CAT 2025 Slot – I

unacademy

Actual CAT 2025 Slot - I

SECTION: VERBAL ABILITY AND READING COMPREHENSION

DIRECTIONS *for the question 1:* *The given sentence is missing in the paragraph below. Decide where it best fits among the options 1, 2, 3, or 4 indicated in the paragraph.*

1. **Sentence:** "Everything is old-world, traditional techniques from Mexico," Ava emphasizes.

Paragraph: The sisters embrace the ways their great-grandfather built and repaired instruments. ____(1) ____. When crafting a Mexican guitarrón used in mariachi music, they use tacote wood for the top of the instrument. Once the wood is cut, they carve the neck and heel from a single block using tools like hand saws, chisels and sandpaper rather than modern power tools — and believe that this traditional method improves the tone of the instrument. ___(2) ___. Their store has a three-year waitlist for instruments that take months to create. ____(3) ____. The family's artisanship has attracted stars like Los Lobos, who own custom guitars made by all three generations of the Delgado family. ____(4) ____. For the sisters, involvement in the family business started at an early age. They each built their first instruments at age 9.

1. Option 3 2. Option 2 3. Option 4 4. Option 1

DIRECTIONS *for questions 2-3:* *The passage given below is followed by four summaries. Choose the option that best captures the essence of the passage.*

2. In the dynamic realm of creativity, artists often find themselves at the crossroads between drawing inspiration from diverse cultures and inadvertently crossing into the territory of cultural appropriation. Inspiration is the lifeblood of creativity, driving artists to create works that resonate across borders. The globalized nature of the modern world invites artists to draw from a vast array of cultural influences. When approached respectfully, inspiration becomes a bridge, fostering understanding and appreciation of cultural diversity. However, the line between inspiration and cultural appropriation can be thin and easily blurred. Cultural appropriation occurs when elements from a particular culture are borrowed without proper understanding, respect, or acknowledgment. This leads to the commodification of sacred symbols, the reinforcement of stereotypes, and the erasure of the cultural context from which these elements originated. It's essential to recognize that the impact of cultural appropriation extends beyond the realm of artistic expression, influencing societal perceptions and perpetuating power imbalances.

1. In today's world of creativity, artists have to decide between respectfully acknowledging works that are inspired by diverse cultures and appropriating elements without respect for their contexts.
2. Artists must navigate the thin line between inspiration and cultural appropriation, where respectful inspiration fosters cultural understanding whereas appropriation involves borrowing without acknowledgement leading to commodification and reinforcement of stereotypes.
3. Artists in a globalised world must navigate between drawing inspiration from diverse cultures respectfully and cultural appropriation that involves borrowing without proper acknowledgement which has broader societal impacts including perpetuating power imbalances.
4. In a globalised world, artists must draw from diverse cultural influences to create works that appeal to all, and this results in instances of both inspiration and cultural appropriation.

3. Zombie cells may contribute to age-related chronic inflammation: this finding could help scientists understand more about the aging process and why the immune system becomes less effective as we get older. Zombie or "senescent" cells are damaged cells that can no longer divide and grow like normal cells. Scientists think that these cells can contribute to chronic health problems when they accumulate in the body. In younger people, the immune system is more effective at clearing senescent cells from the body through a process called apoptosis, but as we age this process becomes less efficient. As a result, there is an accumulation of senescent cells in different organs in the body, either through increased production or reduced clearance by the immune system. The zombie cells continue to use energy though they do not divide, and often secrete chemicals that cause inflammation, which if persistent for longer periods of time can damage healthy cells leading to chronic diseases.

1. A younger person's immune system is healthy and is able to clear the damaged cells, but as people age, the zombie cells resist apoptosis, and start accumulating in the body.
2. Aging leads to less effective apoptosis, and therefore zombie cells start to accumulate in the body, causing inflammation, which accelerates aging and leads to chronic diseases.
3. Senescent "zombie" cells are inactive or malfunctioning cells that can be found throughout the body.
4. Dead cells accelerate chronic inflammation weakening the immune system and lead to aging.

DIRECTIONS *for questions 4-5:* *Five jumbled 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 out and key in the number of that sentence as your answer.*

4.
1. The Bayeux tapestry was, therefore, an obvious way to tell people about the downfall of the English and the rise of the Normans.
2. So if we take expert in Anglo-Saxon culture Gale Owen-Crocker's idea that the tapestry was originally hung in a square with certain scenes facing each other, people would have stood in the centre.
3. Art historian Linda Neagley has argued that pre-Renaissance people interacted with art visually, kinaesthetically (sensory perception through bodily movement) and physically.
4. That would make it an 11th-century immersive space with scenes corresponding and echoing each other, drawing the viewer's attention, playing on their senses and understanding of the story they thought they knew.
5. The Bayeux tapestry would have been hung at eye level to enable this.

5.
1. Developments both technological and sociocultural have afforded us far greater freedom over death than we had in the past, and while we are still adapting ourselves to that freedom, we now appreciate the moral importance of this freedom.
2. But I believe that a type of freedom we can call freedom over death – that is, a freedom in which we shape the timing and circumstances of how we die – should be central to this conversation.
3. Legalising assisted dying is but a further step in realising this freedom over death.
4. Many people endorse, through their opinions or their choices, our freedom over death encompassing a right to medical assistance in hastening our deaths.
5. Freedom is a notoriously complex and contested philosophical notion, and I won't pretend to settle any of the big controversies it raises.

DIRECTIONS *for questions 6-9:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

How can we know what someone else is thinking or feeling, let alone prove it in court? In his 1863 book, A General View of the Criminal Law of England, James Fitzjames Stephen, among the most celebrated legal thinkers of his generation, was of the opinion that the assessment of a person's mental state was an inference made with "little consciousness." In a criminal case, jurors, doctors, and lawyers could watch defendants—scrutinizing clothing, mannerisms, tone of voice—but the best they could hope for were clues .....Rounding these clues up to a judgment about a defendant's guilt, or a defendant's life, was an act of empathy and imagination. ..... The closer the resemblance between defendants and their judges, the easier it was to overlook the gap that inference filled. Conversely, when a defendant struck officials as unlike themselves, whether by dint of disease, gender, confession, or race, the precariousness of judgments about mental state was exposed.

In the nineteenth century, physicians who specialized in the study of madness and the care of the insane held themselves out as experts in the new field of mental science. Often called alienists or mad doctors, they were the predecessors of modern psychiatrists, neurologists, and psychologists. . . . The opinions of family and neighbors had once been sufficient to sift the sane from the insane, but a growing belief that insanity was a subtle condition that required expert, medical diagnosis pushed physicians into the witness box. Lawyers for both prosecution and defense began to recruit alienists to assess defendants' sanity and to testify to it in court.

Irresponsibility and insanity were not identical, however. Criminal responsibility was a legal concept and not, fundamentally, a medical one. Stephen explained: "The question 'What are the mental elements of responsibility?' is, and must be, a legal question. It cannot be anything else, for the meaning of responsibility is liability to punishment." Nonetheless, medical and legal accounts of what it meant to be mentally sound became entangled and mutually referential throughout the nineteenth century. Lawyers relied on medical knowledge to inform their opinions and arguments about the sanity of their clients. Doctors commented on the legal responsibility of their patients. Ultimately, the fields of criminal law and mental science were both invested in constructing an image of the broken and damaged psyche that could be contrasted with the whole and healthy one. This shared interest, and the shared space of the criminal courtroom, made it nearly impossible to consider responsibility without medicine, or insanity without law. . . .

Physicians and lawyers shared more than just concern for the mind. Class, race, and gender bound these middle-class, white, professional men together, as did family ties, patriotism, Protestantism, business ventures, the alumni networks of elite schools and universities, and structures of political patronage. But for all their affinities, men of medicine and law were divided by contests over the borders of criminal responsibility, as much within each profession as between them. Alienists steadily pushed the boundaries of their field, developing increasingly complex and capacious definitions of insanity. Eccentricity and aggression came to be classified as symptoms of mental disease, at least by some.

6. The last paragraph of the passage refers to "middle-class, white, professional men". Which one of the following qualities best describes the connection among them?

1. The borders of criminal responsibility.
2. Eccentricity and aggression.
3. Empathy and imagination.
4. The opinions of family and neighbours.

7. Study the following sets of concepts and identify the set that is conceptually closest to the concerns and arguments of the passage.

1. Judgement, Belief, Accounts, Patronage.
2. Empathy, Prosecution, Knowledge, Business.
3. Judgement, Insanity, Punishment, Responsibility.
4. Assessment, Empathy, Prosecution, Patriotism.

8. According to the passage, who or what was an "alienist"?

1. Professionals who pushed the boundaries of their fields till they became unrecognisable in the nineteenth century.
2. Physicians and lawyers who were responsible for the condition of immigrants or 'aliens' in the nineteenth century.
3. Physicians and lawyers who were responsible for examining accounts of extraterrestrials or 'aliens' in the nineteenth century.
4. Physicians who specialised in the study of madness and the care of the insane in the nineteenth century.

9. "Conversely, when a defendant struck officials as unlike themselves, whether by dint of disease, gender, confession, or race, the precariousness of judgments about mental state was exposed." Which one of the following best describes the use of the word "confession" in this sentence?

1. Referring to the gender, race or disease claimed as a defence by the defendant, here it is a synonym for 'professing' a gender, race, or disease.
2. Referring to the practice of 'confession' in some faiths, here it is a metaphor for the religion of the defendant.
3. The defendants struck out at the officials and then confessed to the act.
4. Referring to the defendant's confession of his or her crime as false, because 'dint' is an archaic form of 'didn't' or 'did not'.

DIRECTIONS *for questions 10-13:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

Studies showing that income inequality plays a positive role in economic growth are largely based on three arguments. The first argument focuses on investment indivisibilities wherein large sunk costs are required when implementing new fundamental innovations. Without stock markets and financial institutions to mobilize large sums of money, a high concentration of wealth is needed for individuals to undertake new industrial activities accompanied by high sunk costs . . . [One study] shows the relation between economic growth and income inequality for 45 countries during 1966-1995. [It was found] that the increase in income inequality has a significant positive relationship with economic growth in the short and medium term. Using system GMM, [another study estimated] the relation between income inequality and economic growth for 106 countries during 1965– 2005 period. The results show that income inequality has a positive impact on economic growth in the short run, but the two are negatively correlated in the long run. The second argument is related to moral hazard and incentives . . . Because economic performance is determined by the unobservable level of effort that agents make, paying compensations without taking into account the economic performance achieved by individual agents will fail to elicit optimum effort from the agents. Thus, certain income inequalities contribute to growth by enhancing worker motivation . . . and by giving motivation to innovators and entrepreneurs . . . Finally, [another study] point[s] out that the concentration of wealth or stock ownership in relation to corporate governance contributes to growth. If stock ownership is distributed and owned by a large number of shareholders, it is not easy to make quick decisions due to the conflicting interests among shareholders, and this may also cause a free-rider problem in terms of monitoring and supervising managers and workers. . . .

Various studies have examined the relationships between income inequality and economic growth, and most of these assert that a negative correlation exists between the two. Analyzing 159 countries for 1980–2012, they conclude that there exists a negative relation between income inequality and economic growth; when the income share of the richest 20% of population increases by 1%, the GDP decreases by 0.08%, whereas when the income share of the poorest 20% of population increases by 1%, the GDP increases by 0.38%. Some studies find that inequality has a negative impact on growth due to poor human capital accumulation and low fertility rates . . . while [others] point out that inequality creates political instability, resulting in lower investment [Some economists] argue that widening income inequality has a negative impact on economic

growth because it negatively affects social consensus or social capital formation. One important research topic is the correlation between democratization and income redistribution. [Some scholars] explain that social pressure for income redistribution rises as income inequality increases in a democratic society. In other words, when democratization extends suffrage to a wider class of people, the increased political power of low- and middle-income voters results in broader support for income redistribution and social welfare expansion. However . . . if the rich have more political influence than the poor, the democratic system actually worsens income inequality rather than improving it.

10. According to the incentive or moral hazard argument, which one of the designs below is most consistent with the claim that some inequality can raise growth?

1. A regime that concentrates stock ownership in relation to corporate governance.
2. Wages are determined by tenure rather than output to ensure equity.
3. Rents protected by market power that enlarge top incomes without linking pay to results.
4. Pay rewards on verifiable performance for highly productive workers.

11. Which one of the options below best summarises the passage?

1. The passage argues that income inequality accelerates economic growth while also emphasising the significance of concerns regarding human capital accumulation, fertility rates, and political instability.
2. The passage confines its discussion to financing gaps and corporate control while undercutting cross country evidence and overlooking the significance of concerns regarding human capital accumulation, fertility rates, and income redistribution under democratisation.
3. The passage outlines investment, incentive, and governance channels through which income inequality may support economic growth and reports short-term gains while noting long term drawbacks.
4. The passage claims that evaluating the effect of income inequality on economic growth without considering both short- and long-term consequences is misguided.

12. The primary function of the three-part case for a positive income inequality–economic growth link in the first half of the passage is to show that:

1. inequality can aid short-term growth in settings with high sunk costs, incentive alignment, and concentrated ownership.
2. dispersed ownership speeds corporate decision-making and removes free rider problems.
3. inequality boosts growth in every period and type of economy, regardless of finance or governance conditions.
4. mature stock markets make wealth concentration unnecessary, yet they might still be harmful to investment.

13. The passage refers to "democratization". Choose the one option below that comes closest to the opposite of this process.

1. The coalition imposed term limits and strengthened judicial review in order to further entrench autocratic rule.
2. Corporate donations were capped and parties received public funding which was portrayed as establishing an oligarchy.
3. Municipalities adopted participatory budgeting and recall elections which a press release called totalitarianism.
4. After the emergency decree, the regime shifted toward authoritarianism as suffrage narrowed and opposition parties were deregistered.

DIRECTIONS *for the question 14:* The given sentence is missing in the paragraph below. Decide where it best fits among the options 1, 2, 3, or 4 indicated in the paragraph.

14. **Sentence:** Historically, silver has been, and still is, an important element in the business of 'show' visible in private houses, churches, government and diplomacy.

Paragraph: ___(1) ___. Timothy Schroder put it succinctly in suggesting that electric light and eating in the kitchen eroded this need. As he explained to the author, 'Silver, when illuminated by flickering candlelight, comes alive and almost dances before the eyes, but when lit by electric light it becomes flat and dead.' ___(2) ___. Domestic and economic changes may have worked against the market, but the London silver trade remained buoyant, thanks to the competition of collectors seeking grand display silver at the top end, and the buyers of 'collectables', like spoons and wine labels and 'novelties', at the bottom. ___(3) ___. Another factor that came into play was the systematic collection building of certain American museums over the period. Boston, Huntington Art Gallery and Williamsburg, among others, were largely supplied by London dealers. ____(4) ____.

1. Option 1 2. Option 2 3. Option 3 4. Option 4

DIRECTIONS *for questions 15-16:* *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.*

15.
1. But man, woman or otherwise, there is no denying that the quality of our life and character will be significantly shaped by the way we handle our anger.
2. Once the taboos have been broken, women usually experience letting their fists fly as intensely liberating.
3. Though this might seem a stereotype, women—unlike men, who are frequently applauded for unbridled aggression—are often socialized to keep a lid on their ire.
4. Many of them are so at odds with their aggressive feelings that, as a coach, I often have to stop them from pulling their punches and encourage them to extend their arms so their blows might actually reach their fleshy target.

16.
1. It can in fact be integrated into any function (education, medical treatment, production, punishment); it can increase the effect of this function, by being linked closely with it; it can constitute a mixed mechanism in which relations of power (and of knowledge) may be precisely adjusted, in the smallest detail, to the processes that are to be supervised; it can establish a direct proportion between ‘surplus power’ and ‘surplus production’.
2. It’s a case of ‘it’s easy once you’ve thought of it’ in the political sphere.
3. The panoptic mechanism is not simply a hinge, a point of exchange between a mechanism of power and a function; it is a way of making power relations function in a function, and of making a function function through these power relations.
4. In short, it arranges things in such a way that the exercise of power is not added on from the outside, like a rigid, heavy constraint, to the functions it invests, but is so subtly present in them as to increase

DIRECTIONS *for questions 17-18:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

Often the well intentioned music lover or the traditionally-minded professional composer asks two basic questions when faced with the electronic music phenomena: (1) . . . is this type of artistic creation music at all? and, (2) given that the product is accepted as music of a new type or order, is not such music "inhuman"? . . . As Lejaren Hiller points out in his book Experimental Music (co-author Leonard M. Isaacson), two questions which often arise when music is discussed are: (a) the substance of musical communication and its symbolic and semantic significance, if any, and (b) the particular processes, both mental and technical, which are involved in creating and responding to musical composition. The ever-present popular concept of music as a direct, open, emotional expression and as a subjective form of communication from the composer, is, of course still that of the nineteenth century, when composers themselves spoke of music in those terms . . . But since the third decade of our century many composers have preferred more objective definitions of music, epitomized in Stravinsky's description of it as "a form of speculation in terms of sound and time". An acceptance of this more characteristic twentieth-century view of the art of musical composition will of course immediately bring the layman closer to an understanding of, and sympathetic response to, electronic music, even if the forms, sounds and approaches it uses will still be of a foreign nature to him.

A communication problem however will still remain. The principal barrier that electronic music presents at large, in relation to the communication process, is that composers in this medium are employing a new language of forms . . . where terms like 'densities', 'indefinite pitch relations', 'dynamic serialization', 'permutation', etc., are substitutes (or remote equivalents) for the traditional concepts of harmony, melody, rhythm, etc. . . . When the new structural procedures of electronic music are at last fully understood by the listener the barriers between him and the work he faces will be removed. . . .

The medium of electronic music has of course tempted many kinds of composers to try their hand at it . . . But the serious-minded composer approaches the world of electronic music with a more sophisticated and profound concept of creation. Although he knows that he can reproduce and employ melodic, rhythmic patterns and timbres of a traditional nature, he feels that it is in the exploration of sui generis languages and forms that the aesthetic magic of the new medium lies. And, conscientiously, he plunges into this search.

The second objection usually levelled against electronic music is much more innocent in nature. When people speak—sometimes very vehemently—of the 'inhuman' quality of this music they seem to forget that the composer is the one who fires the machines, collects the sounds, manipulates them, pushes the buttons, programs the computer, filters the sounds, establishes pitches and scales, splices tape, thinks of forms, and rounds up the over-all structure of the piece, as well as every detail of it.

17. What relation does the "communication problem" mentioned in paragraph 2 have to the questions that the author recounts at the beginning of the passage?

1. Its unfamiliar "language of forms" and novel terms mean that we cannot see electronic music as music since it does not employ traditional musical concepts.
2. Unfamiliar forms and terms might get in the way of our seeing electronic music as music, but this can be overcome.
3. The communication problem is what allows us to see electronic music as music because music must be difficult to understand.
4. None; they are unrelated to one another and form parts of different discussions.

18. From the context in which it is placed, the phrase "sui generis" in paragraph 3 suggests which one of the following?

1. Indescribable
2. Particular
3. Unaesthetic
4. Generic

19. The goal of the author over the course of this passage is to:

1. differentiate the modern composer from the nineteenth century composer.
2. defend electronic music from certain common charges.
3. differentiate between electronic music and other forms of music.
4. defend the "serious-minded composer" from Lejaren Hill and Stravinsky.

20. The mention of Stravinsky's description of music in the first paragraph does all the following EXCEPT:

1. complicate our notion of what is communicated through music.
2. allow us to classify electronic music as music.
3. respond to and expand upon earlier understandings of music.
4. help us determine which sounds are musical and which are not.

DIRECTIONS *for questions 21-24:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

Understanding the key properties of complex systems can help us clarify and deal with many new and existing global challenges, from pandemics to poverty . . . A recent study in Nature Physics found transitions to orderly states such as schooling in fish (all fish swimming in the same direction), can be caused, paradoxically, by randomness, or 'noise' feeding back on itself. That is, a misalignment among the fish causes further misalignment, eventually inducing a transition to schooling. Most of us wouldn't guess that noise can produce predictable behaviour. The result invites us to consider how technology such as contact-tracing apps, although informing us locally, might negatively impact our collective movement. If each of us changes our behaviour to avoid the infected, we might generate a collective pattern we had aimed to avoid: higher levels of interaction between the infected and susceptible, or high levels of interaction among the asymptomatic.

Complex systems also suffer from a special vulnerability to events that don't follow a normal distribution or 'bell curve'. When events are distributed normally, most outcomes are familiar and don't seem particularly striking. Height is a good example: it's pretty unusual for a man to be over 7 feet tall; most adults are between 5 and 6 feet, and there is no known person over 9 feet tall. But in collective settings where contagion shapes behaviour – a run on the banks, a scramble to buy toilet paper – the probability distributions for possible events are often heavy-tailed. There is a much higher probability of extreme events, such as a stock market crash or a massive surge in infections. These events are still unlikely, but they occur more frequently and are larger than would be expected under normal distributions.

What's more, once a rare but hugely significant 'tail' event takes place, this raises the probability of further tail events. We might call them second-order tail events; they include stock market gyrations after a big fall and earthquake aftershocks. The initial probability of second-order tail events is so tiny it's almost impossible to calculate – but once a first-order tail event occurs, the rules change, and the probability of a second-order tail event increases.

The dynamics of tail events are complicated by the fact that they result from cascades of other unlikely events. When COVID-19 first struck, the stock market suffered stunning losses followed by an equally stunning recovery. Some of these dynamics are potentially attributable to former sports bettors, with no sports to bet on, entering the market as speculators rather than investors. The arrival of these new players might have increased inefficiencies and allowed savvy long-term investors to gain an edge over bettors with different goals. . . .

One reason a first-order tail event can induce further tail events is that it changes the perceived costs of our actions and changes the rules that we play by. This game-change is an example of another key complex systems concept: nonstationarity. A second, canonical example of nonstationarity is adaptation, as illustrated

by the arms race involved in the coevolution of hosts and parasites [in which] each has to 'run' faster, just to keep up with the novel solutions the other one presents as they battle it out in evolutionary time.

21. All of the following inferences are supported by the passage EXCEPT that:

1. learning can change the rules that actors face. So, a rare shock can alter payoffs and raise the odds of subsequent large disturbances within the same system, which supports the idea of second-order tail events.
2. the text attributes the COVID-19 pandemic rebound in financial markets solely to displaced sports bettors and treats their entry as the overriding cause of the rapid recovery across assets and time horizons.
3. examples like runs on banks and toilet paper scrambles illustrate how contagion can amplify local choices into system-wide cascades that surprise participants and lead to patterns they did not intend to create.
4. heavy-tailed events make extreme outcomes more frequent and larger than bell curve expectations. This complicates forecasting and risk management in collective settings shaped by contagion and copying behaviour.

22. Which one of the following observations would most strengthen the passage's claim that a first-order tail event raises the probability of further tail events in complex systems?

1. After a major equity crash, researchers find dense clusters of large daily moves for several weeks, with extreme days occurring far more often than in normal circumstances for assets with customarily low volatility profiles.
2. Following large earthquakes, regional seismic activity returns to baseline within hours with no aftershock sequence once data are adjusted for reporting effects, which suggests independence across events rather than any elevation in subsequent tail probabilities.
3. In epidemic networks, initial super-spreading episodes are isolated spikes after which outbreak sizes match the baseline distribution from independent contact models across comparable cities with no rise in the frequency or size of later extreme clusters.
4. River discharge records show water levels fit a normal distribution with thin tails that match laboratory data, regardless of storms or floods.

23. Which one of the options below best summarises the passage?

1. The passage explains how speculative entrants always produce inefficiency after health shocks. Therefore, long-term investors invariably profit when new participants push prices away from fundamentals under pandemic conditions and comparable crises.
2. The passage explains how social outcomes generally follow normal distributions. So, extreme events are negligible, and policy should stabilize averages rather than learn from large shocks in fast-changing collective settings.
3. The passage explains how constitutionality works in evolutionary biology and rejects applications in markets or public health because adaptation is exclusive to parasite-host systems and cannot arise in technology-mediated social dynamics.
4. The passage explains how noise can create order, then shows why complex systems with contagion are vulnerable to heavy-tailed cascades. It also explains why early shocks change rules through constitutionality with a market illustration during the COVID-19 disruption.

24. The passage suggests that contact tracing apps could inadvertently raise risky interactions by altering local behaviour. Which one of the assumptions below is most necessary for that suggestion to hold?

1. Individuals base movement choices partly on observed infections and on the behaviour of others. So, local responses interact, which turns many small adjustments into large scale patterns that can frustrate the intended aim of risk reduction.
2. Most users uninstall apps within a week, which leaves only highly exposed individuals participating. This neutralises any systematic bias in routing decisions and prevents any predictable change in aggregate contact patterns.
3. App alerts always include precise location to within one metre and deliver real time updates for all users, which ensures that the data feed is perfectly accurate regardless of privacy settings, power limits, or network conditions.
4. Urban networks have uniform traffic conditions at all hours, which allows perfectly predictable routing independent of personal choices, social signals, or crowd reactions and, therefore, makes interdependence negligible in city movement decisions.

SECTION: DATA INTERPRETATION & LOGICAL REASONING

DIRECTIONS ***for questions 25-29:*** *Read the information given below and answer the question that follows.*

A train travels from Station A to Station E, passing through stations B, C, and D, in that order. The train has a seating capacity of 200. A ticket may be booked from any station to any other station ahead on the route, but not to any earlier station.

A ticket from one station to another reserves one seat on every intermediate segment of the route. For example, a ticket from B to E reserves a seat in the intermediate segments B – C, C – D, and D – E.

The occupancy factor for a segment is the total number of seats reserved in the segment as a percentage of the seating capacity. The total number of seats reserved for any segment cannot exceed 200.

The following information is known.

1. Segment C – D had an occupancy factor of 95%. Only segment B – C had a higher occupancy factor.
2. Exactly 40 tickets were booked from B to C and 30 tickets were booked from B to E.
3. Among the seats reserved on segment D – E, exactly four-sevenths were from stations before C.
4. The number of tickets booked from A to C was equal to that booked from A to E, and it was higher than that from B to E.
5. No tickets were booked from A to B, from B to D and from D to E.
6. The number of tickets booked for any segment was a multiple of 10.

25. What was the occupancy factor for segment D – E?

1. 35% 2. 70% 3. 84% 4. 77%

26. How many tickets were booked from Station A to Station E?

27. How many tickets were booked from Station C?

28. What is the difference between the number of tickets booked to Station C and the number of tickets booked to Station D?

29. How many tickets were booked to travel in exactly one segment?

DIRECTIONS *for questions 30-34:* *Read the information given below and answer the question that follows.*

At InnovateX, six employees, Asha, Bunty, Chintu, Dolly, Eklavya, and Falguni, were split into two groups of three each: Elite led by Manager Kuku, and Novice led by Manager Lalu.

At the end of each quarter, Kuku and Lalu handed out ratings to all members in their respective groups. In each group, each employee received a distinct integer rating from 1 to 3.

The score for an employee at the end of a quarter is defined as their cumulative rating from the beginning of the year. At the end of each quarter the employee in Novice with the highest score was promoted to Elite, and the employee in Elite with the minimum score was demoted to Novice. If there was a tie in scores, the employee with a higher rating in the latest quarter was ranked higher.

1. Asha, Bunty, and Chintu were in Elite at the beginning of Quarter 1. All of them were in Novice at the beginning of Quarter 4.
2. Dolly and Falguni were the only employees who got the same rating across all the quarters.
3. The following is known about ratings given by Lalu:
   - Bunty received a rating of 1 in Quarter 2.
   - Asha and Dolly received ratings of 1 and 2, respectively, in Quarter 3.

30. What was Eklavya's score at the end of Quarter 2?

31. How many employees changed groups more than once up to the beginning of Quarter 4?

32. What was Bunty's score at the end of Quarter 3?

33. For how many employees can the scores at the end of Quarter 3 be determined with certainty?

34. Which of the following statements is/are NECESSARILY true?
I. Asha received a rating of 2 in Quarter 1.
II. Asha received a rating of 1 in Quarter 2.

1. Only II
2. Only I
3. Both I and II
4. Neither I nor II

DIRECTIONS *for questions 35-38:* *Read the information given below and answer the question that follows.*

A round table has seven chairs around it. The chairs are numbered 1 through 7 in a clockwise direction. Four friends, Aslam, Bashir, Chhavi, and Davies, sit on four of the chairs. In the starting position, Aslam and Chhavi are sitting next to each other, while for Bashir as well as Davies, there are empty chairs on either side of the chairs that are sitting on.

The friends take turns moving either clockwise or counter clockwise from their chair. The friend who has to move in a turn occupies the first empty chair in whichever direction (s)he chooses to move. Aslam moves first (Turn 1), followed by Bashir, Chhavi, and Davies (Turns 2, 3, and 4, respectively). Then Aslam moves again followed by Bashir, and Chhavi (Turns 5, 6, and 7, respectively).

The following information is known.
1. The four friends occupy adjacent chairs only at the end of Turn 2 and Turn 6.
2. Davies occupies Chair 2 after Turn 1 and Chair 4 after Turn 5, and Chhavi occupies Chair 7 after Turn 2

35. What is the number of the chair initially occupied by Bashir?

36. Who sits on the chair numbered 4 at the end of Turn 3?

1. Bashir 2. Chhavi 3. Davies 4. No one

37. Which of the chairs are occupied at the end of Turn 6?

1. Chairs numbered 1, 2, 6, and 7
2. Chairs numbered 2, 3, 4, and 5
3. Chairs numbered 1, 2, 3, and 4
4. Chairs numbered 4, 5, 6, and 7

38. Which of the following BEST describes the friends sitting on chairs adjacent to the one occupied by Bashir at the end of Turn 7?

1. Davies only 2. Chhavi and Davies 3. Aslam and Chhavi 4. Chhavi only

DIRECTIONS *for questions 39-42:* *Read the information given below and answer the question that follows.*

Alia, Badal, Clive, Dilshan, and Ehsaan played a game in which each asks a unique question to all the others and they respond by tapping their feet, either once or twice or thrice. One tap means "Yes", two taps mean "No", and three taps mean "Maybe".
A total of 40 taps were heard across the five questions. Each question received at least one "Yes", one "No", and one "Maybe."

The following information is known.
1. Alia tapped a total of 6 times and received 9 taps to her question. She responded "Yes" to the questions asked by both Clive and Dilshan.
2. Dilshan and Ehsaan tapped a total of 11 and 9 times respectively. Dilshan responded "No" to Badal.
3. Badal, Dilshan, and Ehsaan received equal number of taps to their respective questions.
4. No one responded "Yes" more than twice.
5. No one's answer to Alia's question matched the answer that Alia gave to that person's question. This was also true for Ehsaan.
6. Clive tapped more times in total than Badal.

39. How many taps did Clive receive for his question?

40. Which two people tapped an equal number of times in total?

41. What was Clive's response to Ehsaan's question?

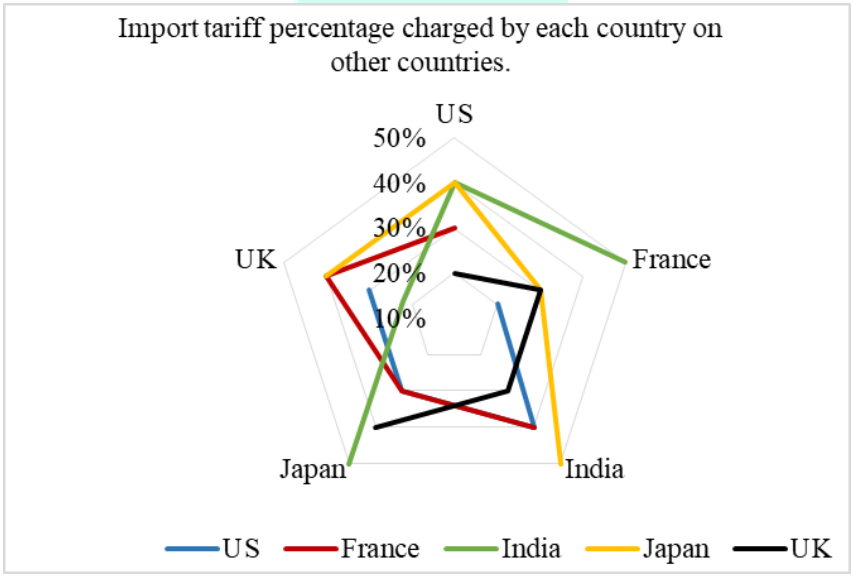
1. Yes 2. Maybe 3. Cannot be determined 4. No

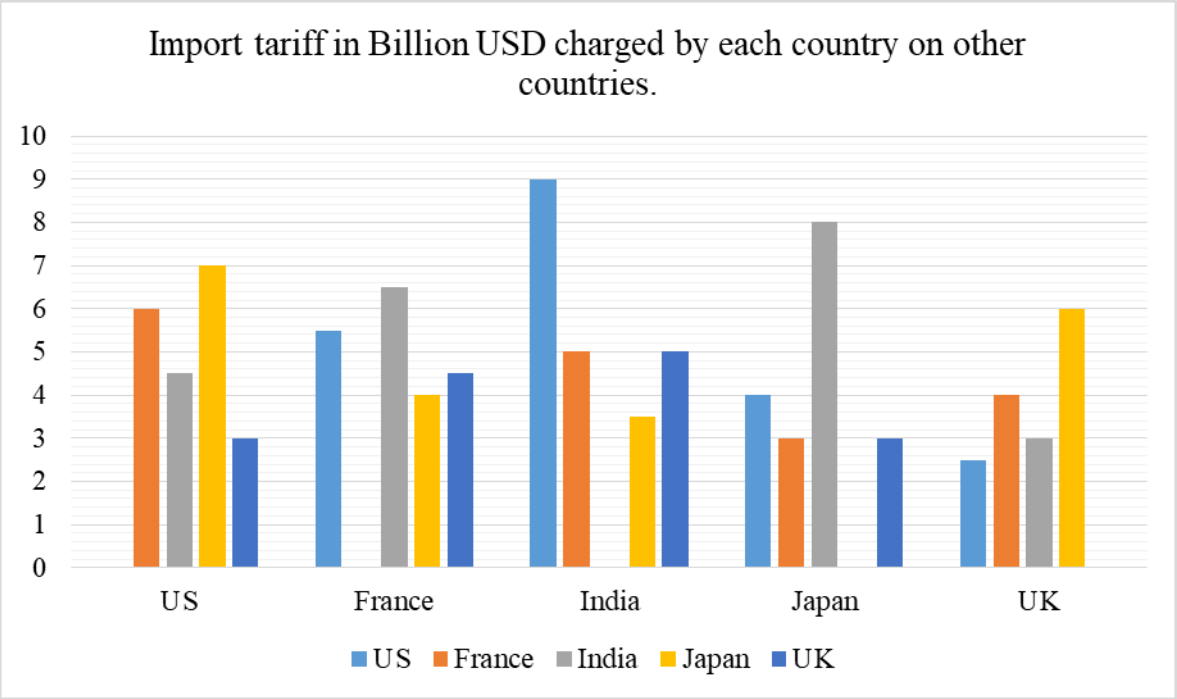
42. How many "Yes" responses were received across all the questions?

DIRECTIONS *for questions 43-45:* *Read the information given below and answer the question that follows.*

Five countries engage in trade with each other. Each country levies import tariffs on the other countries. The import tariff levied by Country X on Country Y is calculated by multiplying the corresponding tariff percentage with the total imports of Country X from Country Y.

The radar chart below depicts different import tariff percentages charged by each of the five countries on the others. For example, US (the blue line in the chart) charges 20%, 40%, 30%, and 30% import tariff percentages on imports from France, India, Japan, and UK, respectively. The bar chart depicts the import tariffs levied by each county on other countries. For example, US charged import tariff of 3 billion USD on UK.





Assume that imports from one country to another equals the exports from the latter to the former.

The trade surplus of Country X with Country Y is defined as follows.
Trade surplus = Exports from Country X to Country Y – Imports to Country X from Country Y.

A negative trade surplus is called trade deficit.

43. How much is Japan's export to India worth?

1. 8.5 Billion USD
2. 7.0 Billion USD
3. 16.0 Billion USD
4. 1.75 Billion USD

44. Which among the following is the highest?

1. Exports by France to Japan
2. Imports by France from India
3. Imports by US from France
4. Exports by Japan to UK

45. What is the trade surplus/trade deficit of India with UK?

1. Deficit of 10.0 Billion USD
2. Surplus of 15.0 Billion USD
3. Surplus of 10.0 Billion USD
4. Deficit of 15.0 Billion USD

46. Among France and UK, who has/have trade surplus(es) with US?

1. Neither France nor UK
2. Both France and UK
3. Only France
4. Only UK

SECTION: QUANTITATIVE ABILITY

47. The ratio of the number of students in the morning shift and afternoon shift of a school was 13 : 9. After 21 students moved from the morning shift to the afternoon shift, this ratio became 19 : 14. Next, some new students joined the morning and afternoon shifts in the ratio 3 : 8 and then the ratio of the number of students in the morning shift and the afternoon shift became 5 : 4. The number of new students who joined is

1. 110
2. 121
3. 88
4. 99

48. The number of distinct integers n for which $\log_{\left(\frac{1}{4}\right)}\left(n^2-7n+11\right)>0$, is

1. 0
2. 1
3. Infinite
4. 2

49. In a circle with center C and radius $6\sqrt{2}$ cm, PQ and SR are two parallel chords separated by one of the diameters. If $\angle PQC = 45°$, and the ratio of the perpendicular distance of PQ and SR from C is 3:2, then the area, in sq. cm, of the quadrilateral $PQRS$ is

1. $20\left(3+\sqrt{14}\right)$
2. $4\left(3+\sqrt{14}\right)$
3. $4\left(3\sqrt{2}+\sqrt{7}\right)$
4. $20\left(3\sqrt{2}+\sqrt{7}\right)$

50. A container holds 200 litres of a solution of acid and water, having 30% acid by volume. Atul replaces 20% of this solution with water, then replaces 10% of the resulting solution with acid, and finally replaces 15% of the solution thus obtained, with water. The percentage of acid by volume in the final solution obtained after these three replacements, is nearest to

1. 27
2. 25
3. 29
4. 23

51. Shruti travels a distance of 224 km in four parts for a total travel time of 3 hours. Her speeds in these four parts follow an arithmetic progression, and the corresponding time taken to cover these four parts follow another arithmetic progression. If she travels at a speed of 960 meters per minute for 30 minutes to cover the first part, then the distance, in meters, she travels in the fourth part is

1. 76800
2. 112000
3. 86400
4. 96000

52. The number of district pairs of integers (x, y) satisfying the inequalities
$x > y \geq 3$ and $x + y < 14$ is

53. Let $3 \leq x \leq 6$ and $[x^2] = [x]^2$, where [x] is the greatest integer not exceeding x. If set S represents all feasible values of x, then a possible subset of S is

1. $\left(4,\sqrt{18}\right)\cup[5,\sqrt{27})\cup\{6\}$
2. $\left(3,\sqrt{10}\right)\cup[4,\sqrt{17})\cup\{6\}$
3. $\left(3,\sqrt{10}\right)\cup[5,\sqrt{26})\cup\{6\}$
4. $[3,\sqrt{10}]\cup[5,\sqrt{26}]$

54. Kamala divided her investment of Rs 100000 between stocks, bonds, and gold. Her investment in bonds was 25% of her investment in gold. With annual returns of 10%, 6%, 8% on stocks, bonds, and gold, respectively, she gained a total amount of Rs 8200 in one year. The amount, in rupees, that she gained from the bonds, was

55. At a certain simple rate of interest, a given sum amounts to Rs.13920 in 3 years, and to Rs 18960 in 6 years and 6 months. If the same given sum had been invested for 2 years at the same rate as before but with interest compounded every 6 months, then the total interest earned, in rupees, would have been nearest to

1. 3221
2. 3180
3. 3150
4. 3096

56. A cafeteria offers 5 types of sandwiches. Moreover, for each type of sandwich, a customer can choose one of 4 breads and opt for either small or large sized sandwich. Optionally, the customer may also add up to 2 out of 6 available sauces. The number of different ways in which an order can be placed for a sandwich, is

1. 840
2. 800
3. 880
4. 600

57. Arun, Varun and Tarun, if working alone, can complete a task in 24, 21, and 15 days, respectively. They charge Rs 2160, Rs 2400, and Rs 2160 per day, respectively, even if they are employed for a partial day. On any given day, any of the workers may or may not be employed to work. If the task needs to be completed in 10 days or less, then the minimum possible amount, in rupees, required to be paid for the entire task is

1. 47040
2. 38880
3. 34400
4. 38400

58. The number of non-negative integer values of k for which the quadratic equation $x^2 - 5x + k = 0$ has only integer roots, is

59. The (x, y) coordinates of vertices P, Q and R of a parallelogram PQRS are (-3, -2), (1, -5) and (9, 1), respectively. If the diagonal SQ intersects the x-axis at (a, 0), then the value of a is

1. $\frac{10}{3}$
2. $\frac{29}{9}$
3. $\frac{13}{4}$
4. $\frac{27}{7}$

60. In a 3-digit number N, the digits are non-zero and distinct such that none of the digits is a perfect square, and only one of the digits is a prime number. Then, the number of factors of the minimum possible value of N is

61. Stocks A, B and C are priced at rupees 120, 90 and 150 per share, respectively. A trader holds a portfolio consisting of 10 shares of stock A, and 20 shares of stocks B and C put together. If the total value of her portfolio is rupees 3300, then the number of shares of stock B that she holds, is

62. If $a - 6b + 6c = 4$ and $6a + 3b - 3c = 50$, where a, b and c are real numbers, the value of $2a + 3b - 3c$ is

1. 18
2. 15
3. 20
4. 14

63. A value of c for which the minimum value of $f(x) = x^2 - 4cx + 8c$ is greater than the maximum value of $g(x) = -x^2 + 3cx - 2c$, is

1. -2
2. $-\frac{1}{2}$
3. 2
4. $\frac{1}{2}$

64. In a class, there were more than 10 boys and a certain number of girls. After 40% of the girls and 60% of the boys left the class, the remaining number of girls was 8 more than the remaining number of boys. Then, the minimum possible number of students initially in the class was

65. In the set of consecutive odd numbers {1, 3, 5, ….., 57}, there is a number of *k* such that the sum of all the elements less than *k* is equal to the sum of all the elements greater than *k*. Then, *k* equals.

1. 43
2. 37
3. 39
4. 41

66. A shopkeeper offers a discount of 22% on the marked price of each chair, and gives 13 chairs to a customer for the discounted price of 12 chairs to earn a profit of 26% on the transaction. If the cost price of each chair is Rs 100, then the marked price, in rupees, of each chair is

67. If the length of a side of a rhombus is 36 cm and the area of the rhombus is 396 sq. cm, then the absolute value of the difference between the lengths, in cm, of the diagonals of the rhombus is

68. For any natural number *k*, let $a_k = 3^k$. The smallest natural number *m* for which $\{(a_1)^1 \times (a_2)^2 \times \ldots \times (a_{20})^{20}\} < \{a_{21} \times a_{22} \times \ldots\ldots a_{(20+m)}\}$, is

1. 57
2. 56
3. 59
4. 58

CAT 2025 Slot – 02

unacademy

Actual CAT 2025 Slot - II

SECTION: VERBAL ABILITY AND READING COMPREHENSION

DIRECTIONS *for questions 1-4:* *The passage below is accompanied by a set of questions. Choose the best answer to each question.*

Time and again, whenever a population [of Mexican tetra fish] was swept into a cave and survived long enough for natural selection to have its way, the eyes disappeared. "But it's not that everything has been lost in cavefish . . . Many enhancements have also happened." . . . Studies have found that cave-dwelling fish can detect lower levels of amino acids than surface fish can. They also have more tastebuds and a higher density of sensitive cells alongside their bodies that let them sense water pressure and flow. . . .

Killing the processes that support the formation of the eye is quite literally what happens. Just like non-cave-dwelling members of the species, all cavefish embryos start making eyes. But after a few hours, cells in the developing eye start dying, until the entire structure has disappeared. [Developmental biologist Misty] Riddle thinks this apparent inefficiency may be unavoidable. "The early development of the brain and the eye are completely intertwined—they happen together," she says. That means the least disruptive way for eyelessness to evolve may be to start making an eye and then get rid of it. . . .

It's easy to see why cavefish would be at a disadvantage if they were to maintain expensive tissues they aren't using. Since relatively little lives or grows in their caves, the fish are likely surviving on a meager diet of mostly bat feces and organic waste that washes in during the rainy season. Researchers keeping cavefish in labs have discovered that, genetically, the creatures are exquisitely adapted to absorbing and storing nutrients. . . .

Fats can be toxic for tissues, [evolutionary physiologist Nicolas] Rohner explains, so they are stored in fat cells. "But when these cells get too big, they can burst, which is why we often see chronic inflammation in humans and other animals that have stored a lot of fat in their tissues." Yet a 2020 study by Rohner, Krishnan and their colleagues revealed that even very well-fed cavefish had fewer signs of inflammation in their fat tissues than surface fish do. Even in their sparse cave conditions, wild cavefish can sometimes get very fat, says Riddle. This is presumably because, whenever food ends up in the cave, the fish eat as much of it as possible, since there may be nothing else for a long time to come. Intriguingly, Riddle says, their fat is usually bright yellow, because of high levels of carotenoids, the substance in the carrots that your grandmother used to tell you were good for your…eyes.

"The first thing that came to our mind, of course, was that they were accumulating these because they don't have eyes," says Riddle. In this species, such ideas can be tested: Scientists can cross surface fish (with eyes) and cavefish (without eyes) and look at what their offspring are like. When that's done, Riddle says, researchers see no link between eye presence or size and the accumulation of carotenoids. Some eyeless cavefish had fat that was practically white, indicating lower carotenoid levels. Instead, Riddle thinks these carotenoids may be another adaptation to suppress inflammation, which might be important in the wild, as cavefish are likely overeating whenever food arrives.

1. Which one of the following results for the cross between surface fish (with eyes) and cavefish (without eyes) would invalidate Riddle's inference from the experiment?

1. Some offspring with eyes had white fat.
2. Some offspring with eyes had yellow fat.
3. Some eyeless offspring had white fat.
4. Only eyeless offspring had yellow fat.

2. Which one of the following best explains why the "apparent inefficiency" is "unavoidable"?

1. The lack of light in the caves kills the eye cells in the developing Mexican tetra cavefish embryo.
2. The inefficiency resulting from eyelessness is compensated by enhancements like more tastebuds in Mexican tetra cavefish.
3. Mexican tetra cavefish are similar to non-cave-dwelling variants in their early stages of development.
4. The caves have poor and inconsistent availability of food and nutrition for Mexican tetra cavefish.

3. On the basis of the information in the passage, what is the most likely function of carotenoids in Mexican tetra cavefish?

1. To render bright yellow colour to the cavefish.
2. To act as a substitute for eyes.
3. To help the fat cells store nutrients.
4. To control inflammation from the bursting of fat cells.

4. All of the following statements from the passage describe adaptation in Mexican tetra cavefish EXCEPT:

1. "Since relatively little lives or grows in their caves, the fish are likely surviving on a meager diet of mostly bat feces and organic waste that washes in during the rainy season."
2. "'But when these cells get too big, they can burst, which is why we often see chronic inflammation in humans and other animals that have stored a lot of fat in their tissues.'"
3. "It's easy to see why cavefish would be at a disadvantage if they were to maintain expensive tissues they aren't using."
4. "Even in their sparse cave conditions, wild cavefish can sometimes get very fat, says Riddle."

DIRECTIONS *for the question 5:* *Five jumbled 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 out and key in the number of that sentence as your answer.*

5.
1. Sporting a copper-coloured pixie cut and a pair of pink feather antlers, Torres himself resembles a child's doodle.
2. His casual millennial delivery, peppered with "um"s and "ah"s, makes surreal concepts sound like items on a brunch menu.
3. Though he may have failed so far in his colour-scouting mission (he hasn't yet found a new one, he admits), this hour leaves you tickled pink.
4. Like his previous show, My Favourite Shapes, this is an hour of sit-down comedy aided by an overhead camera which relays Torres's theories – illustrated with crayon squiggles – on to a screen behind him.
5. His inquisitive mind produces interconnected ideas about Catholicism, the blandness of Pixar and what orange sounds like, while his insights train us to spot "highly purple behaviour".

DIRECTIONS *for the question 6:* *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.*

6.

1. As books age, the cellulose and lignin in the paper begin to break down, releasing a mix of volatile organic compounds into the air.
2. Old books carry a scent that many people instantly recognize—and even love.
3. These compounds are benzaldehyde, which gives off an almond-like scent, vanillin, which smells like vanilla, ethyl hexanol (floral scent), toluene (sweet), and furfural (which has a slightly bready scent).
4. This familiar aroma isn't just dust or mildew; it's actually a result of slow chemical changes happening inside the paper and ink.

DIRECTIONS *for the question 7:* *The given sentence is missing in the paragraph below. Decide where it best fits among the options 1, 2, 3, or 4 indicated in the paragraph.*

7.

Sentence: The region's Western customers found it hard to believe that Dhaka muslin could possibly have been made by human hands – there were rumour that it was woven by mermaids, fairies and even ghosts.

Paragraph: Once upon the silty banks of the Meghna River, a miracle was spun — a fabric so light it was called "baft-hawa", or woven air. This was Dhaka Muslin — the world's most coveted cloth. ___(1)____. Handspun from a rare cotton called Phuti Karpas, found nowhere else on Earth, and woven with a 16-step sacred ritual — beginning with cleaning the cotton using the teeth of a river catfish! ___(2)___. Every spring, the maple-like leaves pushed up through the grey, silty soil to produce a single daffodilyellow flower twice a year, which gave way to a snowy floret of cotton fibres. ___(3)___. Spun at dawn on boats by sharp-eyed young women, its threads were so fine the elderly could barely see them. Motifs of wildflowers, river breeze, and soul were etched into each piece — some so light, a 91-metre bolt could pass through a ring, or a 60' length fit inside a snuffbox. It draped Greek goddesses, Roman nobles, Mughal emperors, and European aristocrats. Marie Antoinette, Empress Joséphine — even Jane Austen adored its floating grace. ____(4)____.

1. Option 1 2. Option 2 3. Option 3 4. Option 4

DIRECTIONS *for the question 8:* *Five jumbled 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 out and key in the number of that sentence as your answer.*

8.

1. Pfas are a class of about 15,000 compounds most frequently used to make products water-, stain- and grease-resistant.
2. New research suggests exposure to some common perfluoroalkyl and polyfluoroalkyl substances (Pfas) cause changes to gene activity and that these changes are linked to health problems including multiple cancers, neurological disorders and autoimmune disease.
3. These Pfas compounds are dubbed "forever chemicals" because they do not naturally break down in the environment. 4. The research may also point toward other diseases potentially caused by Pfas that have not yet been identified.
4. The findings are a major step toward determining the mechanism by which the chemicals cause disease and could help doctors identify, detect and treat health problems for those exposed to Pfas before the issues advance.

DIRECTIONS ***for questions 9-12:*** The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

Different sciences exhibit different science cultures and practices. For example, in astronomy, observation – until what is today called the new astronomy – had always been limited to what could be seen within the limits of optical light. Indeed, until early modernity the limits to optical light were also limits of what humans could themselves see within their limited and relative perceptual spectrum of human vision. With early modernity and the invention of lensed optical instruments – telescopes – astronomers could begin to observe phenomena never seen before. Magnification and resolution began to allow what was previously imperceptible to be perceived – but within the familiar limits of optical vision. Galileo, having learned of the Dutch invention of a telescope by Hans Lippershey, went on to build some hundred of his own, improving from the Dutch 3x to nearly 30x telescopes – which turn out to be the limit of magnificational power without chromatic distortion. And it was with his own telescopes that he made the observations launching early modern astronomy (phases of Venus, satellites of Jupiter, etc.). Isaac Newton's later improvement with reflecting telescopes expanded upon the magnificational-resolution capacity of optical observation; and, from Newton to the twentieth century, improvement continued on to the later very large array of light telescopes today – following the usual technological trajectory of "more-is-better" but still remaining within the limits of the light spectrum. Today's astronomy has now had the benefit of some four centuries of optical telescopy. The "new astronomy," however, opens the full known electromagnetic spectrum to observation, beginning with the accidental discovery of radio astronomy early in the twentieth century, and leading today to the diverse variety of EMS telescopes which can explore the range from gamma to radio waves. Thus, astronomy, now outfitted with new instruments, "smart" adaptive optics, very large arrays, etc., illustrates one style of instrumentally embodied science – a techno science. Of course astronomy, with the very recent exceptions of probes to solar system bodies (Moon, Mars, Venus, asteroids), remains largely a "receptive" science, dependent upon instrumentation which can detect and receive emissions.

Contemporary biology displays a quite different instrument array and, according to Evelyn Fox Keller, also a different scientific culture. She cites her own experience, coming from mathematical physics into microbiology, and takes account of the distinctive instrumental culture in her Making Sense of Life (2002). Here, particularly with the development of biotechnology, instrumentation is far more interventional than in the astronomy case. Microscopic instrumentation can be and often is interventional in style: "gene-splicing" and other techniques of biotechnology, while still in their infancy, are clearly part of the interventional trajectory of biological instrumentation. Yet, in both disciplines, the sciences involved are today highly instrumentalized and could not progress successfully without constant improvements upon the respective instrumental trajectories. So, minimalistically, one may conclude that the sciences are technologically, instrumentally embodied. But the styles of embodiment differ, and perhaps the last of the scientific disciplines to move into such technical embodiment is mathematics, which only contemporarily has come to rely more and more upon the computational machinery now in common use.

9. All of the following statements may be rejected as valid inferences from the passage EXCEPT:

1. the advances in telescopy made by Newton with reflecting telescopes allowed early modern astronomers to observe the phases of Venus and the satellites of Jupiter.
2. Isaac Newton's experiments with reflecting telescopes were the earliest versions of the "new astronomy" referred to in the passage.
3. interventionist instruments, or instruments that intervene directly in scientific inquiry, are different from embodied instruments, or instruments that embody scientific inquiry.
4. the author distinguishes between the receptive and interventionist uses of instruments in the sciences by comparing astronomy and biology, respectively.

10. Which one of the following observations is a valid conclusion to draw from the statement that "the sciences involved are today highly instrumentalised and could not progress successfully without constant improvements upon the respective instrumental trajectories"?

1. The growth of scientific technologies has led to the embodiment of progress in the trajectories of improvement.
2. In both astronomy and microbiology, progress has been the consequence of improvements in the instruments they use.
3. Highly instrumentalised work in the sciences has resulted in the progressive improvement of scientific constants.
4. The use of instruments in scientific trajectories must be respected in order to see successful progress in them.

11. To which one of the following instruments would the characterisations of instruments in the passage be least applicable?

1. Kitchen oven 2. Scalpel 3. Milestone 4. Saxophone

12. None of the following statements, if true, contradicts the arguments in the passage EXCEPT:

1. because of the relatively recent entry of computational machinery in mathematics, the field is only now beginning to develop a scientific culture.
2. some scientific instruments may be classified as both receptive and interventional in their functions.
3. like telescopy, microscopy has also sought to move beyond the visible spectrum to be able to detect objects that are invisible in that spectrum.
4. Isaac Newton's discovery of gravity was accomplished without the help of instruments.

DIRECTIONS *for the question 13:* The given sentence is missing in the paragraph below. Decide where it best fits among the options 1, 2, 3, or 4 indicated in the paragraph.

13. **Sentence:** While taste is related to judgment, with thinkers at the time often writing, for example, about "judgments of taste" or using the two terms interchangeably, taste retains a vital link to pleasure, embodiment, and personal specificity that is too often elided in post-Kantian ideas about judgment—a link that Arendt herself was working to restore.

Paragraph: ____(1) ____. Denneny focused on taste rather than judgment in order to highlight what he believed was a crucial but neglected historical change. ____(2) ____. Over the course of the seventeenth century and early eighteenth century, across Western Europe, the word taste took on a new extension of meaning, no longer referring specifically to gustatory sensation and the delights of the palate but becoming, for a time, one of the central categories for aesthetic—and ethical—thinking. ____(3) ____. Tracing the history of taste in Spanish, French, and British aesthetic theory, as Denneny did, also provides a means to recover the compelling and relevant writing of a set of thinkers who have been largely neglected by professional philosophy. ____(4) ____.

1. Option 4 2. Option 2 3. Option 1 4. Option 3

DIRECTIONS *for questions 14-15:* *The passage given below is followed by four summaries. Choose the option that best captures the essence of the passage.*

14. For millennia, in the process of opening up land for agriculture, gardens, grazing and hunting, humans have created ecological "mosaics", or "patchworks": landscapes holding a mixture of habitats, like meadows, gardens and forests. These were not designed as nature reserves, but often catered to hugely diverse animal life. Research indicates that European hay meadows cultivated for animal feed were actually more successful at preserving a vast array of species than meadows explicitly cultivated for biodiversity. Studying the early Holocene, researchers have found that human presence was about as likely to increase biodiversity as reduce it. Of course, not all humancreated landscapes have the same value. A paved subdivision with astroturfed lawns is very different to a village with diverse vegetable and flower gardens. But scientists continue to find evidence that the old idea of humans as antithetical to nature is also wrong-headed, and that rosy visions of thriving, human-free environments are more imaginary than real.

1. In our attempts to shape the world around us to our needs, humans have often created landscapes like meadows, gardens, and forests, which support hugely diverse species, and are more successful at preserving them, than parks created specifically for this.
2. In terms of preserving biodiversity, scientists are finding increasing evidence that human action is not always antithetical to nature, but often assists the preservation of meadows, landscapes, and flourishing of species.
3. Contrary to the idea that humans always hurt nature and that it thrives in their absence, a lot of human action across history has been equally likely to increase biodiversity than reduce it, often creating varied ecological landscapes that support a vast array of species.
4. Studying the early Holocene and human practices over millennia, researchers say that while agricultural meadows, gardens, and forests were not explicitly designed as nature reserves, they actually preserved a vast array of species, belying the idea that humans harm nature.

15. In 1903, left-wing feminist Elizabeth Magie invented The Landlord's Game, the original version of what became Monopoly. It was designed as a powerful teaching tool to illustrate the dangers of monopolies and how wealth could concentrate in the hands of a few. The game featured a circular path, properties, and a "Go to Jail" space. Magie created two rule sets: one "monopolist" version where players crushed opponents through accumulation, and another, more radical "Prosperity" version, where everyone shared in the wealth, promoting fairness and equity. Years later, unemployed Charles Darrow sold a simplified version to Parker Brothers. They paid Magie only $500 for her patent—without royalties—and credited Darrow as the sole inventor. For decades, his tale of inventing the game in his basement remained the official story, while Magie's name and her original, anti-capitalist message were left in the shadows.

1. Parker Brothers' capitalist intent led to them acquiring from Charles Darrow a simplified version of Elizabeth Magie's original game, transforming it into a widespread commercial success while providing her only minimal financial compensation and granting scant public recognition.
2. Only one version of Monopoly became famous because of Charles Darrow's relentless basement work, carefully refining Elizabeth Magie's original idea into an engaging and entertaining pastime that he successfully patented and sold, symbolizing what many regarded as the ultimate triumph of individual ingenuity.
3. Celebrated icons of the gaming industry, Charles Darrow and Parker Brothers, snatched the feminist icon Elizabeth Magie's original design and transformed Monopoly into a worldwide phenomenon, while barely acknowledging her.
4. It is ironical that a left-wing feminist lost credit for the Landlord's Game to an unemployed man, who plagiarised and sold one version of the twin game to Parker Brothers for a meagre sum, denying her royalties.

DIRECTIONS *for the question 16:* *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.*

16.

1. 'Literature on screen' suggests something more capacious and defining than citation: the possibility that literary adaptations are at once cinema and literature
2. Even though a growing number of films eligible for Academy Awards for Best Screenplay Based on Material from Another Medium borrow that material from print journalism, franchise characters, television series, comic books, video games and toys, academic studies of adaptation remain stubbornly attached to literature as cinema's natural progenitor.
3. It is as if adaptation studies, by borrowing the cultural cachet of literature, sought to claim its institutional respectability and gravitas even while insuring adaptation's enduring aesthetic and methodological subordination to literature proper.
4. Beneath this contradictory notion of film adaptations as not merely hybrid texts but texts holding dual citizenship in two modes of presentation is an even more pervasive legacy that haunts adaptation studies: the assumption that the primary context within which adaptations are to be studied is literature.

DIRECTIONS *for questions 17-20:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

This book takes the position that setting in literature is more than just backdrop, that important insight into literary texts can be made by paying close attention to how authors craft place, as well as to how place functions in a narrative. The authors included in this reference work engage deeply with either real or imagined geographies. They care about how human decisions have shaped landscapes and how landscapes have shaped human practices and values. Some of the best writing is highly vivid, employing the language of the senses because this is the primary means through which humans know physical space.

Literature can offer valuable perspectives on physical and cultural geography. Unlike scientific reports, a literary narrative can provide the emotional component missing from the scientific record. In human experience, geographical places have a spiritual or emotional component in addition to and as part of a physical layout and topography. This emotional component, although subjective, is no less "real" than a surveyor's map. Human consciousness of place is experienced in a multimodal manner. Histories of places live on in many forms, one of which is the human memory or imagination.

Both real and imaginary landscapes provide insight into the human experience of place. The pursuit of such a topic speaks to the valuable knowledge produced from bridging disciplines and combining material from both the arts and the sciences to better understand the human condition. The perspectives that most concern cultural geographers are often those regarding movement and migration, cultivation of natural resources, and organization of space. The latter two reflect concerns of the built environment, a topic shared with the field of architectural study. Many of these concerns are also reflected in work sociologists do. Scholars from literary studies can contribute an aesthetic dimension to what might otherwise be a purely ideological approach.

Literature can bring together material that spans different branches of science. For example, a literary description of place may involve not only the environment and geography but the noises and quality of light, or how people from different races or classes can experience the same place in different ways linked to those racial or class disparities. Literary texts can also account for the way in which absence—of other people, animals, and so on—affects a human observer or inhabitant. Both literary and scientific approaches to place are necessary, working in unison, to achieve a complete record of an environment. It is important to note that the interdisciplinary nature of this work teaches us that landscapes are not static, that they are not unchanged

by human culture. At least part of their identity derives from the people who inhabit them and from the way space can alter and inspire human perspective. The intersection of scientific and literary expression that happens in the study of literary geography is of prime importance due to the complexity of the personal and political ways that humans experience place.

17. Which one of the following is a valid conclusion to draw from the author's statement that, "The pursuit of such a topic speaks to the valuable knowledge produced from bridging disciplines and combining material from both the arts and the sciences to better understand the human condition."?

1. A comprehensive bridging of the human condition can best be achieved by a disciplined pursuit of human understanding.
2. The literary descriptions of the emotions we experience in the places we visit can contribute to our understanding of the arts and sciences.
3. A comprehensive understanding of the valuable knowledge produced by the arts and sciences can best be achieved by studying the human condition.
4. A comprehensive understanding of the human condition can best be achieved by combining the findings of disciplines from the arts and the sciences.

18. Which one of the following is not true of the argument in the second paragraph?

1. The spiritual experience of a place may be considered as real as the physical experience of it.
2. The emotional and spiritual experience of a place can replace a surveyor's map
3. Analysing the literary descriptions of a place can give us a sense of how people relate emotionally to it.
4. Literary accounts of places can be filled with histories, manifested as memory or imagination.

19. The author uses the example of the literary description of place to illustrate that:

1. architects use diverse methods to calibrate the noises and lights of a given place.
2. the absence of other people, animals, and so on in a place can profoundly affect its inhabitants.
3. scientific approaches to place are more accurate than literary ones.
4. literature can convey how different people experience the same place differently.

20. All of the following statements, if false, would contradict the arguments in the passage, EXCEPT that:

1. humans do not interact with places in subjective, emotional ways because places are only physical topography.
2. literature provides us with deep insights into the ways in which movement and migration affect physical geography.
3. descriptions of places do not need satellite imagery or other visual aids to give a "real" sense of the place.
4. highly vivid writing, employing the language of the senses, can capture the multi-modal manner in which humans experience places.

DIRECTIONS *for questions 21-24:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

In [my book "Searches"], I chronicle how big technology companies have exploited human language for their gain. We let this happen, I argue, because we also benefit somewhat from using the products. It's a dynamic that makes us complicit in big tech's accumulation of wealth and power: we're both victims and beneficiaries. I describe this complicity, but I also enact it, through my own internet archives: my Google searches, my Amazon product reviews and, yes, my ChatGPT dialogues. . . .

People often describe chatbots' textual output as "bland" or "generic" – the linguistic equivalent of a beige office building. OpenAI's products are built to "sound like a colleague", as OpenAI puts it, using language that, coming from a person, would sound "polite", "empathetic", "kind", "rationally optimistic" and "engaging", among other qualities. OpenAI describes these strategies as helping its products seem "professional" and "approachable". This appears to be bound up with making us feel safe . . .

Trust is a challenge for artificial intelligence (AI) companies, partly because their products regularly produce falsehoods and reify sexist, racist, US-centric cultural norms. While the companies are working on these problems, they persist: OpenAI found that its latest systems generate errors at a higher rate than its previous system. In the book, I wrote about the inaccuracies and biases and also demonstrated them with the products. When I prompted Microsoft's Bing Image Creator to produce a picture of engineers and space explorers, it gave me an entirely male cast of characters; when my father asked ChatGPT to edit his writing, it transmuted his perfectly correct Indian English into American English. Those weren't flukes. Research suggests that both tendencies are widespread.

In my own ChatGPT dialogues, I wanted to enact how the product's veneer of collegial neutrality could lull us into absorbing false or biased responses without much critical engagement. Over time, ChatGPT seemed to be guiding me to write a more positive book about big tech – including editing my description of OpenAI's CEO, Sam Altman, to call him "a visionary and a pragmatist". I'm not aware of research on whether ChatGPT tends to favor big tech, OpenAI or Altman, and I can only guess why it seemed that way in our conversation. OpenAI explicitly states that its products shouldn't attempt to influence users' thinking. When I asked ChatGPT about some of the issues, it blamed biases in its training data – though I suspect my arguably leading questions played a role too. When I queried ChatGPT about its rhetoric, it responded: "The way I communicate is designed to foster trust and confidence in my responses, which can be both helpful and potentially misleading.". . .

OpenAI has its own goals, of course. Among them, it emphasizes wanting to build AI that "benefits all of humanity". But while the company is controlled by a non-profit with that mission, its funders still seek a return on their investment. That will presumably require getting people using products such as ChatGPT even more than they already are – a goal that is easier to accomplish if people see those products as trustworthy collaborators.

21. The author compares AI-generated texts with "a beige office building" for all of the following reasons EXCEPT:

1. AI aims to foster a feeling of trust and credibility among its users.
2. AI tends to blame its training data when scrutinised for its biases.
3. AI-generated texts often exhibit a warm, polite, and collegial tone.
4. AI generates generalised responses that lack specificity and nuance.

22. On the basis of the purpose of the examples in the passage, pick the odd one out from the following AI-generated responses mentioned in the passage:

1. "When I queried ChatGPT about its rhetoric, it responded: 'The way I communicate is designed to foster trust and confidence in my responses, which can be both helpful and potentially misleading'."
2. "Over time, ChatGPT seemed to be guiding me to write a more positive book about big tech – including editing my description of OpenAI's CEO, Sam Altman, to call him 'a visionary and a pragmatist'."
3. "When I prompted Microsoft's Bing Image Creator to produce a picture of engineers and space explorers, it gave me an entirely male cast of characters . . ."
4. ". . . when my father asked ChatGPT to edit his writing, it transmuted his perfectly correct Indian English into American English."

23. All of the following statements from the passage affirm the disjunct between the claims about AI made by tech companies and what AI actually does EXCEPT:

1. "In my own ChatGPT dialogues, I wanted to enact how the product's veneer of collegial neutrality could lull us into absorbing false or biased responses without much critical engagement."
2. "I'm not aware of research on whether ChatGPT tends to favor big tech, OpenAI or Altman, and I can only guess why it seemed that way in our conversation."
3. "It's a dynamic that makes us complicit in big tech's accumulation of wealth and power: we're both victims and beneficiaries."
4. "When I prompted Microsoft's Bing Image Creator to produce a picture of engineers and space explorers, it gave me an entirely male cast of characters . . ."

24. The author of the passage is least likely to agree with which one of the following claims?

1. When we use AI, we become accomplices to the exploitative practices of big tech companies.
2. The neutrality of AI is conducive to critical thinking.
3. The neutrality of AI is motivated by economic considerations.
4. ChatGPT favours AI companies and their officials, like Sam Altman, in its responses.

SECTION: DATA INTERPRETATION & LOGICAL REASONING

DIRECTIONS *for questions 25-29:* *Read the information given below and answer the question that follows.*

Ananya Raga, Bhaskar Tala, Charu Veena, and Devendra Sur are four musicians. Each of them started and completed their training as students under each of three Gurus — Pandit Meghnath, Ustad Samiran, and Acharya Raghunath between 2013 and 2024, including both the years. Each Guru trains any student for consecutive years only, for a span of 2, 3, or 4 years, with each Guru having a different span. During some of these years, a student may not have trained under these Gurus; however, they never trained under multiple Gurus in the same year. In none of these years, any of these Gurus trained more than two of these students at the same time. When two students train under the same Guru at the same time, they are referred to as Gurubhai, irrespective of their gender.

The following additional facts are known.
1. Ustad Samiran never trained more than one of these students in the same year.
2. Acharya Raghunath did not train any of these students during 2015-2018, as well as during 2021-24.
3. Ananya and Devendra were never Gurubhai; neither were Bhaskar and Charu. All other pairs of musicians were Gurubhai for exactly 2 years.
4. In 2013, Ananya and Bhaskar started their trainings under Pandit Meghnath and under Ustad Samiran, respectively.

25. In which of the following years were Ananya and Bhaskar Gurubhai?

1. 2021 2. 2018 3. 2014 4. 2020

26. In which year did Charu begin her training under Pandit Meghnath?

1. 2021 2. 2015 3. 2016 4. 2017

27. In which of the following years were Bhaskar and Devendra Gurubhai?

1. 2018 2. 2020 3. 2015 4. 2022

28. Which of the following statements is TRUE?

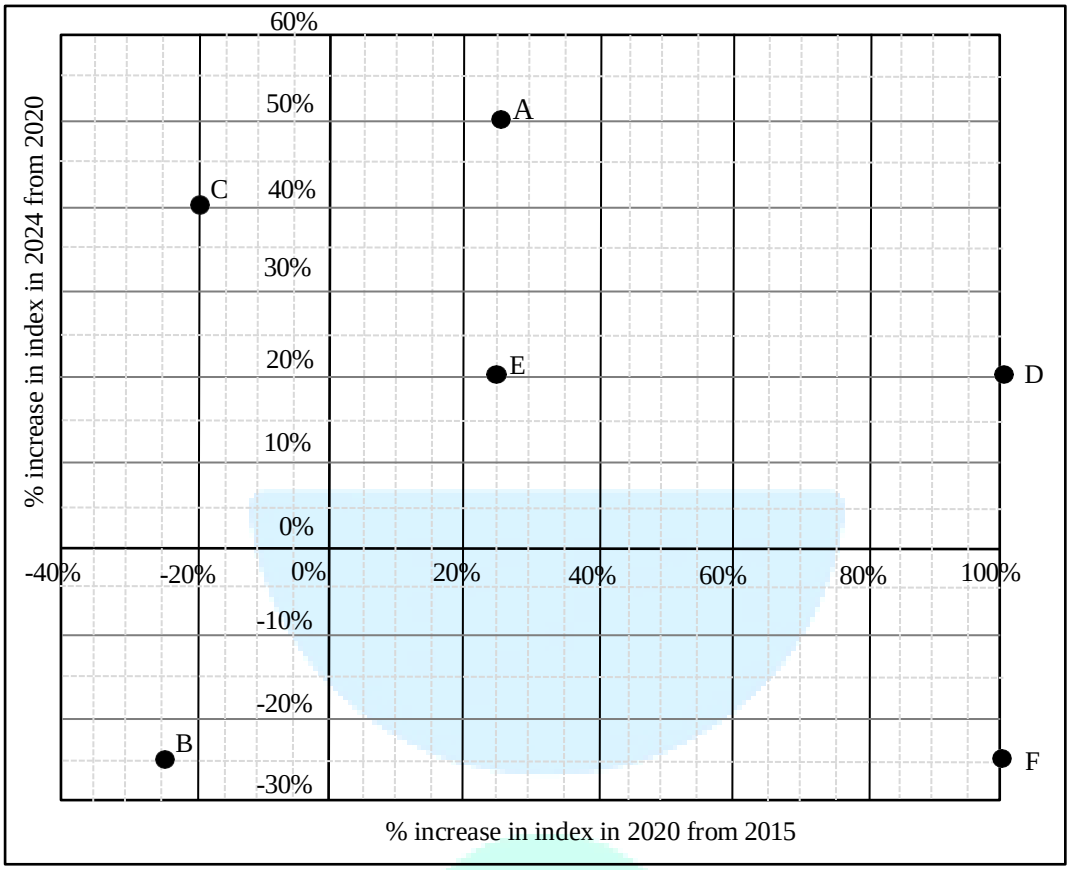
1. Ananya was training under Ustad Samiran in 2018.
2. Charu was training under Ustad Samiran in 2019.
3. Ananya was training under Ustad Samiran in 2015.
4. Charu was training under Ustad Samiran in 2018.

29. In how many of the years between 2013-24, were only two of these four musicians training under these three Gurus?

DIRECTIONS *for questions 30-33:* *Read the information given below and answer the question that follows.*

The Sustainability Index (SI) of a country at a point in time is an integer between 1 and 100. This question is related to SI of six countries – A, B, C, D, E, and F – at three different points in time – 2016, 2020, and 2024. The plot represents the exact changes in their SI, with X-coordinate representing % increase in 2020 from 2016, i.e., (SI in 2020 minus SI in 2016) / (SI in 2016), and Y-coordinate representing % increase in 2024

from 2020. At any point in time, the country with highest SI is ranked 1, while the country with the lowest SI is ranked 6. The following additional facts are known.
1. In 2016, B, C, E, and A had ranks 1, 2, 3, and 4 respectively.
2. F had lower SI than any other country in 2016, 2020, and 2024.
3. In 2024, E was the only country with SI of 90.
4. The range of SI of the six countries was 60 in 2016 as well as in 2024.



30. What was the SI of E in 2016?

31. What was the SI of F in 2020?

32. What was the SI of C in 2024?

33. What was the SI of B in 2024?

1. 54 2. 60 3. 45 4. 80

DIRECTIONS *for questions 34-38:* *Read the information given below and answer the question that follows.*

The two most populous cities and the non-urban region (NUR) of each of three states, Whimshire, Fogglia, and Humbleset, are assigned Pollution Measures (PMs). These nine PMs are all distinct multiples of 10, ranging from 10 to 90. The six cities in increasing order of their PMs are: Blusterburg, Noodleton, Splutterville, Quackford, Mumpypore, Zingaloo.

The Pollution Index (PI) of a state is a weighted average of the PMs of its NUR and cities, with a weight of 50% for the NUR, and 25% each for its two cities.

There is only one pair of an NUR and a city (considering all cities and all NURs) where the PM of the NUR is greater than that of the city. That NUR and the city both belong to Humbleset.

The PIs of all three states are distinct integers, with Humbleset and Fogglia having the highest and the lowest PI respectively.

34. What is the PI of Whimshire?

35. What is the PI of Fogglia?

36. What is the PI of Humbleset?

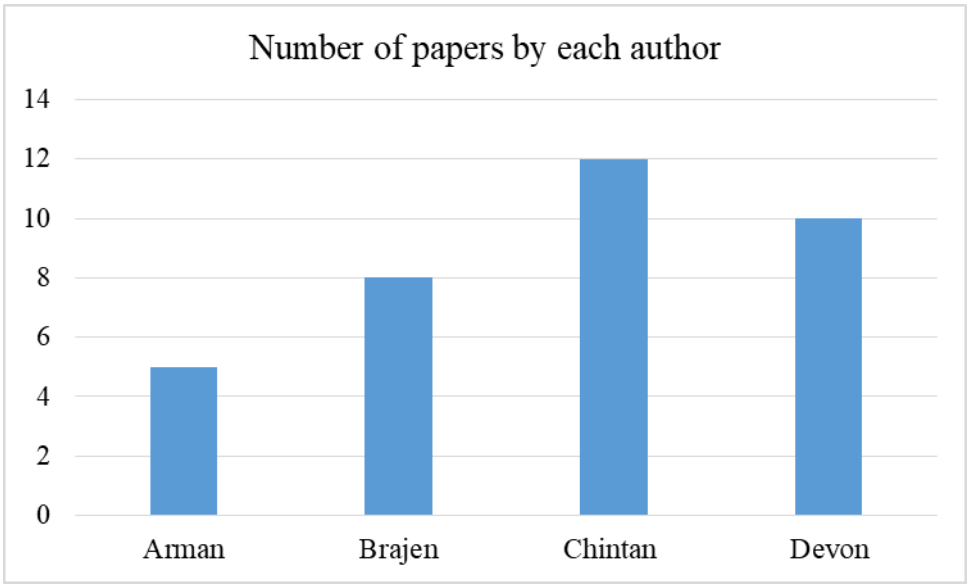
37. Which pair of cities definitely belong to the same state?

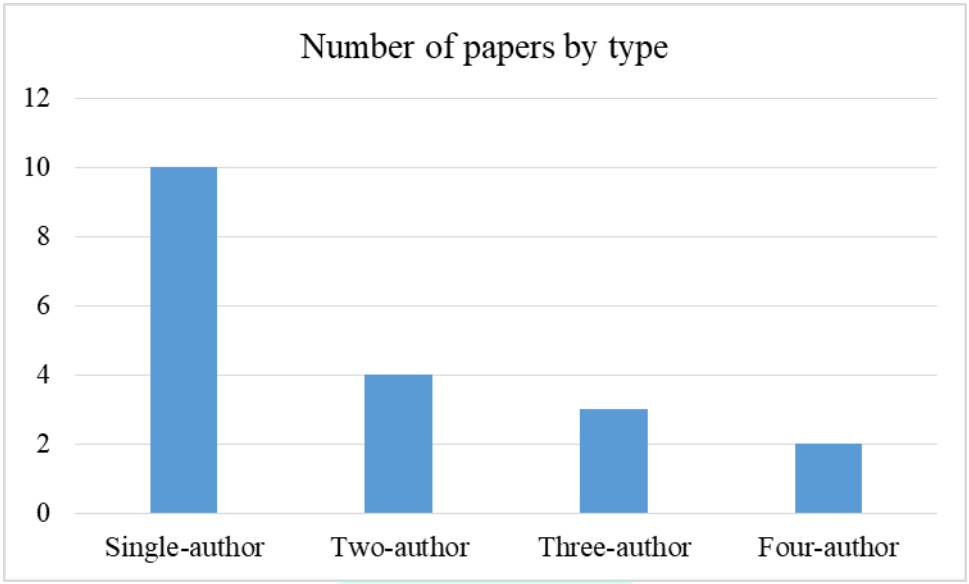
1. Blusterburg, Mumpypore
2. Mumpypore, Zingaloo
3. Noodleton, Quackford
4. Splutterville, Quackford

38. For how many of the cities and NURs is it possible to identify their PM and the state they belong to?

DIRECTIONS *for questions 39-42:* *Read the information given below and answer the question that follows.*

The following charts depict details of research papers written by four authors, Arman, Brajen, Chintan, and Devon. The papers were of four types, singleauthor, two-author, three-author, and four-author, that is, written by one, two, three, or all four of these authors, respectively. No other authors were involved in writing these papers.





The following additional facts are known.
1. Each of the authors wrote at least one of each of the four types of papers.
2. The four authors wrote different numbers of single-author papers.
3. Both Chintan and Devon wrote more three-author papers than Brajen
4. The number of single-author and two-author papers written by Brajen were the same.

39. What was the total number of two-author and three-author papers written by Brajen?

40. Which of the following statements is/are NECESSARILY true?
i. Chintan wrote exactly three two-author papers.
ii. Chintan wrote more single-author papers than Devon.

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

41. Which of the following statements is/are NECESSARILY true?
i. Arman wrote three-author papers only with Chintan and Devon.
ii. Brajen wrote three-author papers only with Chintan and Devon.

1. Only I 2. Neither i or ii 3. Only ii 4. Both i and ii

42. If Devon wrote more than one two-author papers, then how many two-author papers did Chintan write?

DIRECTIONS *for questions 43-46:* *Read the information given below and answer the question that follows.*

There are six spherical balls, B1, B2, B3, B4, B5, and B6, and four circular hoops H1, H2, H3, and H4.

Each ball was tested on each hoop once, by attempting to pass the ball through the hoop. If the diameter of a ball is not larger than the diameter of the hoop, the ball passes through the hoop and makes a "ping". Any ball having a diameter larger than that of the hoop gets stuck on that hoop and does not make a ping.

The following additional information is known:
1. B1 and B6 each made a ping on H4, but B5 did not.
2. B4 made a ping on H3, but B1 did not.
3. All balls, except B3, made pings on H1.
4. None of the balls, except B2, made a ping on H2.

43. What was the total number of pings made by B1, B2, and B3?

44. Which of the following statements about the relative sizes of the balls is NOT NECESSARILY true?

1. B1 < B6 < B3 2. B2 < B1 < B5 3. B4 < B5 < B3 4. B1 < B5 < B3

45. Which of the following statements about the relative sizes of the hoops is true?

1. H2 < H4 < H3 < H1 2. H2 < H3 < H4 < H1 3. H1 < H3 < H4 < H2 4. H1 < H4 < H3 < H2

46. What BEST can be said about the total number of pings from all the tests undertaken?

1. 12 or 13 or 14 2. 13 or 14 3. At least 9 4. 12 or 13

SECTION: QUANTITATIVE ABILITY

47. The equations $3x^2-5x + p = 0$ and $2x^2 – 2x + q = 0$ have one common root. The sum of the other roots of these two equations is

1. $\frac{8}{3}+p+\frac{1}{3}q$
2. $\frac{2}{3}-2p+\frac{2}{3}q$
3. $\frac{8}{3}-p+\frac{3}{2}q$
4. $\frac{2}{3}-p+\frac{3}{2}q$

48. Let ABCDEF be a regular hexagon and P and Q be the midpoints of AB and CD, respectively. Then, the ratio of the areas of trapezium PBCQ and hexagon ABCDEF is

1. 6 : 19
2. 5 : 24
3. 7 : 24
4. 6 : 25

49. If If $\log_{64}x^2+\log_8\sqrt{y}+3\log_{512}\left(\sqrt{y}\,z\right)=4$, where x, y and z are positive real numbers, then the minimum possible value of (x + y + x) is

A) 96
2. 36
3. 24
4. 48

50. The set of all real values of x for which $(x^2 – |x + 9| + x) > 0$, is

1. $(-\infty, -3) \cup (3, \infty)$
2. $(-9, -3) \cup (3, \infty)$
3. $(-\infty, -9) \cup (9, \infty)$
4. $(-\infty, -9) \cup (3, \infty)$

51. A certain amount of money was divided among Pinu, Meena, Rinu and Seema. Pinu received 20% of the total amount and Meena received 40% of the remaining amount. If Seema received 20% less than Pinu, the ratio of the amounts received by Pinu and Rinu is

1. 2 : 1
2. 5 : 8
3. 1 : 2
4. 8 : 5

52. Ankita is twice as efficient as Bipin, while Bipin is twice as efficient as Chandan. All three of them start together on a job, and Bipin leaves the job after 20 days. If the job got completed in 60 days, the number of days needed by Chandan to complete the job alone, is

53. Let a_n be the n^{th} term of a decreasing infinite geometric progression if $a_1 + a_2 + a_3 = 52$ and $a_1a_2 + a_2a_3 + a_3a_1 = 624$, then the sum of this geometric progression is

1. 54
2. 60
3. 57
4. 63

54. Let $f(x) = \left(\frac{x}{2x-1}\right)$ and $g(x) = \left(\frac{x}{x-1}\right)$. Then, the domain of the function h(x) = f(g(x)) + g (f(x)) is all real numbers except

1. $\frac{1}{2}, 1,$ and $\frac{3}{2}$
2. $-\frac{1}{2}, \frac{1}{2},$ and 1
3. $-1, \frac{1}{2}$ and 1
4. $\frac{1}{2},$ and 1

55. A loan of Rs 1000 is fully repaid by two installments of Rs 530 and Rs 594, paid at the end of first and second year, respectively. If the interest is compounded annually, then the rate of interest, in percentage, is

1. 8
2. 9
3. 10
4. 11

56. Two tangents drawn from a point P touch a circle with center O at points Q and R. Points A and B lie on PQ and PR, respectively, such that AB is also a tangent to the same circle. If <AOB = 50°, then <APB, in degrees, equals.

57. A mixture of coffee and cocoa, 16% of which is coffee, costs Rs 240 per kg. Another mixture of coffee and cocoa, of which 36% is coffee, costs Rs 320 per kg. If a new mixture of coffee and cocoa costs Rs 376 per kg, then the quantity, in kg, of coffee in 10 kg of this new mixture is

1. 6 2. 2.5 3. 4 4. 5

58. If a, b, c and d are integers such that their sum is 46, then the minimum possible value of $(a - b)^2 + (a - c)^2 + (a - d)^2$ is

59. The average number of copies of a book sold per day by a shopkeeper is 60 in the initial seven days and 63 in the initial eight days, after the book launch. On the ninth day, she sells 11 copies less than the eighth day, and the average number of copies sold per day from second day to ninth day becomes 66. The number of copies sold on the first day of the book launch is

60. If $9^{x^2+2-3} - 4\left(3^{x^2+2x-2}\right) + 27 = 0$, then the products of all possible value of x is

1. 15 2. 20 3. 5 4. 30

61. Suppose a, b, c are three distinct natural number, such that 3ac = 8(a + b). Then, the smallest possible value of 3a + 2b + c is

62. In a ΔABC, points D and E are on the sides BC and AC, respectively. BE and AD intersect at point T such that AD : AT = 4 : 3, and BE : BT = 5 : 4. Point F lies on AC such that DF is parallel to BE. Then, BD : CD is

1. 9 : 4 2. 7 : 4 3. 15 : 4 4. 11 : 4

63. The number of divisors of $(2^6 \times 3^5 \times 5^3 \times 7^2)$, which are of the form (3r + 1), where r is a non – negative integer, is

64. Rita and Sneha can row a boat at 5 km/h and 6 km/h in still water, respectively. In a river flowing with a constant velocity, Sneha takes 48 minutes more to row 14 km upstream than to row the same distance downstream. If Rita starts from a certain location in the river, and returns downstream to the same location, taking a total of 100 minutes, then the total distance, in km, Rita will cover is

65. An item with a cost price of Rs. 1650 is sold at a certain discount on a fixed marked price to earn a profit of 20% on the cost price. If the discount was doubled, the profit would have been Rs. 110. The rate of discount, in percentage, at which the profit percentage would be equal to the rate of discount, is nearest to

1. 18
2. 12
3. 16
4. 14

66. The sum of digits of the number $(625)^{65} \times (128)^{36}$, is

67. The ratio of expenditures of Lakshmi and Meenakshi is 2 : 3, and the ratio of income of Lakshmi to expenditure of Meenakshi is 6 : 7. If excess of income over expenditure is saved by Lakshmi and Meenakshi, and the ratio of their savings is 4 : 9, then the ratio of their incomes is

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

68. If m and n are integers such that (m + 2n) 92m + n) = 27, then the maximum possible value of 2m – 3n is

Actual CAT 2025 Slot - III

SECTION: VERBAL ABILITY AND READING COMPREHENSION

DIRECTIONS *for the question 1:* *The passage given below is followed by four summaries. Choose the option that best captures the essence of the passage.*

1. In investigating memory-beliefs, there are certain points which must be borne in mind. In the first place, everything constituting a memory-belief is happening now, not in that past time to which the belief is said to refer. It is not logically necessary to the existence of a memory-belief that the event remembered should have occurred, or even that the past should have existed at all. There is no logical impossibility in the hypothesis that the world sprang into being five minutes ago, exactly as it then was, with a population that "remembered" a wholly unreal past. There is no logically necessary connection between events at different times; therefore nothing that is happening now or will happen in the future can disprove the hypothesis that the world began five minutes ago. Hence the occurrences which are CALLED knowledge of the past are logically independent of the past; they are wholly analysable into present contents, which might, theoretically, be just what they are even if no past had existed.

1. That which we call 'knowledge of the past' is logically independent of the past, since the act of remembering which forms memory-beliefs happens in the present, and does not need to be based in real past occurrences, or even need a past at all.
2. When we discuss the concept of memory-beliefs, we must understand that it is not logically impossible for the event remembered to have never happened at all; it could just be a figment of our imagination.
3. When investigating memory beliefs, we must keep in mind that an actual past event is not a prerequisite for a memory-belief to exist, and that what we know of the past could theoretically not need a past at all.
4. Memory-beliefs depend wholly on what is remembered in the present, and not on anything else; just as it is not logically impossible that the world came into being five minutes ago, and that everyone now just remembers a wholly imaginary past for it.

DIRECTIONS *for the question 2:* *Five jumbled 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 out and key in the number of that sentence as your answer.*

2.
1. The profound emotional impact of music has inspired ongoing research into its relationship with emotions.
2. Music is a universal phenomenon that utilizes a myriad brain resources.
3. This inherent connection to musical expression is deeply intertwined with human identity and experience.
4. The proclivity to create and appreciate music is ubiquitous among humans, permeating daily life across diverse societies.
5. Engaging with music is among the most cognitively demanding tasks a human can undergo, and it is identified across cultures.

DIRECTIONS ***for questions 3-6:*** *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

Once a society accepts a secular mode of creativity, within which the creator replaces God, imaginative transactions assume a self-conscious form. The tribal imagination, on the other hand, is still to a large extent dreamlike and hallucinatory. It admits fusion between various planes of existence and levels of time in a natural and artless manner. In tribal stories, oceans fly in the sky as birds, mountains swim in water as fish, animals speak as humans and stars grow like plants. Spatial order and temporal sequence do not restrict the narrative. This is not to say that tribal creations have no conventions or rules, but simply that they admit the principle of association between emotion and the narrative motif. Thus stars, seas, mountains, trees, men and animals can be angry, sad or happy.

It might be said that tribal artists work more on the basis of their racial and sensory memory than on the basis of a cultivated imagination. In order to understand this distinction, we must understand the difference between imagination and memory. In the animate world, consciousness meets two immediate material realities: space and time. We put meaning into space by perceiving it in terms of images. The image-making faculty is a genetic gift to the human mind—this power of imagination helps us understand the space that envelops us. With regard to time, we make connections with the help of memory; one remembers being the same person today as one was yesterday.

The tribal mind has a more acute sense of time than the sense of space. Somewhere along the history of human civilization, tribal communities seem to have realized that domination over territorial space was not their lot. Thus, they seem to have turned almost obsessively to gaining domination over time. This urge is substantiated in their ritual of conversing with their dead ancestors: year after year, tribals in many parts of India worship terracotta or carved-wood objects representing their ancestors, aspiring to enter a trance in which they can converse with the dead. Over the centuries, an amazingly sharp memory has helped tribals classify material and natural objects into a highly complex system of knowledge. . . .

One of the main characteristics of the tribal arts is their distinct manner of constructing space and imagery, which might be described as ‘hallucinatory’. In both oral and visual forms of representation, tribal artists seem to interpret verbal or pictorial space as demarcated by an extremely flexible ‘frame’. The boundaries between art and non-art become almost invisible. A tribal epic can begin its narration from a trivial everyday event; tribal paintings merge with living space as if the two were one and the same. And within the narrative itself, or within the painted imagery, there is no deliberate attempt to follow a sequence. The episodes retold and the images created take on the apparently chaotic shapes of dreams. In a way, the syntax of language and the grammar of painting are the same, as if literature were painted words and painting were a song of images.

3. All of the following, if true, would weaken the passage’s claims about the hallucinatory tribal imagination EXCEPT that:

1. tribal stories depict the natural world in accordance with rational scientific knowledge.
2. tribal narratives exhibit a chronological beginning, middle, and end.
3. shamanic rituals involving conversing with the dead often feature in tribal stories.
4. tribal art excludes the depiction of the mundane reality of everyday life and objects.

4. On the basis of the passage, which one of the following explains the main difference between imagination and memory?

1. Imagination needs to be cultivated whereas memory is more intuitive because it is racial and sensory.
2. Imagination helps humans make sense of space while memory helps them understand time.
3. Tribal groups value memory over imagination when it comes to creating art and literature.
4. Imagination is a genetic gift to humans whereas memory is central to human consciousness.

5. Non-human living forms exhibit human emotions in tribal narratives because tribal narratives:

1. are rudimentary and underdeveloped.
2. have a self-conscious form.
3. accommodate existential fluidity.
4. abandon all rules and regulations.

6. Which one of the following best explains why tribals in India worship their dead ancestors?

1. Tribals show respect to their ancestors through terracotta and carved-wood objects.
2. For tribals, conversing with the dead becomes a way of seeking control over time.
3. Tribals possess a sophisticated knowledge system that is based on memory.
4. Tribals seek territorial domination over the spaces that they inhabit.

DIRECTIONS *for questions 7-10:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

Imagine a world in which artificial intelligence is entrusted with the highest moral responsibilities: sentencing criminals, allocating medical resources, and even mediating conflicts between nations. This might seem like the pinnacle of human progress: an entity unburdened by emotion, prejudice or inconsistency, making ethical decisions with impeccable precision. . . .

Yet beneath this vision of an idealised moral arbiter lies a fundamental question: can a machine understand morality as humans do, or is it confined to a simulacrum of ethical reasoning? AI might replicate human decisions without improving on them, carrying forward the same biases, blind spots and cultural distortions from human moral judgment. In trying to emulate us, it might only reproduce our limitations, not transcend them. But there is a deeper concern. Moral judgment draws on intuition, historical awareness and context – qualities that resist formalisation. Ethics may be so embedded in lived experience that any attempt to encode it into formal structures risks flattening its most essential features. If so, AI would not merely reflect human shortcomings; it would strip morality of the very depth that makes ethical reflection possible in the first place.

Still, many have tried to formalise ethics, by treating certain moral claims not as conclusions, but as starting points. A classic example comes from utilitarianism, which often takes as a foundational axiom the principle that one should act to maximise overall wellbeing. From this, more specific principles can be derived, for example, that it is right to benefit the greatest number, or that actions should be judged by their consequences for total happiness. As computational resources increase, AI becomes increasingly well-suited to the task of starting from fixed ethical assumptions and reasoning through their implications in complex situations. But what, exactly, does it mean to formalise something like ethics? The question is easier to grasp by looking at fields in which formal systems have long played a central role. Physics, for instance, has relied on formalisation for centuries. There is no single physical theory that explains everything. Instead, we have many physical theories, each designed to describe specific aspects of the Universe: from the behaviour of quarks and electrons to the motion of galaxies. These theories often diverge. Aristotelian physics, for instance, explained falling objects in terms of natural motion toward Earth's centre; Newtonian mechanics replaced this with a universal force of gravity. These explanations are not just different; they are incompatible. Yet both share a common structure: they begin with basic postulates – assumptions about motion, force or mass – and derive increasingly complex consequences. . . .

Ethical theories have a similar structure. Like physical theories, they attempt to describe a domain – in this case, the moral landscape. They aim to answer questions about which actions are right or wrong, and why. These theories also diverge and, even when they recommend similar actions, such as giving to charity, they justify them in different ways. Ethical theories also often begin with a small set of foundational principles or claims, from which they reason about more complex moral problems.

7. Which one of the options below best summarises the passage?

1. The passage rejects formal methods in principle. It holds that moral judgement cannot be expressed in disciplined terms and concludes that AI should not serve in courts, medicine, or diplomacy under any conditions.
2. The passage highlights administrative gains from automation. It treats reproducing human moral judgement as progress and argues that, as computational resources increase, AI can be responsible for decision-making across varied institutional settings.
3. The passage weighs the appeal of an impersonal AI judge against doubts about moral grasp. It warns that codification can erode case-sensitive judgement, allow axiom-led reasoning at scale, and use a physics analogy to model structured plurality.
4. The passage weighs the appeal of an impersonal AI judge against doubts about moral grasp. It claims codified schemes retain case nuance at scale and uses a physics analogy to predict convergence on a unified framework.

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

1. the appeal of an AI judge rests on immunity to bribery, partiality, and fatigue; yet the text questions whether procedural cleanliness amounts to moral understanding without lived context and interpretive depth.
2. with fixed moral starting points and expanding computational resources, the argument forecasts convergence on one ethical system and treats contextual judgement as unnecessary once formal reasoning scales across domains and cultures.
3. encoding ethics into fixed structures risks stripping away intuition, history, and context and, if that occurs, the depth that enables reflective judgement disappears. So, machines would mirror our limits rather than exceed them.
4. by analogy with physics, compact postulates can yield broad predictions across incompatible theories and ethics can likewise share structure while continuing to diverge rather than close on a single comprehensive framework.

9. The passage compares ethics to physics, where different theories apply to different aspects of a domain and says AI can reason from fixed starting points in complex cases. Which one of the assumptions below must hold for that comparison to guide practice?

1. A single master framework replaces all others after translation into one code, so domain boundaries disappear in application.
2. Real cases never straddle different areas, so a case always fits exactly one framework without any overlap whatsoever.
3. Once formalised, all ethical frameworks yield the same recommendation in every case, so selection among them is unnecessary.
4. There is a principled way to decide which ethical framework applies to which class of cases, so the system can select the relevant starting points before deriving a recommendation.

10. Choose the one option below that comes closest to being the opposite of “utilitarianism”.

1. The authors advocated an absolutist stance, following exception less rules regardless of outcomes and evaluating choices by broadest societal benefit.
2. The committee adopted a non-egoist framework, ranking policies by their contribution to overall social welfare and treating self-interest as a derivative concern within institutional evaluation.
3. The policy was cast as deontological ethics, selecting the option that delivered the highest total benefit to citizens while presenting duty as a secondary consideration in public decision-making.
4. The council followed a prioritarian approach, assigning greater moral weight to improvements for the worst-off rather than to maximising total welfare across the affected population.

DIRECTIONS *for questions 11-14:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

Over the course of the twentieth century, humans built, on average, one large dam a day, hulking structures of steel and concrete designed to control flooding, facilitate irrigation, and generate electricity. Dams were also lucrative contracts, large-scale employers, and the physical instantiation of a messianic drive to conquer territories and control nature. Some of the results of that drive were charismatic mega-infrastructure—the Hoover on the Colorado River or the Aswan on the Nile—but most of the tens of thousands of dams that dot the Earth's landscape have drawn little attention. These are the smaller, though not inconsequential, barriers that today impede the flow of water on nearly two-thirds of the world's large waterways. Chances are, what your map calls a "lake" is actually a reservoir, and that thin blue line that emerges from it once flowed very differently.

Damming a river is always a partisan act. Even when explicit infrastructure goals— irrigation, flood control, electrification—were met, other consequences were significant and often deleterious. Across the world, river control displaced millions of people, threatening livelihoods, foodways, and cultures. In the western United States, dams were often an instrument of colonialism, used to dispossess Indigenous people and subsidize settler agriculture. And as dams slowed the flow of water, inhibited the movement of nutrients, and increased the amount of toxic algae and other parasites, they snuffed out entire river ecologies. Declining fish populations are the most evident effect, but dams also threaten a host of other animals—from birds and reptiles to fungi and plants—with extinction. Every major dam, then, is also a sacrifice zone, a place where lives, livelihoods, and ways of life are eliminated so that new sorts of landscapes can support water-intensive agriculture and cities that sprout downstream of new reservoirs.

Such sacrifices have been justified as offerings at the temples of modernity. Justified by—and for—whom, though? Over the course of the twentieth century, rarely were the costs and benefits weighed thoughtfully and decided democratically. As Kader Asmal, chair of the landmark 2000 World Commission on Dams, concluded, "There have been precious few, if any, comprehensive, independent analyses as to why dams came about, how dams perform over time, and whether we are getting a fair return from our $2 trillion investment." A quarter century later, Asmal's words ring ever truer. A litany of dams built in the mid-twentieth century are approaching the end of their expected lives, with worrying prospects for their durability. Droughts, magnified and multiplied by the effects of climate change, have forced more and more to run below capacity. If ever there were a time to rethink the mania for dams, it would be now.

There is some evidence that a combination of opposition, alternative energy sources, and a lack of viable projects has slowed the construction of major dams.

But a wave of recent and ongoing construction, from India and China to Ethiopia and Canada, continues to tilt the global balance firmly in favor of water impoundment.

11. What does the author wish to communicate by referring to the Hoover and Aswan dams in the first paragraph?

1. The designers and builders of these mega-structures were highly charismatic individuals.
2. The Colorado and Nile rivers may be seen as thin blue lines on a map.
3. By building dams like the Hoover and Aswan dams, large-scale employers became messianic figures.
4. The drive to control nature is evident not only in mega-infrastructures like the Hoover and Aswan dams, but in smaller dams as well.

12. The word "instantiation" is used in the first paragraph. Which one of the following pairs of terms would be the best substitute for it in the context of its usage in the paragraph?

1. Exemplification and manifestation
2. Durability and timeliness
3. Development and construction
4. Concreteness and viability

13. All of the following statements may be considered valid inferences from the passage EXCEPT that:

1. smaller, though not inconsequential, dams are safer than large dam projects.
2. dam-building has proved to be an extremely costly enterprise that may not be justifiable.
3. processes of colonisation have used dam-building to make people vacate their territories.
4. despite increasing evidence of opposition to dams as well as alternatives to them, they continue to be built.

14. Which one of the following sets of terms is closest to mapping the key arguments of the passage?

1. Lucrative contracts – Sacrifice zone – Expected lives – Global balance
2. Physical instantiation – Partisan act – Decided democratically – Alternative energy
3. Mega-infrastructure – Sacrifice zone – Worshipping modernity – Water impoundment
4. Partisan act – Threatened livelihoods – Toxic algae – Quarter century

DIRECTIONS *for the question 15:* *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.*

15.

1. The effigy of a candidate establishes a personal link between him and the voters; the candidate does not only offer a programme for judgement, he suggests a physical climate, a set of daily choices expressed in a morphology, a way of dressing, a posture.
2. Some candidates for Parliament adorn their electoral prospectus with a portrait; this presupposes that photography has a power to convert which must be analysed.
3. Inasmuch as photography is an ellipse of language and a condensation of an 'ineffable' social whole, it constitutes an antiintellectual weapon and tends to spirit away 'politics' (that is to say a body of problems and solutions) to the advantage of a 'manner of being', a socio-moral status.
4. Photography tends to restore the paternalistic nature of elections, whose elitist essence has been disrupted by proportional representation and the rule of parties (the Right seems to use it more than the Left).

DIRECTIONS *for the question 16:* *The passage given below is followed by four summaries. Choose the option that best captures the essence of the passage.*

16. The return to the tailor is the juxtaposition of three key things for the mindful Indian shopper. The first is the conscious shift away from the homogeneity of fast fashion, the idea of a hundred other people owning exactly the same Zara trench coat or H&M pleated skirt. The second is an actual understanding of the waste behind the fast fashion market, and wanting not to contribute to that anymore. The last is the shift toward customisation and fit—the idea of having imaginations brought to life and to have them fit exactly; without paying exorbitant rates for that bespoke tailoring. For the individual with a keen fashion sense and a genuine desire to move away from the waste and uniformity of fast fashion without paying the premium for it that indie brands would invariably demand, the tailor is the perfect crossover.

1. The mindful Indian shopper is shifting away from convenience and uniformity of clothing, and waste in fashion, to customisation and less exorbitantly priced clothing.
2. The mindful Indian shoppers are returning to the tailor with a genuine desire to wear clothes which are less expensive, fit them well and are yet fashionable.
3. All Indian shoppers are opting for customisation and a shift away from homogeneity over expensive clothing brands like Zara and H&M.
4. In the Indian retail market, people believe that expensive branded clothes are wasteful and, therefore, are returning to the neighbourhood tailor.

DIRECTIONS *for the question 17:* *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.*

17.

1. When I ask the distinguished LGBTQ activist and writer Cherie Moraga whether she uses Latinx to refer to herself, she tells me, 'I worked too hard for the "a" in Latina to give it up! I refer to myself as Xicana.'
2. Of our accumulated ethnic population, only a third use Hispanic to identify themselves, a mere 14 percent use Latino, and less than 2 percent recognize Latinx.
3. They have done this, although gender in languages is grammatical, not sociological or sexual, and found in linguistic families throughout the world, from French to Russian to Japanese.
4. More recently, activists seeking to render our name gender neutral, out of respect for our LGBTQ members, have devised yet another name for us: Latinx.

DIRECTIONS *for the questions 18:* *Five jumbled 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 out and key in the number of that sentence as your answer.*

18.

1. About half of all the oxygen we breathe is made near the surface of the ocean by phytoplankton that photosynthesize just like land-dwelling plants.
2. A team of scientists that includes Boston University experts has discovered they also produce oxygen on the seafloor.
3. The research team used deep-sea chambers that land on the seafloor and enclose the seawater, sediment, polymetallic nodules, and living organisms.
4. The discovery is a surprise considering oxygen is typically created by plants and organisms with help from the sun—not by rocks on the ocean floor.
5. The deep-sea rocks, called polymetallic nodules, don't only host a surprising number of sea critters.

DIRECTIONS *for questions 19 & 20:* *The given sentence is missing in the paragraph below. Decide where it best fits among the options 1, 2, 3, or 4 indicated in the paragraph.*

19. **Sentence:** Productivity gains, once expected to feed through to broader living standards, now primarily serve to enhance returns to wealth.

Paragraph: Economists now argue that inequality is no longer a by-product of growth but a condition of it. ____ (1) ____. Unlike wages, wealth reflects not just income but also access to assets, favourable institutional conditions – such as low interest rates – and public policies like low taxes and housing shortages. ____ (2) ____. In other words, wealth depends on political choices in ways that income currently does not. It's not just the inequality itself that is the issue but the erosion of mechanisms that once constrained it. _____ (3) ____. Wealth and income inequality are linked, but where wages have stagnated and collective bargaining has weakened, capital income – derived from profits, rents and interest – has been boosted by design. _____(4) ____.

1. Option 4 2. Option 2 3. Option 1 4. Option 3

20. **Sentence:** In each of the affected males, the genetic defect was located to the X chromosome in the region of p11-12.

Paragraph: The first suggested evidence of a human genetic mutation associated with aggressive behaviour came from a study in 1993. _____(1)____. Genetic and metabolic studies were conducted on a large Dutch family in which several of the males has a syndrome of borderline mental retardation and abnormal behaviour. _____(2)____. The undesirable behaviour included impulsive aggression, arson and exhibitionism. ____(3)____. A point mutation was identified in the eighth exon of the monoamine oxidase A (MAOA) structural gene which changes glutamine to a termination codon. _____(4)_____.

1. Option 3 2. Option 4 3. Option 1 4. Option 2

DIRECTIONS *for questions 21 & 24:* *The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.*

In 1982, a raging controversy broke out over a forest act drafted by the Government of India. This act sought to strengthen the already extensive powers enjoyed by the forest bureaucracy in controlling the extraction, disposal and sale of forest produce. It also gave forest officials greater powers to strictly regulate the entry of any person into reserved forest areas. While forest officials justified the act on the grounds that it was necessary to stop the continuing deforestation, it was bitterly opposed by representatives of grassroots organisations, who argued that it was a major violation of the rights of peasants and tribals living in and around forest areas. . . .

The debate over the draft forest act fuelled a larger controversy over the orientation of state forest policy. It was pointed out, for example, that the draft act was closely modelled on its predecessor, the Forest Act of 1878. The earlier Act rested on a usurpation of rights of ownership by the colonial state which had little precedent in precolonial history. It was further argued that the system of forestry introduced by the British—and continued, with little modification, after 1947 —emphasised revenue generation and commercial exploitation, while its policing orientation excluded villagers who had the most longstanding claim on forest resources. Critics called for a complete overhaul of forest administration, pressing the government to formulate policy and legislation more appropriate to present needs. . . .

That debate is not over yet. The draft act was shelved, though it has not as yet been formally withdrawn. Meanwhile, the 1878 Act (as modified by an amendment in 1927) continues to be in operation. In response to its critics, the government has made some important changes in forest policy, e.g., no longer treating forests as a source of revenue, and stopping ecologically hazardous practices such as the clearfelling of natural forests.

At the same time, it has shown little inclination to meet the major demand of the critics of forest policy—namely, abandoning the principle of state monopoly over forest land by handing over areas of degraded forests to individuals and communities for afforestation.

. . . [The] 1878 Forest Act itself was passed only after a bitter and prolonged debate within the colonial bureaucracy, in which protagonists put forward arguments strikingly similar to those being advanced today. As is well known, the Indian Forest Department owes its origin to the requirements of railway companies. The early years of the expansion of the railway network, c. 1853 onwards, led to tremendous deforestation in peninsular India owing to the railway's requirements of fuelwood and construction timber. Huge quantities of durable timbers were also needed for use as sleepers across the newly laid tracks. Inexperienced in forestry, the British called in German experts to commence systematic forest management. The Indian Forest Department was started in 1864, with Dietrich Brandis, formerly a Lecturer at Bonn, as the first Inspector General of Forests. The new department needed legislative backing to function effectively, and in the following year, 1865, the first forest act was passed. . . .

21. Which one of the following best encapsulates the reason for the "raging controversy" developing into a "larger controversy"?

1. The 1982 draft forest act further enabled the commercial exploitation of forest resources by the forest bureaucracy.
2. The 1982 draft forest act violated the rights of tribals and peasants who lived in and around forest areas.
3. The 1982 draft forest act was unjustifiably defended by forest officials in the face of bitter opposition by grassroots organisations.
4. The 1982 draft forest act replicated colonial measures of control and regulation of forest resources.

22. All of the following, if true, would weaken the narrative presented in the passage EXCEPT that:

1. before British rule, peasants and tribal groups were denied access to forest resources by Indian rulers and their administrations.
2. the timber requirement for railway works in nineteenth century India was met through import from China, in exchange for spices.
3. certain tribal groups in India are responsible for climate change because their sustenance has historically depended on mass scale deforestation.
4. nineteenth century German forestry experts were infamous for violating the rights of indigenous communities that lived in forest regions.

23. According to the passage, which one of the following is not common to the 1878 Forest Act and the 1982 draft forest act?

1. Both resulted in large scale deforestation.
2. Both sought to establish the state's monopoly over forest resources.
3. Both reflect a colonial mindset.
4. Both sparked controversy and debate among the various stakeholders.

24. According to the passage, which one of the following reforms is yet to happen in India's forest policies?

1. Involving local people in cultivating forests.
2. A ban on deforestation.
3. Recognising the state's claim to forest land use.
4. Recognising the significance of forests to ecology.

SECTION: DATA INTERPRETATION & LOGICAL REASONING

DIRECTIONS *for questions 25-29:* *Read the information given below and answer the question that follows.*

Anu, Bijay, Chetan, Deepak, Eshan, and Faruq are six friends. Each of them uses a mobile number from exactly one of the two mobile operators - Xitel and Yocel. During the last month, the six friends made several calls to each other. Each call was made by one of these six friends to another. The table below summarizes the number of minutes of calls that each of the six made to (outgoing minutes) and received from (incoming minutes) these friends, grouped by the operators. Some of the entries are missing.

Friend	Operator	Outgoing minutes to		Incoming minutes from	
		Operator Xitel	Operator Yocel	Operator Xitel	Operator Yocel
Anu	Xitel	100		50	225
Bijay	Xitel		200		125
Chetan	Yocel	50	175	250	150
Deepak	Yocel	100	150	275	100
Eshan	Yocel		100	100	375
Faruq	Yocel	0		100	150

It is known that the duration of calls from Faruq to Eshan was 200 minutes. Also, there were no calls from:
i. Bijay to Eshan,
ii. Chetan to Anu and Chetan to Deepak,
iii. Deepak to Bijay and Deepak to Faruq,
iv. Eshan to Chetan and Eshan to Deepak.

25. What was the duration of calls (in minutes) from Bijay to Anu?

26. What was the total duration of calls (in minutes) made by Anu to friends having mobile numbers from Operator Yocel?

27. What was the total duration of calls (in minutes) made by Faruq to friends having mobile numbers from Operator Yocel?

28. What was the duration of calls (in minutes) from Deepak to Chetan?

1. 100 2. 0 3. 125 4. 50

DIRECTIONS *for questions 29-33:* *Read the information given below and answer the question that follows.*

Aurevia, Brelosia, Cyrenia and Zerathania are four countries with their currencies being Aurels, Brins, Crowns, and Zentars, respectively. The currencies have different exchange values. Crown's currency exchange rate with Zentars = 0.5, i.e., 1 Crown is worth 0.5 Zentars.

Three travelers, Jano, Kira, and Lian set out from Zerathania visiting exactly two of the countries. Each country is visited by exactly two travelers. Each traveler has a unique Flight Cost, which represents the total cost of airfare in traveling to both the countries and back to Zerathania. The Flight Cost of Jano was 4000 Zentars, while that of the other two travelers were 5000 and 6000 Zentars, not necessarily in that order.

When visiting a country, a traveler spent either 1000, 2000 or 3000 in the country's local currency. Each traveler had different spends (in the country's local currency) in the two countries he/she visited. Across all the visits, there were exactly two spends of 1000 and exactly one spend of 3000 (in the country's local currency).

The total "Travel Cost" for a traveler is the sum of his/her Flight Cost and the money spent in the countries visited.

The citizens of the four countries with knowledge of these travels made a few observations, with spends measured in their respective local currencies:

i. Aurevia citizen: Jano and Kira visited our country, and their Travel Costs were 3500 and 8000, respectively.
ii. Brelosia citizen: Kira and Lian visited our country, spending 2000 and 3000, respectively. Kira's Travel Cost was 4000.
iii. Cyrenia citizen: Lian visited our country and her Travel Cost was 36000.

29. What is the sum of Travel Costs for all travelers in Zentars?

30. How many Zentars did Lian spend in the two countries he visited?

31. What was Jano's total spend in the two countries he visited, in Aurels?

32. One Brin is equivalent to how many Crowns?

1. 0.5 2. 8 3. 0.125 4. 4

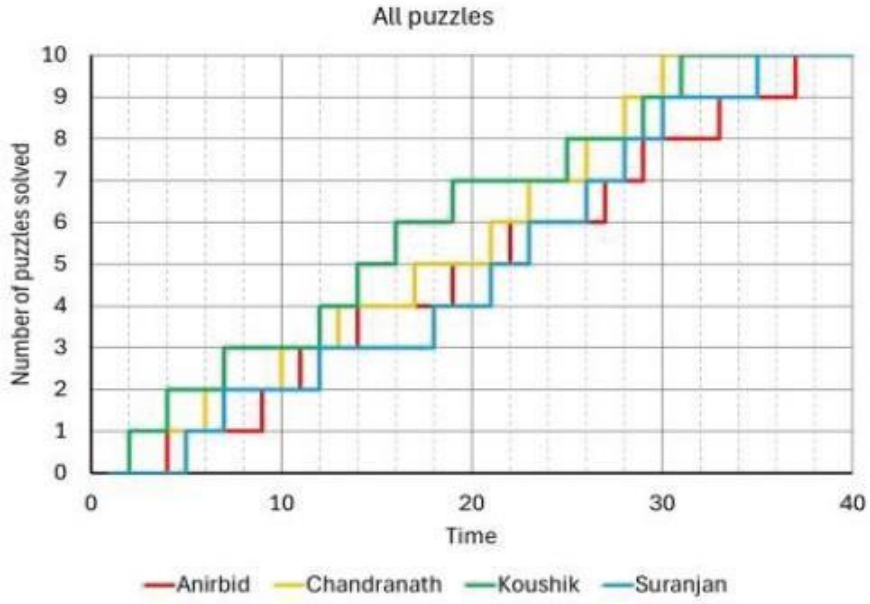
33. Which of the following statements is NOT true about money spent in the local currency?

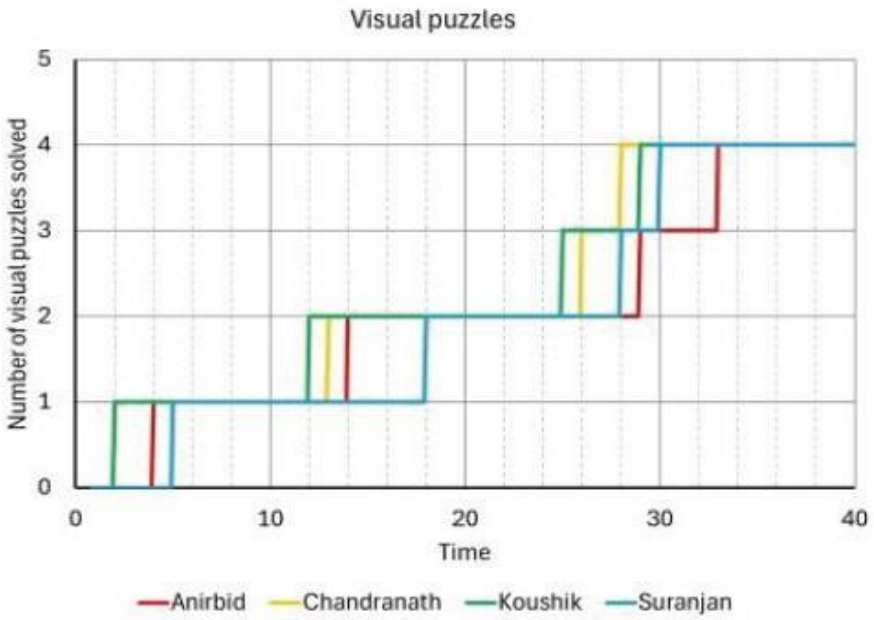
1. Jano spent 2000 in Aurevia
2. Lian spent 2000 in Cyrenia
3. Jano spent 2000 in Cyrenia
4. Kira spent 1000 in Aurevia

DIRECTIONS ***for questions 34-37:*** *Read the information given below and answer the question that follows.*

Anirbid, Chandranath, Koushik, and Suranjan participated in a puzzle solving competition. The competition comprised 10 puzzles that had to be solved in the same sequence, i.e., a competitor got access to a puzzle as soon as they solved the previous puzzle. Some of the puzzles were visual puzzles and the others were number-based puzzles. The winner of the competition was the one who solved all puzzles in the least time.

The following charts describe their progress in the competition. The chart on the left shows the number of puzzles solved by each competitor at a given time (in minutes) after the start of the competition. The chart on the right shows the number of visual puzzles solved by each competitor at a given time (in minutes) after the start of the competition.





34. Who had solved the largest number of puzzles by the 20-th minute from the start of the competition?

1. Suranjan
2. Chandranath
3. Koushik
4. Anirbid

35. How many minutes did Suranjan take to solve the third visual puzzle in the competition?

36. At what number in the sequence was the fourth number-based puzzle?

37. Which of the following is the closest to the average time taken by Anirbid to solve the number-based puzzles in the competition?

1. 3.3 minutes 2. 2.5 minutes 3. 4.0 minutes 4. 3.8 minutes

DIRECTIONS *for questions 38-42:* *Read the information given below and answer the question that follows.*

Three countries — Pumpland (P), Xiland (X) and Cheeseland (C) — trade among themselves and with the (other countries in) Rest of World (ROW). All trade volumes are given in IC (international currency). The following terminology is used:

- Trade balance = Exports – Imports
- Total trade = Exports + Imports
- Normalized trade balance = Trade balance / Total trade, expressed in percentage terms

The following information is known.

1. The normalized trade balances of P, X and C are 0%, 10%, and –20%, respectively.
2. 40% of exports of X are to P. 22% of imports of P are from X.
3. 90% of exports of C are to P; 4% are to ROW.
4. 12% of exports of ROW are to X, 40% are to P.
5. The export volumes of P, in IC, to X and C are 600 and 1200, respectively. P is the only country that exports to C.

38. How much is exported from C to X, in IC?

39. How much is exported from P to ROW, in IC?

40. How much is exported from ROW to ROW, in IC?

41. What is the trade balance of ROW?

1. 200 2. 0 3. -200 4. 100

42. Which among the countries P, X, and C has/have the least total trade?

1. Only P 2. Both X and C 3. Only C 4. Only X

DIRECTIONS *for questions 43-46:* *Read the information given below and answer the question that follows.*

Seven children, Aarav, Bina, Chirag, Diya, Eshan, Farhan, and Gaurav, are sitting in a circle facing inside (not necessarily in the same order) and playing a game of 'Passing the Buck'.

The game is played over 10 rounds. In each round, the child holding the Buck must pass it directly to a child sitting in one of the following positions:
• Immediately to the left;
• Immediate to the right;
• Second to the left; or
• Second to the right.

The game starts with Bina passing the Buck and ends with Chirag receiving the Buck. The table below provides some information about the pass types and the child receiving the Buck. Some information is missing and labelled as '?'.

Round	Pass Type	Received by
1	Immediately to the left	Aarav
2	Second to the right	?
3	Immediately to the right	Diya
4	?	?
5	?	Aarav
6	Second to the left	?
7	Immediately to the left	Gaurav
8	Immediately to the left	?
9	?	Farhan
10	?	Chirag

43. Who is sitting immediately to the right of Bina?

1. Eshan 2. Farhan 3. Aarav 4. Chirag

44. Who is sitting third to the left of Eshan?

1. Gaurav 2. Chirag 3. Divya 4. Aarav

45. For which of the following pass types can the total number of occurrences be uniquely determined?

1. Immediately to the right
2. Second to the right
3. Second to the left
4. Immediately to the left

46. For which of the following children is it possible to determine how many times they received the Buck?

1. Bina 2. Eshan 3. Farhan 4. Gaurav

SECTION: QUANTITATIVE ABILITY

47. If $\left(x^2+\frac{1}{x^2}\right)=25$ and $x>0$, then the value of $\left(x^7+\frac{1}{x^7}\right)$ is

1. $44850\sqrt{3}$
2. $44853\sqrt{3}$
3. $44859\sqrt{3}$
4. $44856\sqrt{3}$

48. For real values of x, the range of the function $f(x)=\frac{2x-3}{2x^2-4x-6}$ is

1. $\left(-\infty,\frac{1}{8}\right]\cup[1,\infty)$
2. $\left(-\infty,\frac{1}{4}\right]\cup[1,\infty)$
3. $\left(-\infty,\frac{1}{4}\right]\cup\left[\frac{1}{2},\infty\right)$
4. $\left(-\infty,\frac{1}{8}\right]\cup\left[\frac{1}{2},\infty\right)$

49. For a 4-digit number (greater than 1000), sum of the digits in the thousands, hundreds, and tens places is 15. Sum of the digits in the hundreds, tens, and units places is 16. Also, the digit in the tens place is 6 more than the digit in the units place. The difference between the largest and smallest possible value of the number is

1. 811
2. 4078
3. 735
4. 3289

50. Teams A, B, and C consist of five, eight, and ten members, respectively, such that every member within a team is equally productive. Working separately, teams A, B, and C can complete a certain job in 40 hours, 50 hours, and 4 hours, respectively. Two members from team A, three members from team B, and one member from team C together start the job, and the member from team C leaves after 23 hours. The number of additional member(s) from team B, that would be required to replace the member from team C, to finish the job in the next one hour, is

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

51. The average salary of 5 managers and 25 engineers in a company is 60000 rupees. If each of the managers received 20% salary increase while the salary of the engineers remained unchanged, the average salary of all 30 employees would have increased by 5%. The average salary, in rupees, of the engineers is

1. 50000
2. 45000
3. 40000
4. 54000

52. The monthly sales of a product from January to April were 120, 135, 150 and 165 units, respectively. The cost price of the product was Rs. 240 per unit, and a fixed marked price was used for the product in all the four months. Discounts of 20%, 10% and 5% were given on the marked price per unit in January, February and March, respectively, while no discounts were given in April. If the total profit from January to April was Rs. 138825, then the marked price per unit, in rupees, was

1. 525
2. 515
3. 520
4. 510

53. In a class of 150 students, 75 students chose physics, 111students chose mathematics and 40 students chose chemistry. All students chose at least one of the three subjects and at least one student chose all three subjects. The number of students who chose both physics and chemistry is equal to the number of students who chose both chemistry and mathematics, and this is half the number of students who chose both physics and mathematics. The maximum possible number of students who chose physics but not mathematics, is

1. 35
2. 30
3. 40
4. 55

54. If $f(x) = (x^2 + 3x)(x^2 + 3x + 2)$, then the sum of all real roots of the equation $\sqrt{f(x)+1} = 9701$, is

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

55. Rahul starts on his journey at 5 pm at a constant speed so that he reaches his destination at 11 pm the same day. However, on his way, he stops for 20 minutes, and after that, increases his speed by 3 km per hour to reach on time. If he had stopped for 10 minutes more, he would have had to increase his speed by 5 km per hour to reach on time. His initial speed, in km per hour, was

1. 12 2. 20 3. 18 4. 15

56. Ankita walks from A to C through B, and runs back through the same route at a speed that is 40% more than her walking speed. She takes exactly 3 hours 30 minutes to walk from B to C as well as to run from B to A. The total time, in minutes, she would take to walk from A to B and run from B to C, is

57. The sum of all the digits of the number $(10^{50} + 10^{25} - 123)$, is

1. 324 2. 255 3. 212 4. 221

58. A triangle ABC is formed with AB = AC = 50 cm and BC = 80 cm. Then, the sum of the lengths, in cm, of all three altitudes of the triangle ABC is

59. Vessels A and B contain 60 litres of alcohol and 60 litres of water, respectively. A certain volume is taken out from A and poured into B. After stirring, the same volume is taken out from B and poured into A. If the resultant ratio of alcohol and water in A is 15 : 4, then the volume, in litres, initially taken out from A is

60. In an arithmetic progression, if the sum of fourth, seventh and tenth terms is 99, and the sum of the first fourteen terms is 497, then the sum of first five terms is

61. Let p, q and r be three natural numbers such that their sum is 900, and r is a perfect square whose value lies between 150 and 500. If p is not less than 0.3q and not more than 0.7q, then the sum of the maximum and minimum possible values of p is

62. The ratio of the number of coins in boxes A and B was 17:7. After 108 coins were shifted from box A to box B, this ratio became 37:20. The number of coins that needs to be shifted further from A to B, to make this ratio 1:1, is

63. The rate of water flow through three pipes A, B and C are in the ratio 4 : 9 : 36. An empty tank can be filled up completely by pipe A in 15 hours. If all the three pipes are used simultaneously to fill up this empty tank, the time, in minutes, required to fill up the entire tank completely is nearest to

1. 71 2. 78 3. 73 4. 76

64. ABCD is a trapezium in which AB is parallel to DC, AD is perpendicular to AB, and AB = 3DC. If a circle inscribed in the trapezium touching all the sides has a radius of 3 cm, then the area, in sq. cm, of the trapezium is

1. $30\sqrt{3}$ 2. 54 3. 48 4. $36\sqrt{2}$

65. In ΔABC, AB = AC = 12 cm and D is a point on side BC such that AD = 8 cm. If AD is extended to a point E such that $\angle ACB = \angle AEB$, then the length, in cm, of AE is

1. 16 2. 18 3. 20 4. 14

66. If $12^{12x} \times 4^{24x+12} \times 5^{2y} = 8^{4z} \times 20^{12x} \times 243^{3x-6}$, where x, y and z are natural numbers, then x + y + z equals

67. In a school with 1500 students, each student chooses any one of the streams out of science, arts, and commerce, by paying a fee of Rs 1100, Rs 1000, and Rs 800, respectively. The total fee paid by all the students is Rs 15,50,000. If the number of science students is not more than the number of arts students, then the maximum possible number of science students in the school is

68. The sum of all possible real values of x for which $\log_{x-3}(x^2 - 9) = \log_{x-3}(x + 1) + 2$, is

1. -3 2. $\sqrt{33}$ 3. $\frac{3+\sqrt{33}}{2}$ 4. 3