal. For example, the road from Ahmednagar to Bikrampore and the road from Bikrampore to Ahmednagar are both 6 km long.



Every day the supplier gets the information about the demand values of the four locations and creates the travel route that starts from the warehouse and ends at a location after visiting all the locations exactly once. While making the route plan, the supplier goes to the locations in decreasing order of demand. If there is a tie for the choice of the next location, the supplier will go to the location closest to the current location. Also, while creating the route, the supplier can either follow the direct path (if available) from one location to another or can take the path via the warehouse. If both paths are available (direct and via warehouse), the supplier will choose the path with minimum distance.

Q6. If the last location visited is Ahmednagar, then what is the total distance covered in the route (in km)? (TITA)

Answer. 35

Q7. If the total number of widgets delivered in a day is 250 units, then what is the total distance covered in the route (in km)? (TITA)

Answer. 38

Q8. What is the chance that the total number of widgets delivered in a day is 260 units and the route ends at Bikrampore?

- A. 7.56%
- B. 33.33%
- C. 17.64%
- D. 10.80%

Answer. A

Q9. If the first location visited from the warehouse is Ahmednagar, then what is the chance that the total distance covered in the route is 40 km?

- A. 5.4%
- B. 18%
- C. 30%
- D. 3.24%

Answer. B

Q10. If Ahmednagar is not the first location to be visited in a route and the total route distance is 29 km, then which of the following is a possible number of widgets delivered on that day?

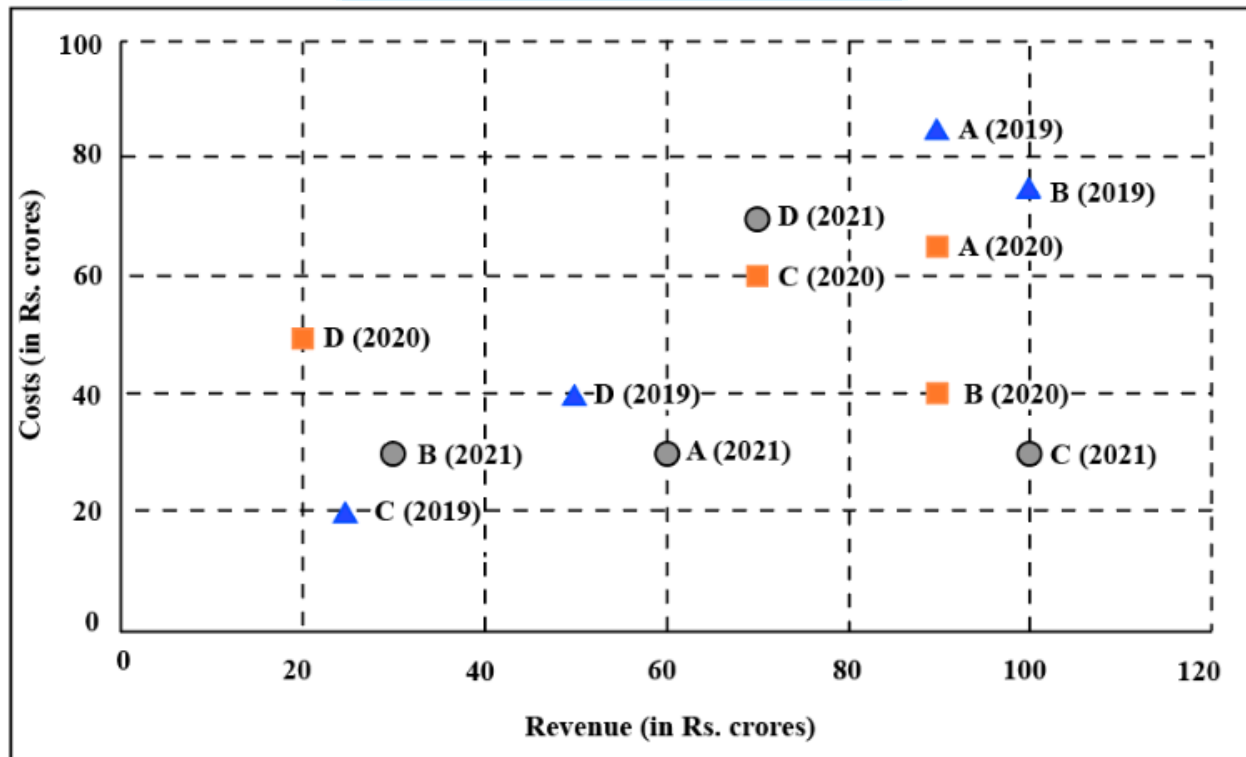
- A. 220
- B. 200
- C. 250
- D. 210

Answer. D

SET 3. Read the information given below and answer the question that follows:

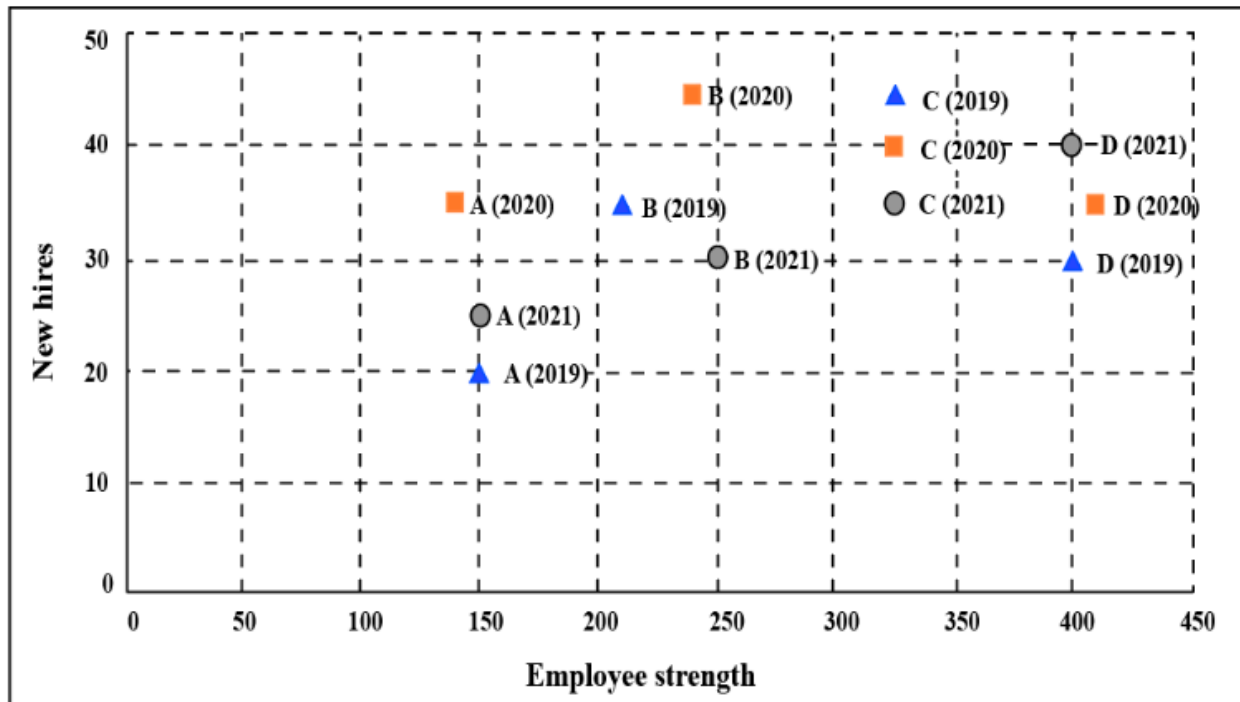
The two plots below show data for four companies code-named A, B, C, and D over three years - 2019, 2020, and 2021.

The first plot shows the revenues and costs incurred by the companies during these years. For example, in 2021, company C earned Rs.100 crores in revenue and spent Rs.30 crores. The profit of a company is defined as its revenue minus its costs.



The second plot shows the number of employees employed by the company (employee strength) at the start of each of these three years, as well as the number of new

employees hired each year (new hires). For example, Company B had 250 employees at the start of 2021, and 30 new employees joined the company during the year.



Q11. Considering all three years, which company had the highest annual profit?

- A. Company A
- B. Company B
- C. Company C
- D. Company D

Answer. C

Q12. Which of the four companies experienced the highest annual loss in any of the years?

- A. Company A
- B. Company D
- C. Company C
- D. Company B

Answer: B

Q13. The ratio of a company's annual profit to its annual costs is a measure of its performance. Which of the four companies had the lowest value of this ratio in 2019?

- A. Company C
- B. Company A
- C. Company B
- D. Company D

Answer: B

Q14. The total number of employees lost in 2019 and 2020 was the least for:

- A. Company A
- B. Company C
- C. Company B
- D. Company D

Answer: C

Q15. Profit per employee is the ratio of a company's profit to its employee strength. For this purpose, the employee strength in a year is the average of the employee strength at the beginning of that year and the beginning of the next year. In 2020, which of the four companies had the highest profit per employee?

- A. Company B
- B. Company A
- C. Company D
- D. Company C

Answer: A

SET 4. Read the information given below and answer the question that follows:

A speciality supermarket sells 320 products. Each of these products was either a cosmetic product or a nutrition product. Each of these products was also either a foreign product or a domestic product. Each of these products had at least one of the two approvals – FDA or EU.

The following facts are also known:

1. There were equal numbers of domestic and foreign products.
2. Half of the domestic products were FDA approved cosmetic products.
3. None of the foreign products had both the approvals, while 60 domestic products had both the approvals.
4. There were 140 nutrition products, half of them were foreign products.
5. There were 200 FDA approved products. 70 of them were foreign products and 120 of them were cosmetic products.

Q16. How many foreign products were FDA approved cosmetic products? (TITA)

Answer: 40

Q17. How many cosmetic products did not have FDA approval?

- A. Cannot be determined
- B. 50
- C. 10
- D. 60

Answer: D

Q18. Which among the following options best represents the number of domestic cosmetic products that had both the approvals?

- A. At least 10 and at most 60
- B. At least 20 and at most 50
- C. At least 10 and at most 80
- D. At least 20 and at most 70

Answer: A

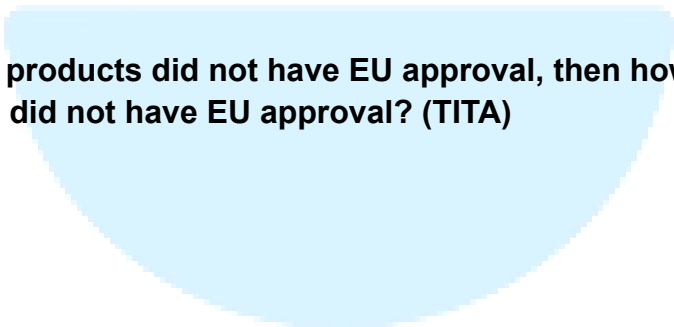
Q19. If 70 cosmetic products did not have EU approval, then how many nutrition products had both the approvals?

- A. 10
- B. 30
- C. 50
- D. 20

Answer: A

Q20. If 50 nutrition products did not have EU approval, then how many domestic cosmetic products did not have EU approval? (TITA)

Answer: 50



CAT 2023 Slot 3

VARC

Argumentative/Persuasive (1-4)

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

The biggest challenge [The Nutmeg's Curse by Ghosh] throws down is to the prevailing understanding of when the climate crisis started. Most of us have accepted . . . that it started with the widespread use of coal at the beginning of the Industrial Age in the 18th century and worsened with the mass adoption of oil and natural gas in the 20th. Ghosh takes this history at least three centuries back, to the start of European colonialism in the 15th century. He [starts] the book with a 1621 massacre by Dutch invaders determined to impose a monopoly on nutmeg cultivation and trade in the Banda islands in today's Indonesia. Not only do the Dutch systematically depopulate the islands through genocide, they also try their best to bring nutmeg cultivation into plantation mode. These are the two points to which Ghosh returns through examples from around the world. One, how European colonialists decimated not only indigenous populations but also indigenous understanding of the relationship between humans and Earth. Two, how this was an invasion not only of humans but of the Earth itself, and how this continues to the present day by looking at nature as a 'resource' to exploit. . . .

We know we are facing more frequent and more severe heatwaves, storms, floods, droughts and wildfires due to climate change. We know our expansion through deforestation, dam building, canal cutting – in short, terraforming, the word Ghosh uses – has brought us repeated disasters . . . Are these the responses of an angry Gaia who has finally had enough? By using the word 'curse' in the title, the author makes it clear that he thinks so. I use the pronoun 'who' knowingly, because Ghosh has quoted many non-European sources to enquire into the relationship between humans and the world around them so that he can question the prevalent way of looking at Earth as an inert object to be exploited to the maximum.

As Ghosh's text, notes and bibliography show once more, none of this is new. There have always been challenges to the way European colonialists looked at other

civilisations and at Earth. It is just that the invaders and their myriad backers in the fields of economics, politics, anthropology, philosophy, literature, technology, physics, chemistry, biology have dominated global intellectual discourse. . . .

There are other points of view that we can hear today if we listen hard enough. Those observing global climate negotiations know about the Latin American way of looking at Earth as Pachamama (Earth Mother). They also know how such a framing is just provided lip service and is ignored in the substantive portions of the negotiations. In *The Nutmeg's Curse*, Ghosh explains why. He shows the extent of the vested interest in the oil economy – not only for oil-exporting countries, but also for a superpower like the US that controls oil drilling, oil prices and oil movement around the world. Many of us know power utilities are sabotaging decentralised solar power generation today because it hits their revenues and control. And how the other points of view are so often drowned out.

MODERATE

Q1. On the basis of information in the passage, which one of the following is NOT a reason for the failure of policies seeking to address climate change?

- A. The marginalised status of non-European ways of looking at nature and the environment.
- B. The global dominance of oil economies and international politics built around it.
- C. The greed of organisations benefiting from non-renewable energy resources.
- D. The decentralised characteristic of renewable energy resources like solar power.

Answer Key: D

MODERATE

Q2. All of the following can be inferred from the reviewer's discussion of "The Nutmeg's Curse", EXCEPT:

- A. academic discourses have always served the function of raising awareness about environmental preservation.
- B. the history of climate change is deeply intertwined with the history of colonialism.
- C. environmental preservation policy makers can learn a lot from non-European and/or pre-colonial societies.
- D. the contemporary dominant perception of nature and the environment was put in

place by processes of colonialism.

Answer Key: A

MODERATE

Q3. Which one of the following best explains the primary purpose of the discussion of the colonisation of the Banda islands in “The Nutmeg’s Curse”?

- A. To illustrate how systemic violence against the colonised constituted the cornerstone of colonialism.
- B. To illustrate the first instance in history when the processes responsible for climate change were initiated.
- C. To illustrate the role played by the cultivation of certain crops in the plantation mode in contributing to climate change.
- D. To illustrate how colonialism represented and perpetuated the mindset that has led to climate change.

Answer Key: D

MODERATE

Q4. Which one of the following, if true, would make the reviewer’s choice of the pronoun “who” for Gaia inappropriate?

- A. Non-European societies have perceived the Earth as a non-living source of all resources.
- B. There is a direct cause–effect relationship between human activities and global climate change.
- C. Modern western science discovers new evidence for the Earth being an inanimate object.
- D. Ghosh’s book has a different title: “The Nutmeg’s Revenge”.

Answer Key: A

Analytical (5-8)

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

Steven Pinker's new book, "Rationality: What It Is, Why It Seems Scarce, Why It Matters," offers a pragmatic dose of measured optimism, presenting rationality as a fragile but achievable ideal in personal and civic life. . . . Pinker's ambition to illuminate such a crucial topic offers the welcome prospect of a return to sanity. . . . It's no small achievement to make formal logic, game theory, statistics and Bayesian reasoning delightful topics full of charm and relevance.

It's also plausible to believe that a wider application of the rational tools he analyzes would improve the world in important ways. His primer on statistics and scientific uncertainty is particularly timely and should be required reading before consuming any news about the [COVID] pandemic. More broadly, he argues that less media coverage of shocking but vanishingly rare events, from shark attacks to adverse vaccine reactions, would help prevent dangerous overreactions, fatalism and the diversion of finite resources away from solvable but less-dramatic issues, like malnutrition in the developing world.

It's a reasonable critique, and Pinker is not the first to make it. But analyzing the political economy of journalism — its funding structures, ownership concentration and increasing reliance on social media shares — would have given a fuller picture of why so much coverage is so misguided and what we might do about it.

Pinker's main focus is the sort of conscious, sequential reasoning that can track the steps in a geometric proof or an argument in formal logic. Skill in this domain maps directly onto the navigation of many real-world problems, and Pinker shows how greater mastery of the tools of rationality can improve decision-making in medical, legal, financial and many other contexts in which we must act on uncertain and shifting information. . . .

Despite the undeniable power of the sort of rationality he describes, many of the deepest insights in the history of science, math, music and art strike their originators in moments of epiphany. From the 19th-century chemist Friedrich August Kekulé's discovery of the structure of benzene to any of Mozart's symphonies, much extraordinary human achievement is not a product of conscious, sequential reasoning. Even Plato's Socrates — who anticipated many of Pinker's points by nearly 2,500 years, showing the virtue of knowing what you do not know and examining all premises in

arguments, not simply trusting speakers' authority or charisma — attributed many of his most profound insights to dreams and visions. Conscious reasoning is helpful in sorting the wheat from the chaff, but it would be interesting to consider the hidden aquifers that make much of the grain grow in the first place.

The role of moral and ethical education in promoting rational behavior is also underexplored. Pinker recognizes that rationality "is not just a cognitive virtue but a moral one." But this profoundly important point, one subtly explored by ancient Greek philosophers like Plato and Aristotle, doesn't really get developed. This is a shame, since possessing the right sort of moral character is arguably a precondition for using rationality in beneficial ways.

MODERATE

Q5. According to the author, for Pinker as well as the ancient Greek philosophers, rational thinking involves all of the following EXCEPT:

- A. the primacy of conscious sequential reasoning as the basis for seminal human achievements.
- B. the belief that the ability to reason logically encompasses an ethical and moral dimension.
- C. an awareness of underlying assumptions in an argument and gaps in one's own knowledge.
- D. arriving at independent conclusions irrespective of who is presenting the argument

Answer Key: A

MODERATE

Q6. The author endorses Pinker's views on the importance of logical reasoning as it:

- A. equips people with the ability to tackle challenging practical problems.
- B. provides a moral compass for resolving important ethical dilemmas.
- C. focuses public attention on real issues like development rather than sensational events.
- D. helps people to gain expertise in statistics and other scientific disciplines.

Answer Key: A

MODERATE

Q7. The author mentions Kekulé's discovery of the structure of benzene and Mozart's symphonies to illustrate the point that:

- A. Pinker's conclusions on sequential reasoning are belied by European achievements which, in the past, were more rooted in unconscious bursts of genius.
- B. great innovations across various fields can stem from flashes of intuition and are not always propelled by logical thinking.
- C. unlike the sciences, human achievements in other fields are a mix of logical reasoning and spontaneous epiphanies.
- D. it is not just the creative arts, but also scientific fields that have benefitted from flashes of creativity.

Answer Key: B

MODERATE

Q8. The author refers to the ancient Greek philosophers to:

- A. highlight the influence of their thinking on the development of Pinker's arguments.
- B. show how dreams and visions have for centuries influenced subconscious behaviour and pathbreaking inventions.
- C. indicate the various similarities between their thinking and Pinker's conclusions.
- D. reveal gaps in Pinker's discussion of the importance of ethical considerations in rational behaviour.

Answer Key: D

Argumentative/Persuasive (9-12)

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

In 2006, the Met [art museum in the US] agreed to return the Euphronios krater, a masterpiece Greek urn that had been a museum draw since 1972. In 2007, the Getty [art museum in the US] agreed to return 40 objects to Italy, including a marble Aphrodite, in the midst of looting scandals. And in December, Sotheby's and a private owner agreed to return an ancient Khmer statue of a warrior, pulled from auction two years before, to Cambodia.

Cultural property, or patrimony, laws limit the transfer of cultural property outside the source country's territory, including outright export prohibitions and national ownership laws. Most art historians, archaeologists, museum officials and policymakers portray cultural property laws in general as invaluable tools for counteracting the ugly legacy of Western cultural imperialism.

During the late 19th and early 20th century — an era former Met director Thomas Hoving called "the age of piracy" — American and European art museums acquired antiquities by hook or by crook, from grave robbers or souvenir collectors, bounty from digs and ancient sites in impoverished but art-rich source countries. Patrimony laws were intended to protect future archaeological discoveries against Western imperialist designs. . . .

I surveyed 90 countries with one or more archaeological sites on UNESCO's World Heritage Site list, and my study shows that in most cases the number of discovered sites diminishes sharply after a country passes a cultural property law. There are 222 archaeological sites listed for those 90 countries. When you look into the history of the sites, you see that all but 21 were discovered before the passage of cultural property laws. . . .

Strict cultural patrimony laws are popular in most countries. But the downside may be that they reduce incentives for foreign governments, nongovernmental organizations and educational institutions to invest in overseas exploration because their efforts will not necessarily be rewarded by opportunities to hold, display and study what is uncovered. To the extent that source countries can fund their own archaeological projects, artifacts and sites may still be discovered. . . . The survey has far-reaching implications. It suggests that source countries, particularly in the developing world, should narrow their cultural property laws so that they can reap the benefits of new archaeological discoveries, which typically increase tourism and enhance cultural pride. This does not mean these nations should abolish restrictions on foreign excavation and foreign claims to artifacts.

China provides an interesting alternative approach for source nations eager for foreign archaeological investment. From 1935 to 2003, China had a restrictive cultural property law that prohibited foreign ownership of Chinese cultural artifacts. In those years, China's most significant archaeological discovery occurred by chance, in 1974, when peasant farmers accidentally uncovered ranks of buried terra cotta warriors, which are part of Emperor Qin's spectacular tomb system.

In 2003, the Chinese government switched course, dropping its cultural property law and embracing collaborative international archaeological research. Since then, China has nominated 11 archaeological sites for inclusion in the World Heritage Site list, including eight in 2013, the most ever for China.

MODERATE

Q9. From the passage we can infer that the author is likely to advise poor, but archaeologically-rich source countries to do all of the following, EXCEPT:

- A. adopt China's strategy of dropping its cultural property laws and carrying out archaeological research through international collaboration.
- B. to find ways to motivate other countries to finance archaeological explorations in their country.
- C. fund institutes in other countries to undertake archaeological exploration in the source country reaping the benefits of cutting-edge techniques.
- D. allow foreign countries to analyse and exhibit the archaeological finds made in the source country.

Answer Key: C

EASY

Q10. Which one of the following statements best expresses the paradox of patrimony laws?

- A. They were intended to protect cultural property, but instead resulted in the neglect of historical sites.
- B. They were aimed at protecting cultural property, but instead reduced business for auctioneers like Sotheby's.
- C. They were intended to protect cultural property, but instead resulted in the withholding of national treasure from museums.
- D. They were aimed at protecting cultural property, but instead reduced new archaeological discoveries.

Answer Key: D

MODERATE

Q11. Which one of the following statements, if true, would undermine the central idea of the passage?

- A. UNESCO finances archaeological research in poor, but archaeologically-rich source countries.
- B. Western countries will have to apologise to countries for looting their cultural property in the past century.
- C. Museums established in economically deprived archaeologically-rich source countries can display the antiques discovered there.
- D. Affluent archaeologically-rich source countries can afford to carry out their own Excavations.

Answer Key: A

EASY

Q12. It can be inferred from the passage that archaeological sites are considered important by some source countries because they:

- A. are a symbol of Western imperialism.
- B. are subject to strict patrimony laws.
- C. generate funds for future discoveries.
- D. give a boost to the tourism sector.

Answer Key: D

Abstract (13-16)

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

Understanding romantic aesthetics is not a simple undertaking for reasons that are internal to the nature of the subject. Distinguished scholars, such as Arthur Lovejoy, Northrop Frye and Isaiah Berlin, have remarked on the notorious challenges facing any attempt to define romanticism. Lovejoy, for example, claimed that romanticism is "the scandal of literary history and criticism" . . . The main difficulty in studying the romantics, according to him, is the lack of any "single real entity, or type of entity" that the concept

"romanticism" designates. Lovejoy concluded, "the word 'romantic' has come to mean so many things that, by itself, it means nothing" . . .

The more specific task of characterizing romantic aesthetics adds to these difficulties an air of paradox. Conventionally, "aesthetics" refers to a theory concerning beauty and art or the branch of philosophy that studies these topics. However, many of the romantics rejected the identification of aesthetics with a circumscribed domain of human life that is separated from the practical and theoretical domains of life. The most characteristic romantic commitment is to the idea that the character of art and beauty and of our engagement with them should shape all aspects of human life. Being fundamental to human existence, beauty and art should be a central ingredient not only in a philosophical or artistic life, but also in the lives of ordinary men and women. Another challenge for any attempt to characterize romantic aesthetics lies in the fact that most of the romantics were poets and artists whose views of art and beauty are, for the most part, to be found not in developed theoretical accounts, but in fragments, aphorisms and poems, which are often more elusive and suggestive than conclusive.

Nevertheless, in spite of these challenges the task of characterizing romantic aesthetics is neither impossible nor undesirable, as numerous thinkers responding to Lovejoy's radical skepticism have noted. While warning against a reductive definition of romanticism, Berlin, for example, still heralded the need for a general characterization: "[Although] one does have a certain sympathy with Lovejoy's despair...[he is] in this instance mistaken. There was a romantic movement...and it is important to discover what it is" . . .

Recent attempts to characterize romanticism and to stress its contemporary relevance follow this path. Instead of overlooking the undeniable differences between the variety of romanticisms of different nations that Lovejoy had stressed, such studies attempt to characterize romanticism, not in terms of a single definition, a specific time, or a specific place, but in terms of "particular philosophical questions and concerns" . . .

While the German, British and French romantics are all considered, the central protagonists in the following are the German romantics. Two reasons explain this focus: first, because it has paved the way for the other romanticisms, German romanticism has a pride of place among the different national romanticisms . . . Second, the aesthetic outlook that was developed in Germany roughly between 1796 and 1801–02 — the period that corresponds to the heyday of what is known as "Early Romanticism" . . . — offers the most philosophical expression of romanticism since it is grounded primarily in the epistemological, metaphysical, ethical, and political concerns that the German romantics discerned in the aftermath of Kant's philosophy.

MODERATE

Q13. According to the romantics, aesthetics:

- A. is widely considered to be irrelevant to human existence.
- B. is primarily the concern of philosophers and artists, rather than of ordinary people.
- C. permeates all aspects of human life, philosophical and mundane.
- D. should be confined to a specific domain separate from the practical and theoretical aspects of life

Answer Key: C

EASY

Q14. The main difficulty in studying romanticism is the:

- A. absence of written accounts by romantic poets and artists.
- B. controversial and scandalous history of romantic literature.
- C. elusive and suggestive nature of romantic aesthetics.
- D. lack of clear conceptual contours of the domain.

Answer Key: D

MODERATE

Q15. According to the passage, recent studies on romanticism avoid “a single definition, a specific time, or a specific place” because they:

- A. understand that the variety of romanticisms renders a general analysis impossible.
- B. prefer to highlight the paradox of romantic aesthetics as a concept.
- C. seek to discredit Lovejoy’s scepticism regarding romanticism.
- D. prefer to focus on the fundamental concerns of the romantics.

Answer Key: D

MODERATE

Q16. Which one of the following statements is NOT supported by the passage?

- A. Romantic aesthetics are primarily expressed through fragments, aphorisms, and

poems.

B. Many romantics rejected the idea of aesthetics as a domain separate from other aspects of life.

C. Characterising romantic aesthetics is both possible and desirable, despite the challenges involved.

D. Recent studies on romanticism seek to refute the differences between national Romanticisms.

Answer Key: D

MODERATE

Q17. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide where (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: For theoretical purposes, arguments may be considered as freestanding entities, abstracted from their contexts of use in actual human activities.

Paragraph: ___(1)__. An argument can be defined as a complex symbolic structure where some parts, known as the premises, offer support to another part, the conclusion. Alternatively, an argument can be viewed as a complex speech act consisting of one or more acts of premising (which assert propositions in favor of the conclusion), an act of concluding, and a stated or implicit marker (“hence”, “therefore”) that indicates that the conclusion follows from the premises. ___(2)__. The relation of support between premises and conclusion can be cashed out in different ways: the premises may guarantee the truth of the conclusion, or make its truth more probable; the premises may imply the conclusion; the premises may make the conclusion more acceptable (or assertible). ___(3)__. But depending on one’s explanatory goals, there is also much to be gained from considering arguments as they in fact occur in human communicative practices. ___(4)__.

A. Option 1

B. Option 3

C. Option 2

D. Option 4

Answer Key: B

MODERATE

Q18. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide where (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: Beyond undermining the monopoly of the State on the use of force, armed conflict also creates an environment that can enable organized crime to prosper.

Paragraph: ___(1)__. Linkages between illicit arms, organized crime, and armed conflict can reinforce one another while also escalating and prolonging violence and eroding governance. ___(2)__. Financial gains from crime can lengthen or intensify armed conflicts by creating revenue streams for non-State armed groups (NSAGs). ___(3)__. In this context, when hostilities cease and parties to a conflict move towards a peaceful resolution, the widespread availability of surplus arms and ammunition can contribute to a situation of ‘criminalized peace’ that obstructs sustainable peacebuilding efforts. ___(4)__.

- A. Option 1
- B. Option 4
- C. Option 2
- D. Option 3

Answer Key: D

MODERATE

Q19. Five jumbled up sentences (labelled 1, 2, 3, 4 and 5), related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd sentence and key in the number of that sentence as your answer.

1. Although hard skills have traditionally ruled the roost, some companies are moving away from choosing prospective hires based on technical abilities alone.
2. Companies are shaking off the old definition of an ideal candidate and ditching the idea of looking for the singularly perfect candidate altogether.
3. Now, some job descriptions are frequently asking for candidates to demonstrate soft skills, such as leadership or teamwork.
4. That’s not to say that practical know-how is no longer required – some jobs still call for highly specific expertise
5. The move towards prioritising soft skills “is a natural response to three years of the pandemic” says a senior recruiter at Cenlar FSB.

Answer Key: 2

MODERATE

Q20. Five jumbled up sentences (labelled 1, 2, 3, 4 and 5), related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd sentence and key in the number of that sentence as your answer.

1. Boa Senior, who lived through the 2004 tsunami, the Japanese occupation and diseases brought by British settlers, was the last native of the island chain who was fluent in Bo.
2. The indigenous population has been steadily collapsing since the island chain was colonised by British settlers in 1858 and used for most of the following 100 years as a colonial penal colony.
3. Taking its name from a now-extinct tribe, Bo is one of the 10 Great Andamanese languages, which are thought to date back to pre-Neolithic human settlement of south-east Asia.
4. The last speaker of an ancient tribal language has died in the Andaman Islands, breaking a 65,000-year link to one of the world's oldest cultures.
5. Though the language has been closely studied by researchers of linguistic history, Boa Senior spent the last few years of her life unable to converse with anyone in her mother tongue.

Answer Key: 2

MODERATE

Q21. The four sentences (labelled 1, 2, 3 and 4) given 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. Veena Sahajwalla, a materials scientist at the University of New South Wales, believes there is a new way of solving this problem.
2. Her vision is for automated drones and robots to pick out components, put them into a small furnace and smelt them at specific temperatures to extract the metals one by one before they are sent off to manufacturers for reuse.
3. E-waste contains huge quantities of valuable metals, ceramics and plastics that could be salvaged and recycled, although currently not enough of it is.

4. She plans to build microfactories that can tease apart the tangle of materials in mobile phones, computers and other e-waste.

Answer Key: 3142

HARD

Q22. The four sentences (labelled 1, 2, 3 and 4) given 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. Centuries later formal learning is still mostly based on reading, even with the widespread use of other possible education-affecting technologies such as film, radio, and television.
2. One of the immediate and recognisable impacts of the printing press was on how people learned; in the scribal culture it primarily involved listening, so memorization was paramount.
3. The transformation of learners from listeners to readers was a complex social and cultural phenomenon, and it was not until the industrial era that the concept of universal literacy took root.
4. The printing press shifted the learning process, as listening and memorisation gradually gave way to reading and learning no longer required the presence of a mentor; it could be done privately.

Answer Key: 2431

HARD

Q23. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Gradually, life for the island's birds is improving. Antarctic prions and white-headed petrels, which also nest in burrows, had managed to cling on in some sites while pests were on the island. Their numbers are now increasing. "It's fantastic and so exciting," Shaw says. As birds return to breed, they also poo. This adds nutrients to the soil, which in turn helps the plants to grow back stronger. Tall plants then help burrowing birds hide from predatory skuas. "It's this wonderful feedback loop," Shaw says. Today, the "pretty paddock" that Houghton first experienced has been transformed. "The

tussock is over your head, and you're dodging all these penguin tunnels," she says. The orchids and tiny herb that had been protected by fencing have started turning up all over the place.

- A. Flowering plants, herbs and birds are now being protected on this wonderful Antarctic island.
- B. In the absence of pests, life on the island is now protected, and there has been a revival of a variety of birds and plants.
- C. There is an increasing number of predatory birds and plants on the island despite the presence of pests which is a positive development.
- D. There is a huge positive transformation of the ecosystem of the island when brought under environmental protection.

Answer Key: B

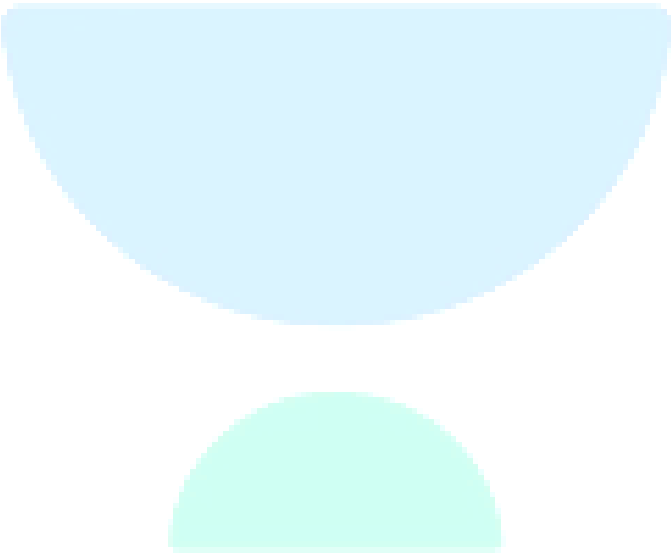
EASY

Q24. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

The weight of society's expectations is hardly a new phenomenon but it has become particularly draining over recent decades, perhaps because expectations themselves are so multifarious and contradictory. The perfectionism of the 1950s was rooted in the norms of mass culture and captured in famous advertising images of the ideal white American family that now seem self-satirising. In that era, perfectionism meant seamlessly conforming to values, behaviour and appearance: chiselled confidence for men, demure graciousness for women. The perfectionist was under pressure to look like everyone else, only more so. The perfectionists of today, by contrast, feel an obligation to stand out through their idiosyncratic style and wit if they are to gain a foothold in the attention economy.

- A. The image of perfectionism is reflected in and perpetuated by the media; and people do their best to adhere to these ideals.
- B. Though long-standing, the pressure to appear perfect and thereby attract attention, has evolved over time from one of conformism to one of non-conformism.
- C. The pressure to appear perfect has been the cause of tension and conflict because the idea itself has been in a state of flux and hard to define.
- D. The desire to attract attention is so deep-rooted in individual consciousness that people are willing to go to any lengths to achieve it.

Answer Key: B



CAT 2023 Slot 3

QUANT

Topic: Arithmetic

Subtopic: Percentage Change in Population

Question Type: Numerical Based

Level of Difficulty: Moderate

Q1. The population of a town in 2020 was 100000. The population decreased by $y\%$ from the year 2020 to 2021, and increased by $x\%$ from the year 2021 to 2022, where x and y are two natural numbers. If population in 2022 was greater than the population in 2020 and the difference between x and y is 10, then the lowest possible population of the town in 2021 was

- A. 74000
- B. 73000
- C. 75000
- D. 72000

Answer Key: B

Topic: Arithmetic

Subtopic: Profit and Loss with Dishonest Trader and Discount

Question Type: Concept-Based

Level of Difficulty: Moderate

Q2. A merchant purchases a cloth at a rate of Rs.100 per meter and receives 5 cm length of cloth free for every 100 cm length of cloth purchased by him. He sells the same cloth at a rate of Rs.110 per meter but cheats his customers by giving 95 cm length of cloth for every 100 cm length of cloth purchased by the customers. If the merchant provides a 5% discount, the resulting profit earned by him is

- A. 15.5%
- B. 9.7%

- C. 4.2%
- D. 16%

Answer Key: A

Topic: Number System

Subtopic: LCM and Divisibility Constraints

Question Type: Numerical Based

Level of Difficulty: Moderate

Q3. The number of coins collected per week by two coin-collectors A and B are in the ratio 3 : 4. If the total number of coins collected by A in 5 weeks is a multiple of 7, and the total number of coins collected by B in 3 weeks is a multiple of 24, then the minimum possible number of coins collected by A in one week is (TITA)

Answer Key: 42

Topic: Arithmetic

Subtopic: Mixtures and Alligation (Multi-stage Mixing)

Question Type: Numerical Based

Level of Difficulty: Moderate

Q4. Anil mixes cocoa with sugar in the ratio 3: 2 to prepare mixture A, and coffee with sugar in the ratio 7: 3 to prepare mixture B. He combines mixtures A and B in the ratio 2: 3 to make a new mixture C. If he mixes C with an equal amount of milk to make a drink, then the percentage of sugar in this drink will be

- A. 21
- B. 16
- C. 17
- D. 24

Answer Key: C

Topic: Arithmetic

Subtopic: Averages (Effect of Adding New Members)

Question Type: Concept-Based

Level of Difficulty: Easy

Q5. There are three persons A, B and C in a room. If a person D joins the room, the average weight of the persons in the room reduces by x kg. Instead of D, if person E joins the room, the average weight of the persons in the room increases by $2x$ kg. If the weight of E is 12 kg more than that of D, then the value of x is

- A. 1.5
- B. 2
- C. 1
- D. 0.5

Answer Key: C

Topic: Arithmetic

Subtopic: Time and Work with Inequality Conditions

Question Type: Concept-Based

Level of Difficulty: Difficult

Q6. Rahul, Rakshita and Gurmeet, working together, would have taken more than 7 days to finish a job. On the other hand, Rahul and Gurmeet, working together would have taken less than 15 days to finish the job. However, they all worked together for 6 days, followed by Rakshita, who worked alone for 3 more days to finish the job. If Rakshita had worked alone on the job then the number of days she would have taken to finish the job, cannot be

- A. 17
- B. 16
- C. 21
- D. 20

Answer Key: C

Topic: Arithmetic

Subtopic: Time and Work (Variable Efficiency)

Question Type: Numerical Based

Level of Difficulty: Moderate

Q7. Gautam and Suhani, working together, can finish a job in 20 days. If Gautam does only 60% of his usual work on a day, Suhani must do 150% of her usual work on that day to exactly make up for it. Then, the number of days required by the faster worker to complete the job working alone is (TITA)

Answer Key: 36

Topic: Arithmetic

Subtopic: Boats and Streams

Question Type: Numerical Based

Level of Difficulty: Moderate

Q8. A boat takes 2 hours to travel downstream a river from port A to port B, and 3 hours to return to port A. Another boat takes a total of 6 hours to travel from port B to port A and return to port B. If the speeds of the boats and the river are constant, then the time, in hours, taken by the slower boat to travel from port A to port B is

- A. $3(3 - \sqrt{5})$
- B. $12(\sqrt{5} - 2)$
- C. $3(3 + \sqrt{5})$
- D. $3(\sqrt{5} - 1)$

Answer Key : A

Topic: Arithmetic

Subtopic: Percentages and Linear Equations (Inventory Problems)

Question Type: Numerical Based

Level of Difficulty: Difficult

Q9. A fruit seller has a stock of mangoes, bananas and apples with at least one fruit of each type. At the beginning of a day, the number of mangoes make up 40% of his stock. That day, he sells half of the mangoes, 96 bananas and 40% of the apples. At the end of the day, he ends up selling 50% of the fruits. The smallest possible total number of fruits in the stock at the beginning of the day is (TITA)

Answer Key: 340

Topic: Arithmetic

Subtopic: Boats and Streams

Question Type: Numerical Based

Level of Difficulty: Moderate

Q10. If x is a positive real number such that $x^8 + \left(\frac{1}{x}\right)^8 = 47$, then the value of

$x^9 + \left(\frac{1}{x}\right)^9$ is

- A. $36\sqrt{5}$
- B. $34\sqrt{5}$
- C. $30\sqrt{5}$
- D. $40\sqrt{5}$

Answer Key: B

Topic: Algebra

Subtopic: Linear Equations with Infinite Solutions

Question Type: Concept-Based

Level of Difficulty: Moderate

Q11. For some real numbers a and b, the system of equations $x + y = 4$ and $(a + 5)x + (b^2 - 15)y = 8b$ has infinitely many solutions for x and y. Then, the maximum possible value of ab is

- A. 33
- B. 55
- C. 15
- D. 25

Answer Key: A

Topic: Algebra

Subtopic: Quadratic Equations (Roots and Reciprocals)

Question Type: Numerical Based

Level of Difficulty: Difficult

Q12. A quadratic equation $x^2 + bx + c = 0$ has two real roots. If the difference between the reciprocals of the roots is $\frac{1}{3}$, and the sum of the reciprocals of the squares of the roots is $\frac{5}{9}$, then the largest possible value of $(b + c)$ is (TITA)

Answer Key: 9

Topic: Algebra

Subtopic: Functions and Functional Equations

Question Type: Numerical Based

Level of Difficulty: Moderate

Q13. Suppose $f(x,y)$ is a real-valued function such that $f(3x + 2y, 2x - 5y) = 19x$, for all real numbers x and y . The value of x for which $f(x, 2x) = 27$, is (TITA)

Answer Key: 3

Topic: Algebra

Subtopic: Logarithms and Arithmetic Progression

Question Type: Concept-Based

Level of Difficulty: Difficult

Q14. For a real number x , if $\frac{1}{2}$, $\frac{\log_3(2^x-9)}{\log_3 4}$, and $\frac{\log_5(2^x+\frac{17}{2})}{\log_5 4}$ are in an arithmetic progression, then the common difference is

- A. $\log_4 7$
- B. $\log_4 \left(\frac{3}{2}\right)$
- C. $\log_4 \left(\frac{7}{2}\right)$
- D. $\log_4 \left(\frac{23}{2}\right)$

Answer Key: C

Topic: Algebra

Subtopic: Infinite Series / Pattern Recognition

Question Type: Concept-Based

Level of Difficulty: Difficult

Q15. The value of $1 + \left(1 + \frac{1}{3}\right)\frac{1}{4} + \left(1 + \frac{1}{3} + \frac{1}{9}\right)\frac{1}{16} + \left(1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27}\right)\frac{1}{64} + \dots$, is

- A. $\frac{16}{11}$
- B. $\frac{27}{12}$
- C. $\frac{15}{13}$
- D. $\frac{15}{8}$

Answer key : A

Topic: Algebra

Subtopic: Sequences and Common Terms

Question Type: Numerical Based

Level of Difficulty: Moderate

Q16. Let $a_n = 46 + 8n$ and $b_n = 98 + 4n$ be two sequences for natural numbers $n \leq 100$. Then, the sum of all terms common to both the sequences is

A. 14900

B. 14798

C. 14602

D. 15000

Answer key : A

Topic: Number System

Subtopic: Factors and Divisor Count

Question Type: Numerical Based

Level of Difficulty: Moderate

Q17. The sum of the first two natural numbers, each having 15 factors (including 1 and the number itself), is (TITA)

Answer key : 468

Topic: Number System

Subtopic: Exponents and Powers of 2

Question Type: Concept-Based

Level of Difficulty: Difficult

Q18. Let n and m be two positive integers such that there are exactly 41 integers greater than 8^m and less than 8^n , which can be expressed as powers of 2. Then, the smallest possible value of $n + m$ is

A. 16

B. 42

C. 44

D. 14

Answer Key: A

Topic: Geometry

Subtopic: Triangle Geometry (Altitudes and Angles)

Question Type: Concept-Based

Level of Difficulty: Difficult

Q19. Let $\triangle ABC$ be an isosceles triangle such that AB and AC are of equal length. AD is the altitude from A on BC and BE is the altitude from B on AC . If AD and BE intersect at O such that $\angle AOB = 105^\circ$, then $\frac{AD}{BE}$ equals

- A. $2 \sin 15^\circ$
- B. $\cos 15^\circ$
- C. $2 \cos 15^\circ$
- D. $\sin 15^\circ$

Answer Key: A

Topic: Geometry

Subtopic: Optimization in Circle Geometry (Rectangle in Semicircle)

Question Type: Concept-Based

Level of Difficulty: Moderate

Q20. A rectangle with the largest possible area is drawn inside a semicircle of radius 2 cm. Then, the ratio of the lengths of the largest to the smallest side of this rectangle is

- A. $\sqrt{5}:1$
- B. $1:1$
- C. $\sqrt{2}:1$
- D. $2:1$

Answer Key: D

Topic: Geometry

Subtopic: Polygons (Interior–Exterior Angles and Diagonals)

Question Type: Numerical Based

Level of Difficulty: Easy

Q21. In a regular polygon, any interior angle exceeds the exterior angle by 120 degrees. Then, the number of diagonals of this polygon is (TITA)

Answer Key: 54

Topic: Algebra

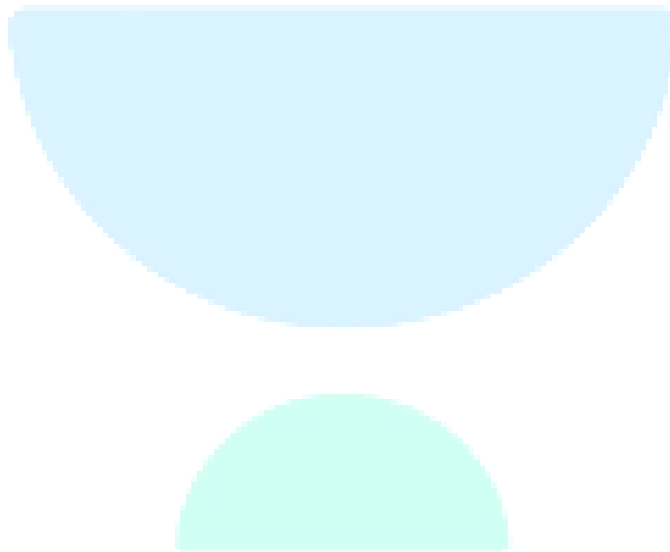
Subtopic: Inequalities and Exponential Expressions

Question Type: Concept-Based

Level of Difficulty: Difficult

Q22. Let n be any natural number such that $5^{n-1} < 3^{n+1}$. Then, the least integer value of m that satisfies $3^{n+1} < 2^{n+m}$ for each such n , is (TITA)

Answer Key: 5



CAT 2023 Slot 3

LRDI

SET 1- Read the information given below and answer the question that follows:

There are only three female students - Amala, Koli and Rini and only three male students-Biman, Mathew and Shyamal in a course. The course has two evaluation components, a project and a test. The aggregate score in the course is a weighted average of the two components, with the weights being positive and adding to 1. The projects are done in groups of two, with each group consisting of a female and a male student. Both the group members obtain the same score in the project. The following additional facts are known about the scores in the project and the test.

1. The minimum, maximum and the average of both project and test scores were identical -40, 80 and 60, respectively.
2. The test scores of the students were all multiples of 10; four of them were distinct and the remaining two were equal to the average test scores.
3. Amala's score in the project was double that of Koli in the same, but Koli scored 20 more than Amala in the test. Yet Amala had the highest aggregate score.
4. Shyamal scored the second highest in the test. He scored two more than Koli, but two less than Amala in the aggregate.
5. Biman scored the second lowest in the test and the lowest in the aggregate.
6. Mathew scored more than Rini in the project, but less than her in the test.

Q1. What was Rini's score in the project? (TITA)

Answer Key: 60

Q2. What was the weight of the test component?

- A. 0.50
- B. 0.75
- C. 0.60
- D. 0.40

Answer Key: C

Q3. What was the maximum aggregate score obtained by the students?

- A. 80
- B. 66
- C. 68
- D. 62

Answer Key: C

Q4. What was Mathew's score in the test? (TITA)

Answer Key: 40

Q5. Which of the following pairs of students were part of the same project team?

i) Amala and Biman ii) Koli and Mathew

- A. Only i)
- B. Only ii)
- C. Neither i) nor ii)
- D. Both i) and ii)

Answer Key: C

SET 2- Read the information given below and answer the question that follows:

In a coaching class, some students register online, and some others register offline. No student registers both online and offline; hence the total registration number is the sum of online and offline registrations. The following facts and table pertain to these registration numbers for the five months - January to May of 2023. The table shows the minimum, maximum, median registration numbers of these five months, separately for online, offline and total number of registrations. The following additional facts are known.

1. In every month, both online and offline registration numbers were multiples of 10.
2. In January, the number of offline registrations was twice that of online registrations.

3. In April, the number of online registrations was twice that of offline registrations.
4. The number of online registrations in March was the same as the number of offline registrations in February.
5. The number of online registrations was the largest in May.

	Minimum	Maximum	Median
Online	40	100	80
Offline	30	80	50
Total	110	130	120

Q6. What was the total number of registrations in April? (TITA)

Answer Key: 120

Q7. What was the number of online registrations in January? (TITA)

Answer Key: 40

Q8. Which of the following statements can be true? I. The number of offline registrations was the smallest in May. II. The total number of registrations was the smallest in February.

- A. Both I and II
- B. Only II
- C. Only I
- D. Neither I nor II

Answer Key: C

Q9. What best can be concluded about the number of offline registrations in February?

- A. 50
- B. 30 or 50 or 80
- C. 50 or 80
- D. 80

Answer Key: A

Q10. Which pair of months definitely had the same total number of registrations?

- I. January and April
- II. February and May

- A. Only II
- B. Neither I nor II
- C. Only I
- D. Both I and II

Answer Key: D

SET 3- Read the information given below and answer the question that follows:

An air conditioner (AC) company has four dealers - D1, D2, D3 and D4 in a city. It is evaluating sales performances of these dealers. The company sells two variants of ACs - Window and Split. Both these variants can be either Inverter type or Non-inverter type. It is known that of the total number of ACs sold in the city, 25% were of Window variant, while the rest were of Split variant. Among the Inverter ACs sold, 20% were of Window variant. The following information is also known:

1. Every dealer sold at least two window ACs.
2. D1 sold 13 inverter ACs, while D3 sold 5 Non-inverter ACs.
3. A total of six Window Non-inverter ACs and 36 Split Inverter ACs were sold in the city.
4. The number of Split ACs sold by D1 was twice the number of Window ACs sold by it.
5. D3 and D4 sold an equal number of Window ACs and this number was one-third of the number of similar ACs sold by D2.
6. D2 and D3 were the only ones who sold Window Non-inverter ACs. The number of these ACs sold by D2 was twice the number of these ACs sold by D3.

7. D3 and D4 sold an equal number of Split Inverter ACs. This number was half the number of similar ACs sold by D2.

Q11. How many Split Inverter ACs did D2 sell? (TITA)

Answer Key: 14

Q12. What percentage of ACs sold were of Non-inverter type?

- A. 75.00%
- B. 20.00%
- C. 25.00%
- D. 33.33%

Answer Key: C

Q13. What was the total number of ACs sold by D2 and D4? (TITA)

Answer Key: 33

Q14. Which of the following statements is necessarily false?

- A. D2 sold the highest number of ACs.
- B. D1 and D3 sold an equal number of Split ACS.
- C. D4 sold more Split ACs as compared to D3.
- D. D1 and D3 together sold more ACs as compared to D2 and D4 together.

Answer Key: D

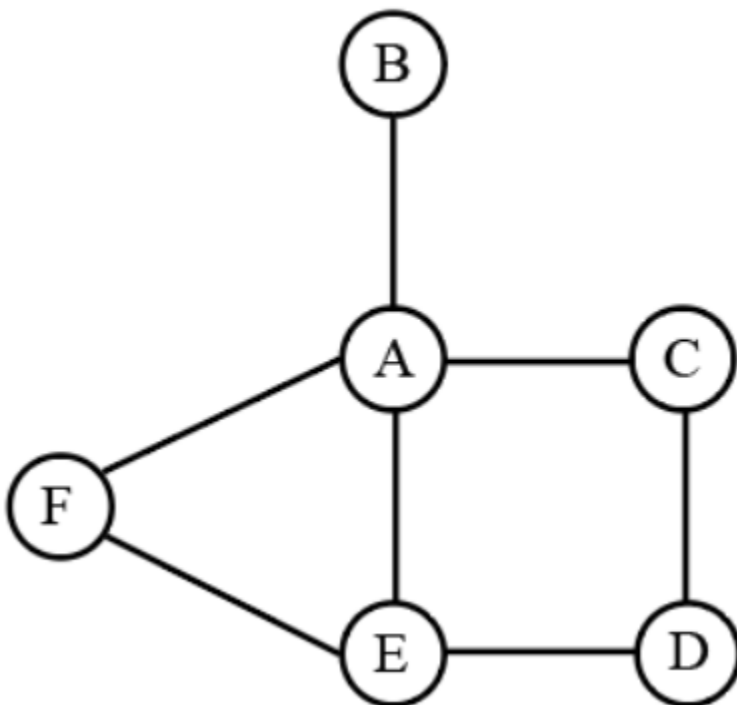
Q15. If D3 and D4 sold an equal number of ACs, then what was the number of Non-inverter ACs sold by D2?

- A. 4
- B. 7
- C. 6
- D. 5

Answer Key: D

SET 4- Read the information given below and answer the question that follows:

A, B, C, D, E and F are the six police stations in an area, which are connected by streets as shown below. Four teams Team 1, Team 2, Team 3 and Team 4- patrol these streets continuously between 09:00 hrs. and 12:00 hrs. each day.



The teams need 30 minutes to cross a street connecting one police station to another. All four teams start from Station A at 09:00 hrs. and must return to Station A by 12:00 hrs. They can also pass via Station A at any point on their journeys. The following facts are known.

1. None of the streets has more than one team traveling along it in any direction at any point in time.
2. Teams 2 and 3 are the only ones in stations E and D respectively at 10:00 hrs.

3. Teams 1 and 3 are the only ones in station E at 10:30 hrs.
4. Teams 1 and 4 are the only ones in stations B and E respectively at 11:30 hrs.
5. Team 1 and Team 4 are the only teams that patrol the street connecting stations A and E.
6. Team 4 never passes through Stations B, D or F.

Q16. Which one among the following stations is visited the largest number of times?

- A. Station D
- B. Station C
- C. Station F
- D. Station E

Answer Key: D

Q17. How many times do the teams pass through Station B in a day? (TITA)

Answer Key: 2

Q18. Which team patrols the street connecting Stations D and E at 10:15 hrs?

- A. Team 3
- B. Team 4
- C. Team 1
- D. Team 2

Answer Key: A

Q19. How many times does Team 4 pass through Station E in a day? (TITA)

Answer Key: 2

Q20. How many teams pass through Station C in a day?

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

Answer Key: B

