CAT 2025 SOLVED PAPER (SLOT-1)

Section I : VARC

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

1. 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.

2. 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.

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

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

1. 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 their efficiency by itself increasing its own points of contact.

4. 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.

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.

Question Numbers (5 to 8): The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

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.

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

1. 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 nonstationarity with a market illustration during the COVID-19 disruption.

2. The passage explains how social outcomes generally follow normal distributions. So, extreme events are negligible, and policy should stabilise averages rather than learn from large shocks in fast-changing collective settings.
3. The passage explains how nonstationarity 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 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.

6. 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. 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.
2. 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.
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. 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.

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

1. 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.
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. 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.

8. 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. River discharge records show water levels fit a normal distribution with thin tails that match laboratory data, regardless of storms or floods.
2. 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.
3. 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.
4. 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.

9. 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.

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.

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

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. Dead cells accelerate chronic inflammation weakening the immune system and lead to aging.
2. Senescent "zombie" cells are inactive or malfunctioning cells that can be found throughout the body.
3. 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.
4. 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.

11. 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.

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

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

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 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.
3. 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.
4. 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.

Question Numbers (13 to 16): The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

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.

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

1. defend electronic music from certain common charges.
2. differentiate the modern composer from the nineteenth century composer.

3. differentiate between electronic music and other forms of music.
4. defend the "serious-minded composer" from Lejaren Hill and Stravinsky.

14. The mention of Stravinsky's description of music in the first paragraph does all the following EXCEPT:
1. allow us to classify electronic music as music.
2. complicate our notion of what is communicated through music.
3. help us determine which sounds are musical and which are not.
4. respond to and expand upon earlier understandings of music.

15. From the context in which it is placed, the phrase "sui generis" in paragraph 3 suggests which one of the following?
1. Unaesthetic
2. Generic
3. Particular
4. Indescribable

16. 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. Unfamiliar forms and terms might get in the way of our seeing electronic music as music, but this can be overcome.
2. None; they are unrelated to one another and form parts of different discussions.
3. 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.
4. The communication problem is what allows us to see electronic music as music because music must be difficult to understand.

Question Numbers (17 to 20): The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

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.

17. According to the passage, who or what was an "alienist"?
1. Physicians and lawyers who were responsible for examining accounts of extraterrestrials or 'aliens' in the nineteenth century.
2. Physicians and lawyers who were responsible for the condition of immigrants or 'aliens' in the nineteenth century.
3. Professionals who pushed the boundaries of their fields till they became unrecognisable in the nineteenth century.
4. Physicians who specialised in the study of madness and the care of the insane in the nineteenth century.

18. "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. The defendants struck out at the officials and then confessed to the act.
2. Referring to the practice of 'confession' in some faiths, here it is a metaphor for the religion of the defendant.
3. 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'.
4. 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.

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

20. Study the following sets of concepts and identify the set that is conceptually closest to the concerns and arguments of the passage.
1. Empathy, Prosecution, Knowledge, Business.
2. Judgement, Belief, Accounts, Patronage.
3. Assessment, Empathy, Prosecution, Patriotism.
4. Judgement, Insanity, Punishment, Responsibility.

Question Numbers (21 to 24): The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

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.

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

1. 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.
2. 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.
3. The passage claims that evaluating the effect of income inequality on economic growth without considering both short- and long-term consequences is misguided.
4. 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.

22. 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. After the emergency decree, the regime shifted toward authoritarianism as suffrage narrowed and opposition parties were deregistered.
4. Municipalities adopted participatory budgeting and recall elections which a press release called totalitarianism.

23. 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. mature stock markets make wealth concentration unnecessary, yet they might still be harmful to investment.
3. dispersed ownership speeds corporate decision-making and removes free rider problems.
4. inequality boosts growth in every period and type of economy, regardless of finance or governance conditions.

24. 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. Rents protected by market power that enlarge top incomes without linking pay to results.
3. Wages are determined by tenure rather than output to ensure equity.
4. Pay rewards on verifiable performance for highly productive workers.

Section II : DI & LR

Question Numbers (1 to 5):

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.

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

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

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

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

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

Question Numbers (6 to 9):

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.

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

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

1. Alia and Badal
2. Clive and Ehsaan
3. Dilshan and Clive
4. Badal and Dilshan

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

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

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

Question Numbers (10 to 13):

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 counterclockwise 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.

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

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

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

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

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

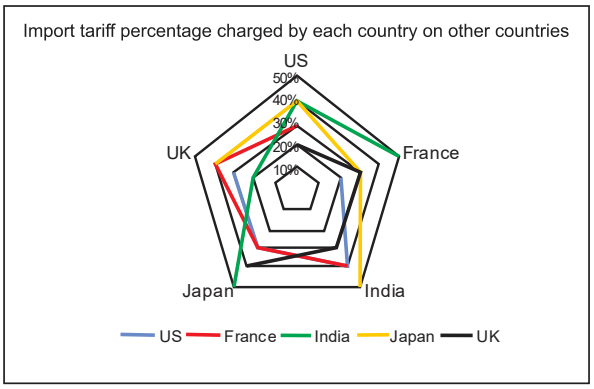
13. Which of the following BEST describes the friends sitting on chairs adjacent to the one occupied by Bashir at the end of Turn 7?

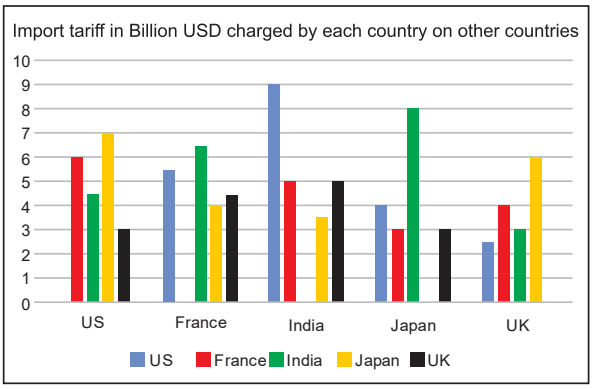
1. Aslam and Chhavi
2. Chhavi only
3. Davies only
4. Chhavi and Davies

Question Numbers (14 to 17):

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.

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

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

15. Which among the following is the highest?

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

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

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

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

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

Question Numbers (18 to 22):

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.

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

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

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

20. How many tickets were booked from Station C?

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

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

Section III : QA

1. 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

2. 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. infinite
3. 1
4. 2

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

4. 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. 29/9
2. 13/4
3. 27/7
4. 10/3

5. 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. $4\left(3\sqrt{2}+\sqrt{7}\right)$
2. $20\left(3+\sqrt{14}\right)$
3. $4\left(3+\sqrt{14}\right)$
4. $20\left(3\sqrt{2}+\sqrt{7}\right)$

6. 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

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

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

8. In the set of consecutive odd numbers {1, 3, 5, ..., 57}, there is a number 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. 39
3. 37
4. 41

9. Kamala divided her investment of Rs. 10,0000 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. 8,200 in one year. The amount, in rupees, that she gained from the bonds, was

10. 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. 14
2. 18
3. 15
4. 20

11. 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. 880
2. 840
3. 800
4. 600

12. 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. –1/2
3. 2
4. 1/2

13. Let $3 \le x \le 6$ 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. $(3, \sqrt{10}) \cup [5, \sqrt{26}) \cup \{6\}$
2. $(4, \sqrt{18}) \cup [5, \sqrt{27}) \cup \{6\}$
3. $[3, \sqrt{10}] \cup [5, \sqrt{26}]$
4. $[3, \sqrt{10}] \cup [4, \sqrt{17}] \cup \{6\}$

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

15. At a certain simple rate of interest, a given sum amounts to Rs. 13,920 in 3 years, and to Rs. 18,960 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. 3096 2. 3221
3. 3150 4. 3180

16. 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. 23 4. 29

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

18. 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

19. 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

20. 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

21. 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. 99 2. 88
3. 121 4. 110

22. Arun, Varun and Tarun, if working alone, can complete a task in 24, 21, and 15 days, respectively. They charge Rs. 2,160, Rs. 2,400, and Rs. 2,160 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. 34400
3. 38880 4. 38400

ANSWERS

VARC

1. (3421)	**2.** (4)	**3.** (2143)	**4.** (4)	**5.** (1)	**6.** (4)	**7.** (2)	**8.** (4)	**9.** (1)	**10.** (4)
11. (1)	**12.** (2)	**13.** (1)	**14.** (3)	**15.** (3)	**16.** (1)	**17.** (4)	**18.** (2)	**19.** (4)	**20.** (4)
21. (2)	**22.** (3)	**23.** (1)	**24.** (4)						

DILR

1. (4)	**2.** (0)	**3.** (5)	**4.** (4)	**5.** (4)	**6.** (7)	**7.** (1)	**8.** (1)	**9.** (6)	**10.** (4)
11. (4)	**12.** (1)	**13.** (3)	**14.** (1)	**15.** (4)	**16.** (1)	**17.** (4)	**18.** (3)	**19.** (50)	**20.** (80)
21. (40)	**22.** (60)								

QA

1. (NA)	**2.** (4)	**3.** (4)	**4.** (1)	**5.** (2)	**6.** (NA)	**7.** (3)	**8.** (4)	**9.** (NA)	**10.** (2)
11. (1)	**12.** (4)	**13.** (1)	**14.** (NA)	**15.** (2)	**16.** (1)	**17.** (NA)	**18.** (NA)	**19.** (NA)	**20.** (NA)
21. (1)	**22.** (4)								

EXPLANATIONS – CAT 2025 SOLVED PAPER (SLOT-1)

Section - I : VARC

1. 3421

Sentence 3 starts by discussing how women are socialized to suppress their anger, setting the tone for the rest of the paragraph.

Sentence 4 elaborates on the difficulties some women face in expressing their anger, with the speaker's role as a coach to help them express it more openly.

Sentence 2 follows by explaining how some women, once they break the taboos around expressing anger, find it liberating.

Sentence 1 wraps up the paragraph by reflecting on how managing anger shapes one's life and character.

So, the correct sequence is: **3, 4, 2, 1**.

2. 3 **Actual passage**

They evoke a time when people still bought table silver for dining rooms. 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.' 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. Historically, silver has been, and still is, an important element in the business of 'show' visible in private houses, churches, government and diplomacy. 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.

Source: https://www.delanceyplace.com/view-archives.php?p=5262

3. 2143

Original paragraph

It's a case of it's easy once you've thought of it' in the political sphere. 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'. 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 their efficiency by itself increasing its own points of contact. The panoptic mechanism is not simply a hinge, a point of exchange between a mechanism of power and a function; it is a wav of making zo6 Panopticism power relations function in a function, and of making a function function through these power relatiarns

4. 4 **Sentence 1** introduces the idea of freedom over death and its moral importance, setting the stage for the discussion.

Sentence 2 supports this idea by emphasizing that the freedom to shape the timing and circumstances of death should be central to the conversation.

Sentence 3 continues by suggesting that legalizing assisted dying is a further step in realizing this freedom over death.

Sentence 5 acknowledges the complexity of freedom as a philosophical notion, but this does not detract from the overall flow of the discussion on freedom over death.

Sentence 4 deviates because it talks about **endorsing freedom over death** through people's opinions and choices regarding medical assistance in hastening death. It is less about the **moral or philosophical argument** for freedom over death and more about how people might support this freedom through actions. This makes it less consistent with the general tone and purpose of the other sentences.

Thus, **Sentence 4** is the odd one out.

5. 1 **Option 1** accurately reflects the main points of the passage. It explains how **noise can create order** (e.g., the paradox of fish schooling), then proceeds to discuss how **complex systems** are **vulnerable to heavy-tailed cascades** (e.g., the increased probability of extreme events). It also touches on the concept of **nonstationarity** (changes in rules and perceived costs) using an example from **the COVID-19 market disruption**.

Option 2 is incorrect because it focuses on the **stabilization of averages** and **policy response** but misses the more nuanced aspects of **tail events** and **nonstationarity** in the passage.

Option 3 is not correct because it **overemphasizes** evolutionary biology and **rejects** its application to markets or public health, which is not a point made in the passage. The passage **uses evolutionary biology as an example**, not to reject its relevance in social dynamics.

Option 4 focuses too narrowly on **speculative entrants** and **market inefficiency**, which is only a small part of the broader discussion of complex systems, **tail events**, and **nonstationarity** in the passage.

6. 4 **Option 4** is key because it addresses the idea that **individuals adjust their behavior based on observed infections and the actions of others**. This assumption aligns with the passage's argument that local responses and behavior can interact, creating large-scale patterns that may counteract the app's intended purpose of reducing risk. If people alter their behavior based on the app's alerts (such as avoiding infected individuals), these adjustments could lead to unexpected interactions, potentially increasing the spread rather than reducing it.

Why the other options are incorrect:

Option 1 is not relevant because it focuses on **uninstalling apps** and **systematic bias in routing decisions**, which isn't necessary to support the idea that behavior changes at the **local level** can lead to risky interactions. The passage is more concerned with **how behavior changes** due to interactions with the app, not with app uninstallation or routing biases.

Option 2 assumes that **urban networks** have uniform traffic conditions, but this doesn't address the core issue of how **individual behavior** is influenced by the app and leads to unintended consequences. The uniformity of traffic conditions does not impact the **local adjustments** that could lead to risky behavior, which is central to the passage's argument.

Option 3 is also irrelevant because it assumes that **app alerts always provide precise location data**. While this may be true for the app's functionality, it doesn't directly support the argument that people's **behavior changes in response to others' actions**, which is the crux of the passage.

7. 2 **Option 1** is supported by the passage. It discusses how **heavy-tailed events** (such as stock market crashes or pandemics) are **larger and more frequent** than expected under normal distributions, which complicates forecasting and risk management, particularly in collective settings shaped by **contagion and copying behavior**.

Option 3 is supported by the passage. It uses **examples like runs on banks and toilet paper scrambles** to illustrate how **contagion** can amplify local choices into **system-wide cascades** that lead to unexpected patterns, even though participants did not intend to create them.

Option 4 is supported by the passage. It explains how **learning** (such as observing shocks) can change the **rules** or the **perceived costs of actions**. This in turn supports the idea of **second-order tail events**, where a rare shock can increase the likelihood of further large events.

Option 2, however, is **not supported by the passage**. While the passage discusses the dynamics of the **COVID-19 financial market rebound**, it does not attribute the **entire recovery** solely to **displaced sports bettors**. The passage mentions that these **new players** might have contributed to market inefficiencies, but it does not claim they were the **overriding cause** of the recovery. Therefore, **Option 2** makes an **unsupported inference**.

Thus, **Option 2** is the correct answer.

8. 4 The passage's claim suggests that **a first-order tail event** (such as a significant shock) **raises the probability** of further tail events in a **complex system**. This implies that a large event can trigger more frequent extreme outcomes (second-order tail events) due to **interdependencies** and **systemic feedback loops** in the system.

Option 4 supports this claim because it describes the phenomenon following **a major equity crash**, where researchers find **dense clusters of large daily moves** for several weeks. This indicates that **extreme events occur far more frequently** than normal, reinforcing the idea that **the first-order tail event (the crash)** raises the likelihood of further extreme events, such as additional large daily moves. It provides direct evidence of **second-order tail events** in the context of financial markets.

Why the other options are incorrect:

Option 1 contradicts the passage's claim. River discharge records showing **normal distribution with thin tails** suggest that extreme events do not happen more frequently or in greater magnitude than expected. This is not in line with the idea of **first-order tail events** raising the probability of further extreme events.

Option 2 is also not supportive of the passage's claim. If epidemic networks show **no rise in the frequency or size of later extreme clusters**, it suggests that the **super-spreading episodes** do not lead to further extreme events, which goes

against the idea of **tail events feeding back** into the system to trigger more extreme outcomes.

Option 3 describes **seismic activity returning to baseline** without aftershocks, implying **independence between events**. This contradicts the passage's claim that a **first-order tail event** raises the probability of subsequent extreme events.

9. 5 The odd sentence out is **Sentence 5**.

Explanation:

Sentences 1, 2, 3, and 4 are focused on the **interaction** and **experience of the Bayeux tapestry**. They discuss how the tapestry could have been experienced, the sensory and physical interaction with it, and how the scenes might have been arranged to immerse the viewer in the story.

Sentence 5, however, simply mentions the tapestry being hung at **eye level**, which is a **technical detail** that doesn't directly connect to the theme of **how people interacted with the art** or how the arrangement was designed to engage viewers. While it's related to the Bayeux tapestry, it doesn't fit smoothly with the other sentences that describe the immersive and sensory experience of the artwork.

Therefore, **Sentence 5** is the odd one out.

10. 4 **Option 4** accurately captures the essence of the passage by stating that **aging leads to less effective apoptosis**, which in turn **causes zombie cells to accumulate**, leading to **inflammation** that can **accelerate aging** and contribute to **chronic diseases**. This summary directly addresses the key points about how the accumulation of zombie cells due to a less effective immune system causes inflammation, which in turn results in chronic health problems and accelerated aging.

Why the other options are incorrect:

Option 1 is not as precise because it oversimplifies the idea by stating that **dead cells** accelerate inflammation and weaken the immune system. The passage focuses on **senescent or zombie cells**, which are **damaged but not dead**. Additionally, it emphasizes **chronic diseases** rather than just aging, which makes this summary incomplete.

Option 2 is incomplete because it only defines what zombie cells are, without addressing their role in **chronic inflammation** and **aging** as explained in the passage.

Option 3 partially summarizes the passage, but it misses the critical point that **zombie cells contribute to inflammation**, and that this accumulation leads to **chronic diseases**. It stops at the explanation of the immune system's role without tying it to the consequences of **inflammation** and **chronic health problems**.

11. 1 Option 1

The missing sentence is: "Everything is old-world, traditional techniques from Mexico," Ava emphasizes.

Option 1 fits naturally in the paragraph because it provides an introductory statement from **Ava**, emphasizing the **old-world, traditional techniques**. This fits perfectly before the explanation of how the sisters craft the guitarrón using traditional methods like **tacote wood** and **hand tools**. The sentence sets the tone for the detailed discussion of their craftsmanship and their adherence to **traditional methods**.

12. 2 **Option 2** captures the essence of the passage as it emphasizes:

Drawing inspiration from diverse cultures respectfully, which is the main theme of the passage.

The **thin line between inspiration and cultural appropriation** is highlighted, and it mentions that **cultural appropriation involves borrowing without proper acknowledgment**.

The broader **societal impacts**, including **power imbalances**, are also addressed, aligning with the passage's discussion about the consequences of cultural appropriation.

Why the other options are incorrect:

Option 1 oversimplifies the idea, focusing only on the choice between **inspiration and appropriation**, without mentioning the broader societal impacts, which are crucial in the passage.

Option 3 lacks focus on the **thin line** between inspiration and appropriation and does not address the **societal impact** or the **need for respect and acknowledgment**, which is a key part of the passage.

Option 4 is close, but it focuses more on **how the elements are borrowed** and doesn't fully encapsulate the **globalized world context** or the **impact on societal perceptions and power imbalances**.

13. 1 **Option 1** is the best answer because the passage discusses two common criticisms of electronic music: whether it can be considered music at all and whether it is "inhuman." The author addresses these concerns by explaining the nature of electronic music, its creation, and the personal involvement of composers, aiming to **defend electronic music** against these charges.

Option 2 is partially relevant but not the main focus of the passage. The author mentions the

differences between nineteenth-century composers and modern composers (like Stravinsky), but this is not the **primary goal** of the passage. The main aim is to **defend electronic music**, not to focus on historical distinctions.

Option 3 is not the best choice because the passage does not primarily focus on **differentiating** electronic music from other types of music. Rather, it defends electronic music against specific objections and explores its nature and creation.

Option 4 is incorrect because while the "serious-minded composer" is mentioned, the passage is not focused on defending them from Lejaren Hiller and Stravinsky specifically. The passage's focus is broader, defending electronic music in general, especially against criticisms about its "inhuman" qualities.

14. 3 **Option 1:** Stravinsky's description of music as "a form of speculation in terms of sound and time" allows the author to argue that **electronic music** can indeed be classified as music. This supports the idea that electronic music is a legitimate form of music, aligning with the first option.

Option 2: Stravinsky's description challenges the traditional, emotional view of music and shifts towards a more objective, structural view. This **complicates** the notion of what is communicated through music, as it moves beyond emotional expression to a more speculative approach.

Option 4: Stravinsky's view responds to **earlier understandings of music**, specifically the traditional view of music as emotional expression. By framing music as "a form of speculation," it expands upon and responds to earlier ideas about music and composition.

Option 3: Stravinsky's description **does not** directly help us **determine which sounds are musical and which are not**. His view is more about how music is constructed and understood, rather than drawing a strict line between what is or isn't music based on specific sounds.

Thus, the correct option is Option 3, as Stravinsky's description doesn't focus on distinguishing musical

15. 3 The phrase **"sui generis"** is Latin and translates to "of its own kind" or "unique." In the context of paragraph 3, the phrase refers to the composer's pursuit of **unique, distinctive forms and languages** in electronic music. The composer is exploring forms that are **particular** to the medium of electronic music, rather than relying on traditional or generic approaches.

Option 1 (Unaesthetic) is incorrect because "sui generis" does not imply anything about being unaesthetic. It refers to something unique, not lacking in beauty or style.

Option 2 (Generic) is incorrect because "sui generis" suggests the opposite of generic—it refers to something that is **unique**, not generalized or common.

Option 4 (Indescribable) is incorrect because "sui generis" means "of its own kind" and is not directly linked to the idea of something being **indescribable**.

Therefore, **Option 3: Particular** is the best choice, as it aligns with the idea of **unique** or **specific** forms and languages in the context of electronic music composition.

16. 1 **Option 1** accurately captures the relationship between the **communication problem** mentioned in paragraph 2 and the **questions at the beginning of the passage**. The initial questions about whether electronic music can be considered music and whether it is "inhuman" stem from a **lack of understanding** of electronic music. The **communication problem** arises because electronic music uses a **new language of forms** and unfamiliar terms, making it hard for some to view it as "true" music. However, the passage suggests that this **barrier can be overcome** once the audience understands the new forms and language used in electronic music.

Option 2 is incorrect because the **communication problem** is **directly related** to the earlier questions about whether electronic music can be considered music, and not unrelated as this option suggests.

Option 3 misinterprets the relationship. The passage doesn't suggest that the **unfamiliar language of forms** means that electronic music cannot be seen as music; rather, it highlights that **this unfamiliarity** is what **initially complicates** people's understanding of electronic music as music. The key point is that this **complication can be overcome**.

Option 4 is incorrect because the passage does not argue that the **difficulty in understanding** electronic music makes it more valid as music. Instead, it focuses on how the communication problem arises from the unfamiliarity with electronic music's structure, which can be clarified with further understanding.

17. 4 **"Alienists"** in the passage refers to **physicians who specialized in the study of mental illness** and the care of the **insane** during the nineteenth century. The passage explains that these

professionals were the predecessors of modern psychiatrists, neurologists, and psychologists.

Option 1 is incorrect because it refers to **extraterrestrials** or "aliens," which is unrelated to the context of the passage, which discusses the medical field and mental illness.

Option 2 is also incorrect as it refers to **immigrants** or "aliens," which again is not the context of the passage. The term "alienist" in this context specifically relates to **mental health** professionals, not to immigrants.

Option 3 is incorrect because while the alienists were indeed pushing the boundaries of their field, the passage defines them more specifically as **physicians specializing in the care of the insane**, not as professionals whose fields became unrecognizable.

Therefore, **Option 4** is the best answer, as it accurately reflects the role of **alienists** as described in the passage.

18. 2 In this context, **"confession"** does not refer to an admission of guilt or the assertion of a characteristic such as race or gender, but rather is used in a **metaphorical sense**. The word **"confession"** here can be understood as referring to **the religious practice of confession**, where individuals openly declare or profess their beliefs. In this context, the term likely refers to the **defendant's religion or faith**—perhaps the way they express their beliefs or identify religiously.

The **"precariousness of judgments"** part of the sentence suggests that the legal system can be influenced by how the defendant's religion or belief is perceived, further complicating the mental state judgments. Thus, **confession** here is likely metaphorical, representing a **religious affiliation or declaration**.

Why the other options are incorrect:

Option 1: The word **"confession"** here does not refer to the defendant admitting to a crime, so this interpretation is not accurate.

Option 3: The sentence does not imply that the confession is **false** or related to the verb "dint" as a past tense of "didn't." The focus is on how perceived differences like race, disease, or confession affect legal judgments.

Option 4: While confession can sometimes mean "professing," in this case, it's more metaphorical and refers to religious affiliation, not a declaration of race, gender, or disease.

19. 4 In the last paragraph, the passage discusses how **middle-class, white, professional men** (physicians and lawyers) were bound together by various societal and professional factors such as **class, race, gender**, and **shared networks**. However, the passage also points out that these men were **divided by contests over the borders of criminal responsibility**. This refers to the professional disagreements or differences between them regarding the definitions and boundaries of **criminal responsibility**—a key concept that ties them together in their work, but also creates professional division.

Why the other options are incorrect:

Option 1 (Eccentricity and aggression): This is not mentioned in the paragraph. The focus is on **professional division** and **shared societal factors**, not on personal traits like eccentricity or aggression.

Option 2 (The opinions of family and neighbors): While family and neighbors play a role in the context of **mental science**, this option does not capture the central **professional connection** between physicians and lawyers, which is more focused on **criminal responsibility** than personal opinions.

Option 3 (Empathy and imagination): This option is not supported by the paragraph. The passage does not mention **empathy and imagination** as key factors that connect these professionals. The focus is on **professional disagreements over criminal responsibility**.

20. 4 The passage focuses on how **judgments** about a defendant's **mental state** (such as **insanity**) are made in the legal context, and how these judgments are tied to the **legal concepts of punishment** and **responsibility**. It discusses how **insanity** is evaluated in court, with physicians and lawyers becoming involved in making these assessments, and how **criminal responsibility** is ultimately tied to whether a defendant is judged mentally sound or not. The passage emphasizes the **precariousness of judgment** in such cases, especially when a defendant is perceived as "unlike" the officials (due to differences like race, gender, or disease).

Thus, the concepts in **Option 4** align most closely with the concerns and arguments in the passage, which revolves around **judgment**, **insanity**, **punishment**, and **responsibility**.

Why the other options are incorrect:

Option 1 (Empathy, Prosecution, Knowledge, Business): Although empathy and prosecution are related to legal judgments, business and knowledge are not directly central to the passage's focus on legal and medical definitions of responsibility.

Option 2 (Judgement, Belief, Accounts, Patronage): While **judgment** is a key concept, **belief**, **accounts**, and **patronage** do not directly capture the passage's focus on **insanity**, **punishment**, and **legal responsibility**.

Option 3 (Assessment, Empathy, Prosecution, Patriotism): While **assessment** and **prosecution** are relevant to the legal and medical context, **empathy** and **patriotism** are less central to the passage's primary focus on **insanity** and **criminal responsibility**.

21. Question Explanation

The question asks for the **best summary** of the passage, meaning the option that **captures all major ideas without distortion**, remains **proportionate**, and avoids introducing **extra claims** not supported by the passage. The passage discusses **why some studies argue that income inequality can promote economic growth**, focusing mainly on **three channels**:

- investment indivisibilities,
- incentives/moral hazard,
- governance/agency problems.

It also reports **empirical findings**:

- short- and medium-term **positive** effects,
- long-run **negative** correlation.

The passage **does not** discuss human capital, fertility, or political instability.

Correct Answer: Option 2

Correct Answer Explanation

Option 2: 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.

This accurately summarises the key components of the passage: It mentions **investment**, **incentive**, and **governance channels**, which correspond directly to the three arguments in the passage. It acknowledges the **short-term positive impact** of inequality and the **long-term drawbacks**, exactly as the empirical findings indicate. It is **balanced, complete, and faithful** to the passage without adding unrelated themes. This makes it the most precise and comprehensive summary.

Incorrect Answers and Explanations

Option 1: "The passage confines its discussion to financing gaps and corporate control… human capital, fertility, redistribution…"

Incorrect because it attributes themes **not present** in the passage (human capital, fertility, redistribution). It also ignores the **incentive/moral hazard** channel and the **empirical findings** on short- vs long-run effects. The summarisation is therefore **distorted and incomplete**.

Option 3: "The passage claims that evaluating the effect of inequality… without considering short- and long-term consequences is misguided."

Too **narrow**: the passage does more than just warn about interpretation; it outlines **three theoretical mechanisms** favouring inequality-led growth. It also presents **empirical evidence** showing both positive and negative effects, not merely an admonition about evaluation. Thus, it **under-represents the content**.

Option 4: "The passage argues that inequality accelerates growth while emphasising human capital, fertility, political instability…"

Factually **wrong**: the passage does not discuss these themes at all. It misrepresents the author's stance: the passage does **not argue** unequivocally that inequality accelerates growth; it simply reports studies showing **short-run positives** and **long-run negatives**. Hence, the option is **inaccurate and inflated**.

22. Question Explanation

The question asks for the **opposite of democratisation**, i.e., a process that moves a political system **away from broader participation, representation, and accountability** toward **reduced suffrage, diminished political competition, and concentrated power**. Democratisation expands rights; its opposite contracts them. The correct option must therefore reflect a **shift toward authoritarian or autocratic rule**, not merely policy changes or mislabelling.

Correct Answer: Option 3

Correct Answer Explanation

Option 3: After the emergency decree, the regime shifted toward authoritarianism as suffrage narrowed and opposition parties were deregistered.

This option describes a regime that, after an emergency decree, **moved toward authoritarianism**, characterised by: **Narrowing of suffrage, Deregistration of opposition parties, Contraction of political participation and contestation.** These changes directly reverse the defining features of democratisation. The description is precise, structural, and accurately reflects a **transition away from democratic norms**, making it the best opposite.

Incorrect Answers and Explanations

Option 1: "The coalition imposed term limits and strengthened judicial review… to entrench autocratic rule."

Although "autocratic rule" hints at non-democracy, **term limits** and **strengthened judicial review** are actually *democracy-enhancing* mechanisms. The description is internally contradictory; its components do **not accurately depict a reversal of democratisation**. Thus, it is conceptually flawed.

Option 2: "Corporate donations were capped… portrayed as establishing an oligarchy."

Capping corporate donations and providing public funding are **democratic reforms**, not the opposite. Labelling it an "oligarchy" is rhetorical, not substantive. The political structure described **does not actually reduce participation or rights**.

Option 4: "Municipalities adopted participatory budgeting and recall elections… called totalitarianism."

Participatory budgeting and recall elections **increase democratic participation**. Calling it "totalitarianism" is a misuse of the term and does not reflect the actual political process described. Therefore, it does **not represent an opposite of democratisation**.

23. Question Explanation

The question asks for the **primary function** of the three-part case presented in the first half of the passage. The passage outlines three mechanisms—**investment indivisibilities**, **moral hazard and incentives**, and **corporate governance/free-rider issues**—each used by certain studies to argue **why income inequality may promote economic growth**, specifically under certain economic and institutional conditions. The correct option must capture the **conditional**, **mechanism-driven**, and **short-term oriented** nature of these arguments.

Correct Answer: Option 1

Correct Answer Explanation

Option 1: inequality can aid short-term growth in settings with high sunk costs, incentive alignment, and concentrated ownership.

This option accurately captures the function of the three-part case: It states that **inequality can aid short-term growth**, matching the empirical evidence cited later in the passage. It correctly identifies the relevant conditions: **high sunk costs**, **incentive alignment problems**, and **concentrated ownership**—the three channels the passage discusses. It reflects the **limited, context-dependent argument**, not a universal claim. Thus, this option mirrors the actual purpose of the theoretical arguments: explaining *how* inequality may support growth under particular circumstances.

Incorrect Answers and Explanations

Option 2: "Mature stock markets make wealth concentration unnecessary…"

This diverges from the passage. The passage does not argue that mature stock markets make concentration unnecessary; it simply states that *without* such institutions, concentration is needed. It shifts the focus to investment harm and mischaracterises the theory's purpose.Therefore, it does **not capture the function** of the three-part case.

Option 3: "Dispersed ownership speeds corporate decision-making…"

This reverses the passage's governance argument. The passage claims **dispersed ownership creates free-rider problems**, which inequality (through concentrated ownership) may mitigate. It is factually inconsistent and does not explain the **purpose** of the three mechanisms. Hence, it is incorrect.

Option 4: "Inequality boosts growth in every period and type of economy…"

Overgeneralised and inaccurate. The passage explicitly avoids universal claims and presents: **short-term positive effects**, **long-term negative or mixed outcomes**, depending on institutional contexts. This option contradicts both the theoretical and empirical content.

24. Question Explanation

The question asks which option best reflects the **incentive or moral hazard argument** described in the passage.

That argument claims:

When **effort is unobservable**, firms must design compensation schemes that **reward performance** so that workers have incentives to exert high effort.

If everyone is paid equally regardless of output, incentives weaken and growth suffers.

Therefore, *some* inequality—specifically **performance-linked pay**—can improve productivity and growth.

The correct option must clearly embody **performance-based reward systems**.

Correct Answer: Option 4

Correct Answer Explanation

Option 4: "Pay rewards on verifiable performance for highly productive workers."

This perfectly matches the essence of the moral-hazard argument: It links **pay to measurable performance**. It creates **incentive-compatible inequality**, where higher performers receive higher compensation. It encourages **effort and productivity**, which the passage identifies as channels through which inequality can support growth. Thus, this is fully aligned with the theoretical mechanism discussed.

Incorrect Answers and Explanations

Option 1: "A regime that concentrates stock ownership in relation to corporate governance."

This refers to the **governance/free-rider** argument, not the **incentive/moral hazard** argument. It is about **ownership concentration** solving monitoring problems, not creating incentives for worker effort.

Option 2: "Rents protected by market power that enlarge top incomes without linking pay to results."

This creates **inequality**, but *not* the type the theory defends. It lacks **performance linkage**, undermining incentives instead of strengthening them. Therefore, it contradicts the moral hazard logic.

Option 3: "Wages are determined by tenure rather than output to ensure equity."

This is explicitly the opposite of the argument. Pay based on tenure eliminates the performance incentive and **exacerbates moral hazard**. It aligns with egalitarian wage structures, which the theory claims may *reduce* growth.

Section - II : LRDI

For questions 1 to 5:

Step 1:

From Condition (1), Asha, Bunty, and Chintu were in the Elite at the beginning of Quarter 1. Therefore, Dolly, Eklavya, and Falguni were in the Novice at the beginning of Quarter 1. All three—Asha, Bunty, and Chintu—were in the Novice at the beginning of Quarter 4. Hence, all three—Dolly, Eklavya, and Falguni—were in the Elite at the beginning of Quarter 4.

From Condition (3), based on the ratings given by Lalu, Bunty was demoted to the Novice in Quarter 2. Therefore, his rating in Quarter 1 was 1. Also, Asha and Dolly received ratings of 1 and 2, respectively, in Quarter 3.

From Condition (2), the ratings of Dolly and Falguni were 2 and 3, respectively, in all three quarters. Hence, Falguni was promoted to the Elite in Quarter 2.

Since Asha was demoted to the Novice in Quarter 3, her cumulative score in Quarter 2 was less than or equal to Chintu's. Therefore, Asha's and Chintu's ratings in Quarter 1 were 2 and 3, in any order. Also, their ratings in Quarter 2 were 1 and 2, respectively.

Hence, the information can be shown in the table below.

	Elite (Kulu)			Novice (Lalu)		
Quarter 1	Asha	Bunty	Chintu	Dolly	Eklavya	Falguni
	2/3	1	3/2	2	1	3
Quarter 2	Asha	Falguni	Chintu	Bunty	Dolly	Eklavya
	1	3	2	1	2	3
Quarter 3				Asha		Dolly
				1	3	2
Quarter 4	Dolly	Eklavya	Falguni	Asha	Bunty	Chintu
	2	1	3			

Step 2:

The cumulative scores of Dolly and Eklavya in Quarter 2 were 4 each, but Eklavya's rating in Quarter 2 was higher than Dolly's. Therefore, Eklavya was promoted to the Elite in Quarter 3.

Since Chintu was demoted to the Novice in Quarter 4, his cumulative score in Quarter 3 was less than or equal to that of Eklavya. Therefore, the ratings of Chintu and Eklavya in Quarter 3 were 1 and 2, respectively.

Hence, the final information is shown in the table below.

	Elite (Kulu)			Novice (Lalu)		
Quarter 1	Asha	Bunty	Chintu	Dolly	Eklavya	Falguni
	2/3	1	3/2	2	1	3
Quarter 2	Asha	Falguni	Chintu	Bunty	Dolly	Eklavya
	1	3	2	1	2	3
Quarter 3	Chintu	Eklavya	Falguni	Asha	Bunty	Dolly
	1	2	3	1	3	2
Quarter 4	Dolly	Eklavya	Falguni	Asha	Bunty	Chintu
	2	1	3			

1. 4 Eklavya's score at the end of Quarter 2 was 4.

2. 0 No employee changed groups more than once up to the beginning of Quarter 4.

3. 5 Bunty's score at the end of Quarter 3 was 5.

4. 4 The scores of four employees—Bunty, Dolly, Eklavya, and Falguni—at the end of Quarter 3 can be determined with certainty.

5. 4 Only Statement II is necessarily true.

For questions 6 to 9:

Step 1:

One tap means "Yes", two taps mean "No", and three taps mean "Maybe".

Each question received at least one "Yes", one "No", and

one "Maybe". So each person received more than 6 taps.

From conditions (1) and (4), Alia tapped 2 Yes and 2 No.

From condition (6), Badal and Clive tapped = 40 – (6 + 11 + 9) = 14 times and Clive tapped more times in total than Badal.

Also, from condition (4), Badal tapped 6 times and Clive tapped 8 times.

From condition (3), Let the number of taps received by Badal or Dilshan or Ehsaan be x.

Then, the number of taps received by Clive = 40 – 9 – 3x = 31 – 3x.

But 31 – 3x > 6 or x < 8.33 i.e., x = 7 or 8

For x = 7, the number of taps received by Clive will be 31 – 21 = 10, which is not possible. Since Badal tapped Yes or No for Clive.

For x = 8, then the number of tabs received by Clive will be 31 – 24 = 7, which is possible.

The information can be shown in the table below.

	Alia	Badal	Clive	Dilshan	Ehsaan	No. of Taps
Alia		Yes (1)				9
Badal	No (2)					8
Clive	Yes (1)					7
Dilshan	Yes (1)	No (2)				8
Ehsaan	No (2)					8
No. of Taps	6	6	8	11	9	**40**

Step 2:

From condition (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.

The final information can be shown in the table below.

	Alia	Badal	Clive	Dilshan	Ehsaan	No. of Taps
Alia		Yes (1)	No (2)	Maybe (3)	Maybe (3)	9
Badal	No (2)		Yes (1)	No (2)	Maybe (3)	8
Clive	Yes (1)	No (2)		Maybe (3)	Yes (1)	7
Dilshan	Yes (1)	No (2)	Maybe (3)		No (2)	8
Ehsaan	No (2)	Yes (1)	No (2)	Maybe (3)		8
No. of Taps	6	6	8	11	9	**40**

6. 7 Clive received 7 taps for his question.

7. 1 Alia and Badal tapped an equal number of times in total.

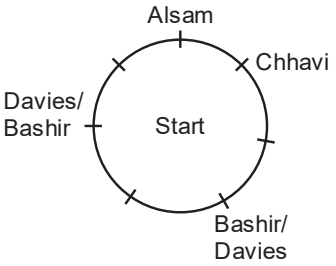
8. 1 Clive's response to Ehsaan's question was 'No'.

9. 6 Six ''Yes" responses were received across all the questions.

For questions 10 to 13:

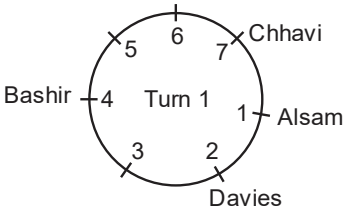
Step 1:

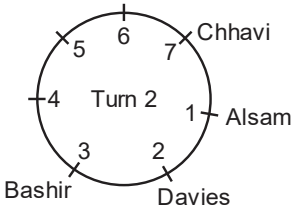
In the initial position, Aslam and Chhavi are sitting next to each other, while both Bashir and Davies have empty chairs on either side of them. Since the arrangement is circular, the initial order of Aslam and Chhavi does not matter.



From condition (1), the four friends occupy adjacent chairs only at the end of Turns 2 and 6. If Aslam moves counterclockwise, then they will not occupy adjacent chairs at the end of Turn 2. Therefore, Aslam must move clockwise, and in Turn 1, Bashir moves counterclockwise.

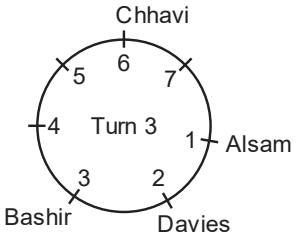
From condition (2), Davies occupies Chair 2 after Turn 1, and Chhavi occupies Chair 7 after Turn 2.



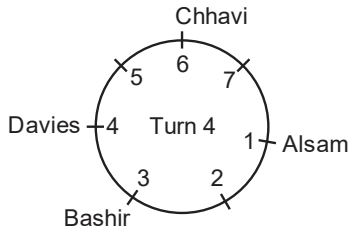


Step 2:

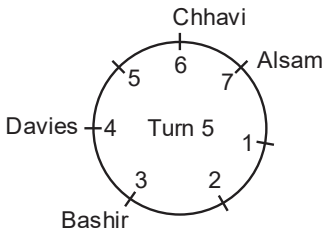
In Turn 3, Chhavi moves in counterclockwise and occupies chair No. 6.



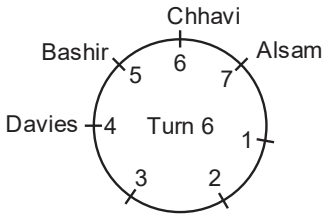
From condition (2), Davies occupies Chair 4 after Turn 5. So in Turn 4, Davies moves clockwise and occupies Chair 4.



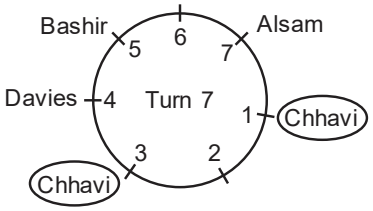
In Turn 5, Aslam movies counterclockwise and occupies chair 7.



From condition (1), The four friends occupy adjacent chairs only at the end of Turn 2 and Turn 6. So in Turn 6, Bashir moves clockwise and occupies chair 5.



In Turn 7, Chhavi moves either clockwise or anticlockwise and occupies Chair 1 or Chair 3.



10. 4 The number of the chair initially occupied by Bashir is 4.

11. 4 No one sits on the chair numbered 4 at the end of Turn 3.

12. 1 Chairs numbered 4, 5, 6, and 7 are occupied at the end of Turn 6.

13. 3 At the end of Turn 7, only Davies is sitting on a chair adjacent to the one occupied by Bashir.

For questions 14 to 17:

From the radar graph, the table below shows the import tariffs (in %) imposed by each country on other countries.

	US	France	India	Japan	UK
US		20%	40%	30%	30%
France	30%		40%	30%	40%
India	40%	50%		50%	20%
Japan	40%	30%	50%		40%
UK	20%	30%	30%	40%	

From the bar graph, the table below shows the import tariffs (in Billion USD) imposed by each country on other countries.

	US	France	India	Japan	UK
US		6	4.5	7	3
France	5.5		6.5	4	4.5
India	9	5		3.5	5
Japan	4	3	8		3
UK	2.5	4	3	6	

14. 1 India charged an import tariff of 3.5 billion USD on imports from Japan, which is 50% of the total imports. Hence, Japan's exports to India are worth 7.0 billion USD.

15. 4 Option (1): Exports by Japan to UK = 6 × 1/0.4 = 15 Billion USD

Option (2): Exports by France to Japan = 3 × 1/0.3 = 10 Billion USD

Option (3): Imports by France from India = 6.5 × 1/0.4 = 16.25 Billion USD

Option (4): Imports by US from France = 6 × 1/0.2 = 30 Billion USD

Hence, option (4) is the correct answer.

16. 1 Import by India from UK = 5 × 1/0.2 = 25 Billion USD

Export from India to UK = 3 × 1/0.3 = 10 Billion USD

Hence, trade deficit of India with UK = 25 – 10 = 15 Billion USD

17. 4 Import by France from US = 5.5 × 1/0.3 = 18.33 Billion USD

Export by France to US = 6 × 1/0.2 = 30 Billion USD

So trade surplus of France with US = 30 – 18.33 = 11.66 Billion USD

Import by UK from US = 2.5 × 1/0.2 = 12.5 Billion USD

Export from UK to US = 3 × 1/0.3 = 10 Billion USD

So trade deficit of UK with US = 12.5 – 10 = 2.5 Billion USD

Hence, only France has trade surplus with US.

For questions 18 to 22:

Step 1:

From condition (2), Exactly 40 tickets were booked from B to C and 30 tickets were booked from B to E.

From condition (5), No tickets were booked from A to B, from B to D and from D to E.

From condition (4), The number of tickets booked from A to C = The number of tickets booked from A to E > 30

From condition (3), Among the seats reserved on segment D – E, exactly four-sevenths were from stations before C i.e., from A and B.

The factors of both 7 and 10 are 70 and 140.

70 is not possible, since A to E + B to E > 60

So A to E + B to E = 140 × 4/7 = 80 and C to E = 140 – 80 = 60

Step 2:

From conditions (1) and (6), Segment C – D had an occupancy = 0.95 × 200 = 190 and segment B – C had an occupancy = 200.

AC + AD + AE + BC + BD + BE = 200

$\Rightarrow$ 50 + AD + 50 + 40 + 0 + 30 = 200

$\Rightarrow$ AD = 30

AD + AE + BD + BE + CD + CE = 190

$\Rightarrow$ 30 + 50 + 0 + 30 + CD + 60 = 190

$\Rightarrow$ CD = 20

Hence, the final information can be shown in the table below.

	A	B	C	D	E
A		0	50	30	50
B	×		40	0	30
C	×	×		20	60
D	×	×	×		0
E	×	×	×	×	

18. 3 The occupancy for segment D – E was = A to E + B to E + C to E + D to E

= 50 + 30 + 60 + 0 = 140

Hence, the occupancy factor for segment D – E was = 140/200 × 100 = 70%.

19. 50 The number of tickets booked from Station A to Station E was 50.

20. 80 The number of tickets booked from Station C was = 20 + 60 = 80.

21. 40 Required difference = (50 + 40) – (30 + 20) = 40.

22. 60 The number of tickets booked to travel in exactly one segment = B to C + C to D = 40 + 20 = 60.

Section - III : QA

1. 55 Let the initial number of boys and girls be b and g, respectively.

Then, g – 0.4g = b – 0.6b + 8, where b > 10

$\Rightarrow$ 0.6g = 0.4b + 8

$\Rightarrow$ 3g = 2b + 40

$\Rightarrow$ g = (2b + 40)/3

Since b > 10,

For b = 11, g = (22 + 40)/3 = 62/3 is not an integer.

For b = 12, g = (24 + 40)/3 = 64/3 is not an integer.

For b = 13, g = (26 + 40)/3 = 66/3 = 22 is an integer.

But 40% of 13 = 5.2 (not an integer)

Since 40% of b must be an integer $\Rightarrow$ b must be a multiple of 5.

For b = 15, g = (2 × 15 + 40)/3 = 70/3 is not an integer.

For b = 20, g = (2 × 20 + 40)/3 = 80/3 is not an integer.

For b = 25, g = (2 × 25 + 40)/3 = 90/3 = 30 is an integer.

Hence, the minimum number of students in the class was = 25 + 30 = 55.

2. 1 We have $\log_{\left(\frac{1}{4}\right)}\left(n^2-7n+11\right)>0$

Since 0 < 1/4 < 0,

so $\log_{\left(\frac{1}{4}\right)}\left(n^2-7n+11\right)>0 \Leftrightarrow 0<n^2-7n+11<1$

For $n^2 - 7n + 11 > 0$

$\Rightarrow n=\frac{7\pm\sqrt{5}}{2}$ or n = 2.382, 4.618 … (i)

For $n^2 - 7n + 11 < 1$

Or (n – 5)(n – 2) < 0

Or 2 < n < 5 … (ii)

Combining (i) and (ii), n = 3, 4

For n = 3 or n = 4, $n^2 - 7n + 11 = -1$

So the inequality $\log_{\left(\frac{1}{4}\right)}\left(n^2-7n+11\right)>0$ is not satisfy at n = 3 or n = 4.

Hence, the answer is 0.

3. 4 Total distance travelled = 224 km = 224000 m

Total time taken = 3 hours = 180 minutes

Since the times taken are in arithmetic progression, they are: 30, 30 + t, 30 + 2t, 30 + 3t

So 30 + (30 + t) + (30 + 2t) + (30 + 3t) = 180

$\Rightarrow$ 30 × 4 + 6t = 180

$\Rightarrow$ t = 10

So the times are 30, 40, 50, 60 minutes.

Since the speeds are also in arithmetic progression, they are: 960, (960 + d), (960 + 2d), (960 + 3d) m/minute

So 960 × 30 + (960 + d) × 40 + (960 + 2d) × 50 + (960 + 3d) × 60 = 224000

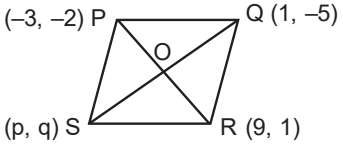
$\Rightarrow$ 172800 + 320d = 224000

$\Rightarrow$ 172800 + 320d = 224000

$\Rightarrow$ d = 160

Hence, the distance travelled in the fourth part = (960 + 3 × 160) × 60 = 86400 m.

4. 1



Co-ordinates of O are: (– 3 + 9)/2, (– 2 + 1)/2 = (3, – 1/2)

So (p + 1)/2 = 3 $\Rightarrow$ p = 5 and (q – 5)/2 = – 1/2

$\Rightarrow$ q = 4

The co-ordinates of vertex S is (5, 4).

Slope of SQ = (– 5 – 4)/(1 – 5) = 9/4

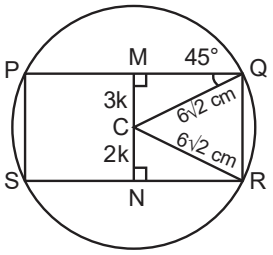
The equation of line SQ is (y – 4) = 9/4 (x – 5) = 0

$\Rightarrow$ 9x – 4y = 29

This line intersects x-axis at (a, 0).

So 9a – 0 = 29 $\Rightarrow$ a = 29/9.

5. 2



Since $\angle$MQC = 45°

Then, MQ = CM = 3k

In right angled triangle CMQ,

$(3k)^2 + (3k)^2 = (6\sqrt{2})^2$

$\Rightarrow 18k^2 = 72 \Rightarrow k = 2$

So CM = MQ = 6 cm, PQ = 12 cm

$NR = \sqrt{((6\sqrt{2})^2 - 4^2)} = \sqrt{(72 - 16)} = 2\sqrt{14}$ cm

So $SR = 4\sqrt{14}$ cm

Hence, the area of quadrilateral PQRS

$= 1/2 \times (12 + 4\sqrt{14}) \times 10 = 20(3 + \sqrt{14})$ sq. cm.

6. 15 Let n be the number of stocks B.

Then, the number of stocks C = 20 – n

So 10 × 120 + 90n + (20 – n) × 150 = 3300

$\Rightarrow$ 1200 + 90n + 3000 – 150n = 3300

$\Rightarrow$ 60n = 900

$\Rightarrow$ n = 15.

7. 3 $\{(a_1)^2 \times (a_2)^2 \times \ldots \times (a_{20})^{20}\} < \{a_{21} \times a_{22} \times a_{23} \times \ldots \times a_{(20+m)}\}$

Or, $\{(3^1)^2 \times (3^2)^2 \times \ldots \times (3^{20})^{20}\} < \{3^{21} \times 3^{22} \times 3^{23} \times \ldots \times 3^{(20+m)}\}$

Or, $3^{1^2+2^2+3^2+\ldots+20^2} < 3^{21+22+23+\ldots+(20+m)}$

Or, $1^2 + 2^2 + 3^2 + \ldots + 20^2 < 21 + 22 + 23 + \ldots + (20 + m)$

Or, 20 × 21 × 41/6 < 1 + 2 + 3 + … + (20 + m) – (1 + 2 + 3 + … + 20)

Or, 2870 < (20 + m)(21 + m)/2 – 20 × 21/2

Or, 2870 < (20 + m)(21 + m)/2 – 210

Or, 6160 < (20 + m)(21 + m)

Option (1): m = 56, (20 + m)(21 + m) = 76 × 77 = 5852

Option (2): m = 57, (20 + m)(21 + m) = 77 × 78 = 6006

Option (3): m = 58, (20 + m)(21 + m) = 78 × 79 = 6162

Option (4): m = 59, (20 + m)(21 + m) = 79 × 80 = 6320

Hence, the smallest natural number m is 58.

8. 4 1 + 3 + 5 + … n terms = n^2

So 1 + 3 + 5 + … + 57 = 29^2 = 841

1 + 3 + 5 + … + (k – 2), k, (k + 2) + k + 4, … + 57

Let 1 + 3 + 5 + … + (k – 2) = (k + 2) + k + 4, … + 57 = x^2

Then, $x^2 + k + x^2 = 841$

$\Rightarrow x^2 = (841 - k)/2$

Option (1): k = 43, $x^2 = (841 - 43)/2 = 399$

$\Rightarrow x = \sqrt{399}$

Option (2): k = 39, $x^2 = (841 - 39)/2 = 401$

$\Rightarrow x = \sqrt{401}$

Option (3): k = 37, $x^2 = (841 - 37)/2 = 402$

$\Rightarrow x = \sqrt{402}$

Option (2): k = 41, $x^2 = (841 - 41)/2 = 400$

$\Rightarrow$ x = 20

Hence, option (4) is the correct answer.

9. 900

Let Kamala invested her money in stocks and gold be Rs.x and Rs.y, respectively.

Then, x + 0.25y + y = 100000

$\Rightarrow x + 1.25y = 100000$ … (i)

And $0.1x + 0.06 \times 0.25y + 0.08y = 8200$

$\Rightarrow x + 0.95y = 82000$ … (ii)

From (i) and (ii), $0.3y = 18000 \Rightarrow y = Rs.60,000$

So amount invested in bonds = 0.25×60000 = Rs.15,000

Hence, the amount gained by Kamala from the bonds = 15000×0.06 = Rs.900.

10. 2 $a - 6b + 6c = 4 \Rightarrow a - 2(3b - 3c) = 4$

$6a + 3b - 3c = 50 \Rightarrow 6a + (3b - 3c) = 50$

Let $3b - 3c = d$.

Then, $a - 2d = 4$ … (i)

and $6a + d = 50$ … (ii)

From (i) and (ii), $a = 8$ and $d = 2$

Hence, $2a + 3b - 3c = 2a + d = 2 \times 8 + 2 = 18$.

11. 1 There are 5 types of sandwiches.

For each sandwich, the customer can choose 1 of 4 breads.

Each sandwich can be either small or large = 2 choices.

The customer may add up to 2 sauces from 6 available sauces.

Hence, the total number of ways

$= 5 \times 4 \times 2 \times ({}^6C_0 + {}^6C_1 + {}^6C_2)$

$= 40 \times (1 + 6 + 15) = 880$

12. 4 The function $f(x) = x^2 - 4cx + 8c$ has a minimum at $x_{min} = 4c/2 = 2c$

So the minimum value = $f(2c) = (2c)^2 - 4c \times 2c + 8c = -4c^2 + 8c$

The function $g(x) = -x^2 + 3cx - 2c$ has a maximum at $x_{max} = -3c/2(-1) = 3c/2$

So the maximum value = $f(3c/2) = -(3c/2)^2 + 3c \times 3c/2 - 2c = 9c^2/4 - 2c$

According to the question, $-4c^2 + 8c > 9c^2/4 - 2c$

Or, $-25c^2 - 40c > 0$

Or, $5c(5c - 8) < 0$

If $c < 0$ and $5c - 8 > 0 \Rightarrow c > 8/5$, not possible.

If $c > 0$ and $5c - 8 < 0 \Rightarrow c < 8/5$, which is possible.

So $0 < c < 8/5$

Hence, $c = 1/2$ is the correct option.

13. 1 Since $3 \le x \le 6$, possible values of [x] are:

3, 4, 5, 6

Case 1: $3 \le x < 4 \Rightarrow [x] = 3$

Then, $[x]^2 = 9$

$[x^2] = 9 \Rightarrow 9 \le x^2 < 10$

Or, $3 < x < \sqrt{10}$

So $x \in (3, \sqrt{10})$

Case 2: $4 \le x < 5 \Rightarrow [x] = 4$

Then, $[x]^2 = 16$

$[x^2] = 16 \Rightarrow 16 \le x^2 < 17$

Or, $4 \le x < \sqrt{17}$

But $\sqrt{17} = 4.12$, so this interval is very small and does not satisfy the equality consistently over the whole range. Hence, no valid interval is included here.

Case 3: $5 \le x < 6 \Rightarrow [x] = 5$

Then, $[x]^2 = 25$

$[x^2] = 25 \Rightarrow 25 \le x^2 < 26$

Or, $5 \le x < \sqrt{26}$

So $x \in [5, \sqrt{26})$

Case 4: $x = 6 \Rightarrow [x] = 6$

Then, $[x]^2 = 36$, $[x^2] = 36$

So $x = 6$

Hence, a possible subset of S is

$(3, \sqrt{10}) \cup [5, \sqrt{26}) \cup \{6\}$.

14. 16 $x > y \ge 3 \Rightarrow x \ge y + 1$

$x + y < 14 \Rightarrow x < 14 - y$

So $y + 1 \le x < 14 - y$

$\Rightarrow y + 1 < 14 - y$

$\Rightarrow y < 6.5$ and $y \ge 3$

So possible integer values of y are: 3, 4, 5, 6

If $y = 3$; $4 \le x < 11 \Rightarrow x = 4, 5, 6, 7, 8, 9, 10$

If $y = 4$; $5 \le x < 10 \Rightarrow x = 5, 6, 7, 8, 9$

If $y = 5$; $6 \le x < 9 \Rightarrow x = 6, 7, 8$

If $y = 6$; $7 \le x < 8 \Rightarrow x = 7$

Hence, there are 16 distinct pairs of integers.

15. 2 Let the given sum be Rs. P and the simple interest rate be r% per annum.

Then, $P(1 + 3r/100) = 13920$ … (i)

And $P(1 + 6.5r/100) = 18960$ … (ii)

From (i) and (ii),

$(1 + 6.5r/100)/(1 + 3r/100) = 18960/13920 = 79/58$

$\Rightarrow 58 + 3.77r = 79 + 2.37r$

$\Rightarrow 1.4r = 21$

$\Rightarrow r = 15\%$

So from (i), P = 13920/1.45 = Rs.9,600

Hence, the required interest earned = $9600(1 + 7.5/100)^4 - 9600$

$\approx 12820.50 - 9600 \approx$ Rs.3,221.

16. 1 In 200 liter solution, acid = $0.3 \times 200 = 60$ liter and water = 140 liter

20% of 200 = 40 liter

In 40 liter solution, acid = $0.3 \times 40 = 12$ liter and water = 28 liter

Now, in 200 liter solution, acid = 60 – 12 = 48 liter and water = 140 – 28 + 40 = 152 liter

Acid % = 48/200 × 100 = 24%, water % = 76%

10% of 200 = 20 liters

In 20 liters, acid = 0.24 × 20 = 4.8 liter and water = 15.2 liter

Now, in 200 liter solution, acid = 48 – 4.8 + 20 = 63.2 liter and water = 152 – 15.2 = 136.8 liter

Acid % = 63.2/200 × 100 = 31.6%, water % = 68.4%

15% of 200 = 30 liters

In 30 liters, acid = 0.316 × 30 = 9.48 liters and water = 30 – 9.48 = 20.52 liter

Now, in 200 liter solution, acid = 63.2 – 9.48 = 53.72 liter and water = 136.8 – 20.52 + 30 = 146.28 liter

Now, acid % = 53.72/200 × 100 = 26.86% ≈ 27%.

17. 3 The equation $x^2 - 5x + k = 0$ has integer roots.

Then, $(-5)^2 - 4k = 25 - 4k$ = Perfect square ≥ 0

k	0	1	2	3	4	5	6
25 - 4k	25	21	17	13	9	5	1

Hence, k = 0, 4, 6

18. 175

The cost price of each chair is Rs.100.

Let the marked price of each chair be x.

Then, selling price of each chair = 0.78x

Total cost price of 13 chairs = Rs.1,300

Selling price of 12 chairs = 1300 × 1.26 = Rs.1,638

Selling price of each chair = 1,638/12 = Rs.136.50

Hence, the marked price of each chair

= 136.50/0.78 = Rs.175.

19. 6 1, 4, 9 are perfect square digits.

The remaining digits are 2, 3, 5, 6, 7, 8.

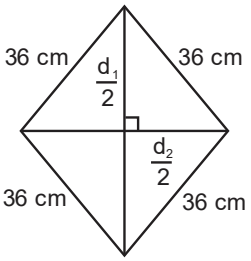
Out of these 2, 3, 5, 7 are prime numbers and 6, 8 are non-prime numbers.

Since only one digit must be prime, the other two must be non-prime.

So minimum possible value of N = 268 = $2^2 \times 67$

Hence, the number of factors is (2 + 1) × (1 + 1) = 6.

20. 60



Area of rhombus = 396

$\Rightarrow 1/2 \times d_1 \times d_2 = 396$

$\Rightarrow d_1 d_2 = 792$ … (i)

$(d_1/2)^2 + (d_2/2)^2 = 36^2$

$\Rightarrow (d_1/2)^2 + (d_2/2)^2 = 36^2$

$\Rightarrow (d_1)^2 + (d_2)^2 = 5184$ … (ii)

So $(d_1 - d_2)^2 = (d_1)^2 + (d_2)^2 - 2d_1d_2$

$\Rightarrow (d_1 - d_2)^2 = 5184 - 2 \times 792 = 3600$

$\Rightarrow |d_1 - d_2| = 60$ cm.

21. 1 Let the number of students in the morning and afternoon shift be 13x and 9x, respectively.

Then, (13x – 21)/(9x + 21) = 19 /14

$\Rightarrow$ 182x – 294 = 171x + 399

$\Rightarrow$ 11x = 693

$\Rightarrow$ x = 63

So number of student in the morning shift = 819 and in the afternoon shift = 567

Let the number of new students joined the morning and afternoon shifts be 3y and 8y, respectively.

Then, (819 – 21 + 3y)/(567 + 21 + 8y) = 5/4

$\Rightarrow$ 3192 + 12y = 2940 + 40y

$\Rightarrow$ 28y = 252

$\Rightarrow$ y = 9

Hence, the new student joined = 9 × (3 + 8) = 99.

22. 4 Total work = LCM (24, 21, 15) = 840 units

Work done per day by Arun, Varun, and Tarun = 840/24, 840/21, 840/15 = 35, 40, 56 units

Rs./unit charge by Arun, Varun, and Tarun = 432/7, 60, 270/7

So Tarun completes in 10 days

= 10 × 56 = 560 units

The remaining work 840 – 560 = 280 units completes by Varun in 7 days

Hence, the minimum possible amount required to be paid for the entire task is

= 2160 × 10 + 2400 × 7 = 21600 + 16800

= Rs.38,400.