**Directions (Q.1-Q.4) Answer the next 4 questions based on the passage given below.**

I have elaborated . . . a framework for analyzing the contradictory pulls on [Indian] nationalist ideology in its struggle against the dominance of colonialism and the resolution it offered to those contradictions. Briefly, this resolution was built around a separation of the domain of culture into two spheres—the material and the spiritual. It was in the material sphere that the claims of Western civilization were the most powerful. Science, technology, rational forms of economic organization, modern methods of statecraft— these had given the European countries the strength to subjugate the non-European people . . . To overcome this domination, the colonized people had to learn those superior techniques of organizing material life and incorporate them within their own cultures     But this could not mean the imitation of the West in every aspect of life, for then the very distinction between the West and the East would vanish—the self-identity of national culture would itself be threatened. . .

The discourse of nationalism shows that the material/spiritual distinction was condensed into an analogous, but ideologically far more powerful, dichotomy: that between the outer and the inner     Applying the inner/outer distinction to the matter of concrete day-to- day living separates the social space into ghar and bahir, the home and the world. The world is the external, the domain of the material; the home represents one's inner spiritual self, one's true identity. The world is a treacherous terrain of the pursuit of material interests, where practical considerations reign supreme. It is also typically the domain of the male. The home in its essence must remain unaffected by the profane activities of the material world—and woman is its representation. And so one gets an identification of social roles by gender to correspond with the separation of the social space into ghar and bahir. ....

The colonial situation, and the ideological response of nationalism to the critique of Indian tradition, introduced an entirely new substance to [these dichotomies] and effected their transformation. The material/spiritual dichotomy, to which the terms world and home corresponded, had acquired     a very special significance in the nationalist mind. The world was where the European power had challenged the non-European peoples and, by virtue of its superior material culture, had subjugated them. But, the nationalists asserted, it had failed to colonize the inner, essential, identity of the East which lay in its distinctive, and superior, spiritual culture     [lIn the entire phase of the national struggle, the crucial need was to protect, preserve and strengthen the inner core of the national culture, its spiritual essence. . ..

Once we match this new meaning of the home/world dichotomy with the identification of social roles by gender, we get the ideological framework within which nationalism answered the women's question. It would be a grave error to see in this, as liberals are apt to in their despair at the many marks of social conservatism in nationalist practice, a total rejection of the West. Quite the contrary: the nationalist paradigm in fact supplied an ideological principle of selection.

1. Which one of the following best describes the liberal perception of Indian nationalism?
   (a) Indian nationalism's sophistication resided in its distinction of the material from the spiritual spheres.
   (b) Indian nationalist discourses provided an ideological principle of selection.
   (c) Indian nationalist discourses reaffirmed traditional gender roles for Indian women.
   (d) Indian nationalism embraced the changes brought about by colonialism in Indian women's traditional gender roles.

2. Which one of the following, if true, would weaken the author's claims in the passage?
   (a) The colonial period saw the hybridisation of Indian culture in all realms as it came in contact with ritish/European culture.

   (b) Forces of colonial modernity played an important role in shaping anti-colonial Indian nationalism.
   (c) Indian nationalists rejected the cause of English education for women during the colonial period.
   (d) The Industrial Revolution played a crucial role in shaping the economic prowess of Britain in the century

3. On the basis of the information in the passage, all of the following are true about the spiritual/material dichotomy of Indian nationalism EXCEPT that it:
   (a) Constituted the premise of the ghar/bahir dichotomy.
   (b) Represented a continuation of age-old oppositions in Indian culture.
   (c) Helped in safeguarding the identity of Indian nationalism.
   (d) Was not as ideologically powerful as the inner/outer dichotomy.

**4.** Which one of the following explains the "contradictory pulls" on Indian nationalism?
(a) Despite its spiritual superiority, Indian nationalism had to fight against colonial domination.
(b) Despite its scientific and technological inferiority, Indian nationalism had to fight against colonial domination.
(c) Despite its fight against colonial domination, Indian nationalism had to borrow from the coloniser in the spiritual sphere.
(d) Despite its fight against colonial domination, Indian nationalism had to borrow from the coloniser in the material sphere.

**Directions (Q.5-Q.8) Answer the next 4 questions based on the passage given below.**

It has been said that knowledge, or the problem of knowledge, is the scandal of philosophy. The scandal is philosophy's apparent inability to show how, when and why we can be sure that we know something or, indeed, that we know anything. Philosopher Michael Williams writes: 'Is it possible to obtain knowledge at all? This problem is pressing because there are powerful arguments, some very ancient, for the conclusion that it is not . . . Scepticism is the skeleton in Western rationalism's closet'. While it is not clear that the scandal matters to anyone but philosophers, philosophers point out that it should matter to everyone, at least given a certain conception of knowledge. For, they explain, unless we can ground our claims to knowledge as such, which is to say, distinguish it from mere opinion, superstition, fantasy, wishful thinking, ideology, illusion or delusion, then the actions we take on the basis of presumed knowledge — boarding an airplane, swallowing a pill, finding someone guilty of a crime — will be irrational and unjustifiable.

That is all quite serious-sounding but so also are the rattlings of the skeleton: that is, the sceptic's contention that we cannot be sure that we know anything — at least not if we think of knowledge as something like having a correct mental representation of reality, and not if we think of reality as something like things-as-they-are-in-themselves, independent of our perceptions, ideas or descriptions. For, the sceptic will note, since reality, under that conception of it, is outside our ken (we cannot catch a glimpse of things-in- themselves around the corner of our own eyes; we cannot form an idea of reality that floats above the processes of our conceiving it), we have no way to compare our mental representations with things-asthey-are-in-themselves and therefore no way to determine whether they are correct or incorrect. Thus the sceptic may repeat (rattling loudly), you cannot be sure you 'know' something or anything at all — at least not, he may add (rattling softly before disappearing), if that is the way you conceive 'knowledge'.

There are a number of ways to handle this situation. The most common is to ignore it. Most people outside the academy — and, indeed, most of us inside it — are unaware of or unperturbed by the philosophical scandal of knowledge and go about our lives without too many epistemic anxieties. We hold our beliefs and presumptive knowledges more or less confidently, usually depending on how we acquired them (I saw it with my own eyes; | heard it on Fox News; a guy at the office told me) and how broadly and strenuously they seem to be shared or endorsed by various relevant people: experts and authorities, friends and family members, colleagues and associates. And we examine our convictions more or less closely, explain them more or less extensively, and defend them more or less vigorously, usually depending on what seems to be at stake for ourselves and/or other people and what resources are available for reassuring ourselves or making our beliefs credible to others (look, it's right here on the page; add up the figures yourself; | happen to be a heart specialist).

**5.** The author of the passage is most likely to support which one of the following statements?
(a) The actions taken on the basis of presumed knowledge are rational and justifiable if we are confident that that knowledge is widely held.
(b) For the sceptic, if we think of reality as independent of our perceptions, ideas or descriptions, we should aim to know that reality independently too.
(c) The scandal of philosophy is that we might not know anything at all about reality if we think of reality as independent of our perceptions, ideas or descriptions.
(d) The confidence with which we maintain something to be true is usually independent of the source of the alleged truth.

**6.** ", .. we cannot catch a glimpse of things-in-themselves around the corner of our own eyes; we cannot form an idea of reality that floats above the processes of our conceiving it . . ." Which one of the following statements best reflects the argument being made in this sentence?
(a) If the reality of things is independent of our eyesight, logically we cannot perceive our perception.

(b) Our knowledge of reality cannot be merged with our process of conceiving it.
(c) Our knowledge of reality floats above our subjective perception of it.
(d) If the reality of things is independent of our perception, logically we cannot perceive that reality.

7. The author discusses all of the following arguments in the passage, EXCEPT:
(a) Philosophers maintain that the scandal of philosophy should be of concern to everyone.
(b) Sceptics believe that we can never fully know anything, if by "knowing" we mean knowledge of a reality that is independent of the knower.
(c) The best way to deal with scepticism about the veracity of knowledge is to ignore it.

(d) If we cannot distinguish knowledge from opinion or delusion, we will not be able to justify our actions.

8. According to the last paragraph of the passage, "We hold our beliefs and presumptive knowledges more or less confidently, usually depending on" something. Which one of the following most broadly captures what we depend on?
(a) All of the options listed here.
(b) How we come to hold them; how widely they are held in our social circles.
(c) c. How much of a stake we have in them; what resources there are to support them.
(d) Remaining outside the academy; ignoring epistemic anxieties.

**Directions (Q.9-Q.12) Answer the next 4 questions based on the passage given below.**

Many people believe that truth conveys power     Hence sticking with the truth is the best strategy for gaining power. Unfortunately, this is just a comforting myth. In fact, truth and power have a far more complicated relationship, because in human society, power means two very different things.

On the one hand, power means having the ability to manipulate objective realities: to hunt animals, to construct bridges, to cure diseases, to build atom bombs. This kind of power is closely tied to truth. If you believe a false physical theory, you won't be able to build an atom bomb. On the other hand, power also means having the ability to manipulate human beliefs, thereby getting lots of people to cooperate effectively. Building atom bombs requires not just a good understanding of physics, but also the coordinated labor of millions of humans. Planet Earth was conquered by Homo sapiens rather than by chimpanzees or elephants, because we are the only mammals that can cooperate in very large numbers. And large-scale cooperation depends on believing common stories. But these stories need not be true. You can unite millions of people by making them believe in completely fictional stories about God, about race or about economics. The dual nature of power and truth results in the curious fact that we humans know many more truths than any other animal, but we also believe in much more nonsense. . ..

When it comes to uniting people around a common story, fiction actually enjoys three inherent advantages over the truth. First, whereas the truth is universal, fictions tend to be local. Consequently if we want to distinguish our tribe from foreigners, a fictional story will serve as a far better identity marker than a true story.     The second huge advantage of fiction over truth has to do with the handicap principle, which says that reliable signals must be costly to the signaler. Otherwise, they can easily be faked by cheaters     If political loyalty is signaled by believing a true story, anyone can fake it. But believing ridiculous and outlandish stories exacts greater cost, and is therefore a better signal of loyalty. . . . Third, and most important, the truth is often painful and disturbing. Hence if you stick to unalloyed reality, few people will follow you. An American presidential candidate who tells the American public the truth, the whole truth and nothing but the truth about American history has a 100 percent guarantee of losing the elections. . . . An uncompromising adherence to the truth is an admirable spiritual practice, but it is not a winning political strategy. . . .

Even if we need to pay some price for deactivating our rational faculties, the advantages of increased social cohesion are often so big that fictional stories routinely triumph over the truth in human history. Scholars have known this for thousands of years, which is why scholars often had to decide whether they served the truth or social harmony. Should they aim to unite people by making sure everyone believes in the same fiction, or should they let people know the truth even at the price of disunity?

9. The author implies that, like scholars, successful leaders:
(a) Use myths to attain the first type of power.

(b) Today know how to create social cohesion better than in the past.

(c) Need to leverage both types of power to remain in office.

(d) Know how to balance truth and social unity.

10. Regarding which one of the following quotes could we argue that the author overemphasises the importance of fiction?

(a) "On the one hand, power means having the ability to manipulate objective realities: to hunt animals, to construct bridges, to cure diseases, to build atom bombs."

(b) "In fact, truth and power have a far more complicated relationship, because in human society, power means two very different things."

(c) c. "Hence sticking with the truth is the best strategy for gaining power. Unfortunately, this is just a comforting myth."

(d) "... scholars often had to decide whether they served the truth or social harmony. Should they aim to unite people by making sure everyone believes in the same fiction, or should they let people know the truth. . .?"

11. The central theme of the passage is about the choice between:

(a) Stories that unite people and those that distinguish groups from each other.

(b) Attaining social cohesion and propagating objective truth.

(c) Truth and power.

(d) Leaders who unknowingly spread fictions and those who intentionally do so.

12. The author would support none of the following statements about political power EXCEPT that:

(a) People cannot handle the unvarnished truth, so leaders retain power by deviating from it.

(b) While unalloyed truth is not recommended, leaders should stay as close as possible to it.

(c) There are definite advantages to promoting fiction, but there needs to be some limit to a pervasive belief in myths.

(d) Manipulating people's beliefs is politically advantageous, but a leader who propagates only myths is likely to lose power.

**Directions (Q.13-Q.16) Answer the next 4 questions based on the passage given below.**

It's easy to forget that most of the world's languages are still transmitted orally with no widely established written form. While speech communities are increasingly involved in projects to protect their languages — in print, on air and online - orality is fragile and contributes to linguistic vulnerability. But indigenous languages are about much more than unusual words and intriguing grammar: They function as vehicles for the transmission of cultural traditions, environmental understandings and knowledge about medicinal plants, all at risk when elders die and livelihoods are disrupted.

Both push and pull factors lead to the decline of languages. Through war, famine and natural disasters, whole communities can be destroyed, taking their language with them to the grave, such as the indigenous populations of Tasmania who were wiped out by colonists. More commonly, speakers live on but abandon their language in favor of another vernacular, a widespread process that linguists refer to as "language shift" from which few languages are immune. Such trading up and out of a speech form occurs for complex political, cultural and economic reasons — sometimes voluntary for economic and educational reasons, although often amplified by state coercion or neglect. Welsh, long stigmatized and disparaged by the British state, has rebounded with vigor.

Many speakers of endangered, poorly documented languages have embraced new digital media with excitement. Speakers of previously exclusively oral tongues are turning to the web as a virtual space for languages to live on. Internet technology offers powerful ways for oral traditions and cultural practices to survive, even thrive, among increasingly mobile communities. | have watched as videos of traditional wedding ceremonies and songs are recorded on

smartphones in London by Nepali migrants, then uploaded to YouTube and watched an hour later by relatives in remote Himalayan villages. . .

Globalization is regularly, and often uncritically, pilloried as a major threat to linguistic diversity. But in fact, globalization is as much process as it is ideology, certainly when it comes to language. The real forces behind cultural homogenization are unbending beliefs, exchanged through a globalized delivery system, reinforced by the historical monolingualism prevalent in much of the West. Monolingualism - the condition of being able to speak only one language - is regularly accompanied by a deep-seated conviction in the value of that language over all others. Across the largest economies that make up the G8, being monolingual is still often the norm, with multilingualism appearing unusual and even somewhat exotic. The monolingual mindset stands in sharp contrast to the lived reality of most the world, which throughout its history has been more multilingual than unilingual. Monolingualism, then, not globalization, should be our primary concern.

Multilingualism can help us live in a more connected and more interdependent world. By widening access to technology, globalization can support indigenous and scholarly communities engaged in documenting and protecting our shared linguistic heritage. For the last 5,000 years, the rise and fall of languages was intimately tied to the plow, sword and book. In our digital age, the keyboard, screen and web will play a decisive role in shaping the future linguistic diversity of our species.

13. From the passage, we can infer that the author is in favour of:
    (a) "Language shifts" across languages.
    (b) Greater multilingualism.
    (c) Cultural homogenisation,
    (d) An expanded state role in the preservation of languages.

14. We can infer all of the following about indigenous languages from the passage EXCEPT that:
    (a) They are repositories of traditional knowledge about the environment and culture.
    (b) People are increasingly working on documenting these languages.
    (c) Their vocabulary and grammatical constructs have been challenging to document.
    (d) They are in danger of being wiped out as most can only be transmitted orally.

15. The author lists all of the following as reasons for the decline or disappearance of a language EXCEPT:
    (a) The focus on only a few languages as a result of widespread internet use.
    (b) A catastrophic event that entirely eliminates a people and their culture.
    (c) Governments promoting certain languages over others.
    (d) People shifting away from their own language to study or work in another language.

16. The author mentions the Welsh language to show that:
    (a) Vulnerable languages can rebound with state effort.
    (b) While often pilloried, globalisation can, in fact, support linguistic revival.

    (c) Languages can revive even after their speakers have gone through a "language shift".
    (d) Efforts to integrate Welsh speakers in the English-speaking fold have been fruitless.

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

    Biologists who publish their research directly to the Web have been labelled as "rogue", but physicists have been routinely publishing research digitally ("preprints"), prior to submitting in a peer-reviewed journal. Advocates of preprints argue that quick and open dissemination of research speeds up scientific progress and allows for wider access to knowledge. But some journals still don't accept research previously published as a preprint. Even if the idea of preprints is gaining ground, one of the biggest barriers for biologists is how they would be viewed by members of their conservative research community.

    (a) One of the advantages of digital preprints of research is they hasten the dissemination process, but these are not accepted by most scientific communities.
    (b) Preprints of research are frowned on by some scientific fields as they do not undergo a rigourous reviewing process but are accepted among biologists as a quick way to disseminate information.
    (c) Compared to biologists, physicists are less conservative in their acceptance of digital pre-publication of research papers, which allows for faster dissemination of knowledge.

(d) While digital publication of research is gaining popularity in many scientific disciplines, almost all peer-reviewed journals are reluctant to accept papers that have been published before.

18. **The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:**
    1. But today there is an epochal challenge to rethink and reconstitute the vision and practice of development as a shared responsibility — a sharing which binds both the agent and the audience, the developed world and the developing, in a bond of shared destiny.
    2. We are at a crossroads now in our vision and practice of development.
    3. This calls for the cultivation of an appropriate ethical mode of being in our lives which enables us to realize this global and planetary situation of shared living and responsibility.
    4. Half a century ago, development began as a hope for a better human possibility, but in the last fifty years, this hope has lost itself in the dreary desert of various kinds of hegemonic applications.

19. The **four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:**
    1. The US has long maintained that the Northwest Passage is an international strait through which its commercial and military vessels have the right to pass without seeking Canada's permission.
    2. Canada, which officially acquired the group of islands forming the Northwest Passage in 1880, claims sovereignty over all the shipping routes through the Passage.
    3. The dispute could be transitory, h owever, as scientists speculate that the entire Arctic Ocean will soon be ice-free in summer, so ship owners will not have to ask for permission to sail through any of the Northwest Passage routes.
    4. The US and Canada have never legally settled the question of access through the Passage, but have an agreement whereby the US needs to seek Canada's consent for any transit.

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

Creativity is now viewed as the engine of economic progress. Various organizations are devoted to its study and promotion; there are encyclopedias and handbooks surveying creativity research. But this proliferating success has tended to erode creativity's stable identity: it has become so invested with value that it has become impossible to police its meaning and the practices that supposedly identify and encourage it. Many people and organizations committed to producing original thoughts now feel that undue obsession with the idea of creativity gets in the way of real creativity

(a) The industry that has built up around researching what comprises and encourages creativity has destroyed the creative process itself.
(b) Creativity has proliferated to the extent that is no longer a stable process, and its mutating identity has stifled the creative process.
(c) The value assigned to creativity today has assumed such proportions that the concept itself has lost its real meaning and this is hampering the engendering of real creativity.
(d) The obsession with original thought, how it can be promoted and researched, has made it impossible for people and organizations to define the concept anymore.

21. **The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:**
    1. Look forward a few decades to an invention which can end the energy crisis, change the global economy and curb climate change at a stroke: commercial fusion power.
    2. To gain meaningful insights, logic has to be accompanied by asking probing questions of nature through controlled tests, precise observations and clever analysis.
    3. The greatest of all inventions is the tiber-invention that has provided the insights on which others depend: the modern scientific method.
    4. This invention is inconceivable without the scientific method; it will rest on the application of a diverse range of scientific insights, such as the process transforming hydrogen into helium to release huge amounts of energy.

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

The unlikely alliance of the incumbent industrialist and the distressed unemployed worker is especially powerful amid the debris of corporate bankruptcies and layoffs. In an economic downturn, the capitalist is more likely to focus on costs of the competition emanating from free markets than on the opportunities they create. And the unemployed worker will find many others in a similar condition and with anxieties similar to his, which will make it easier for them to organize together. Using the cover and the political organization provided by the distressed, the capitalist captures the political agenda.

(a) An unlikely alliance of the industrialist and the unemployed happens during an economic downturn in which they come together to unite politically and capture the political agenda.
(b) In an economic downturn, the capitalists use the anxieties of the unemployed and their political organisation to set the political agenda to suit their economic interests.
(c) An economic downturn creates competition because of which the capitalists capture the political agenda created by the political organisation provided by the unemployed.
(d) The purpose of an unlikely alliance between the industrialist and the unemployed during an economic downturn is to stifle competition in free markets.

23. **Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:**
    1. The care with which philosophers examine arguments for and against forms of biotechnology makes this an excellent primer on formulating and assessing moral arguments.
    2. Although most people find at least some forms of genetic engineering disquieting, it is not easy to articulate why: what is wrong with re-engineering our nature?
    3. Breakthroughs in genetics present us with the promise that we will soon be able to prevent a host of debilitating diseases, and the predicament that our newfound genetic knowledge may enable us to enhance our genetic traits.
    4. To grapple with the ethics of enhancement, we need to confront questions that verge on theology, which is why modern philosophers and political theorists tend to shrink from them.
    5. One argument is that the drive for human perfection through genetics is objectionable as it represents a bid for mastery that fails to appreciate the gifts of human powers and achievements.

24. **Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:**
    1. It has taken on a warm, fuzzy glow in the advertising world, where its potential is being widely discussed, and it is being claimed as the undeniable wave of the future.
    2. There is little enthusiasm for this in the scientific arena; for them marketing is not a science, and only a handful of studies have been published in scientific journals.
    3. The new, growing field of neuromarketing attempts to reveal the inner workings of consumer behaviour and is an extension of the study of how choices and decisions are made.
    4. Some see neuromarketing as an attempt to make the "art" of advertising into a science, being used by marketing experts to back up their proposals with some form of real data.
    5. The marketing gurus have already started drawing on psychology in developing tests and theories, and advertising people have borrowed the idea of the focus group from social scientists.

**Directions (Q.25-Q.28): Answer the next 4 questions based on the information given.**

The different bars in the diagram above provide information about different orders in various categories (Art, Binders,   ) that were booked in the first two weeks of September of a store for one client. The colour and pattern of a bar denotes the ship mode (First Class / Second Class / Standard Class). The left end point of a bar indicates the booking day of the order, while the right end point indicates the dispatch day of the order. The difference between the dispatch day and the booking day (measured in terms of the number of days) is called the processing time of the order. For the same category, an order is considered for booking only after the previous order of the same category is dispatched. No two consecutive orders of the same category had identical ship mode during this period.
For example, there were only two orders in the furnishing category during this period. The first one was shipped in the Second Class. It was booked on Sep 1 and dispatched on Sep 5. The second order was shipped in the Standard class. It was booked on Sep 5 (although the order might have been placed before that) and dispatched on Sep 12. So, the processing times were 4 and 7 days respectively for these orders.
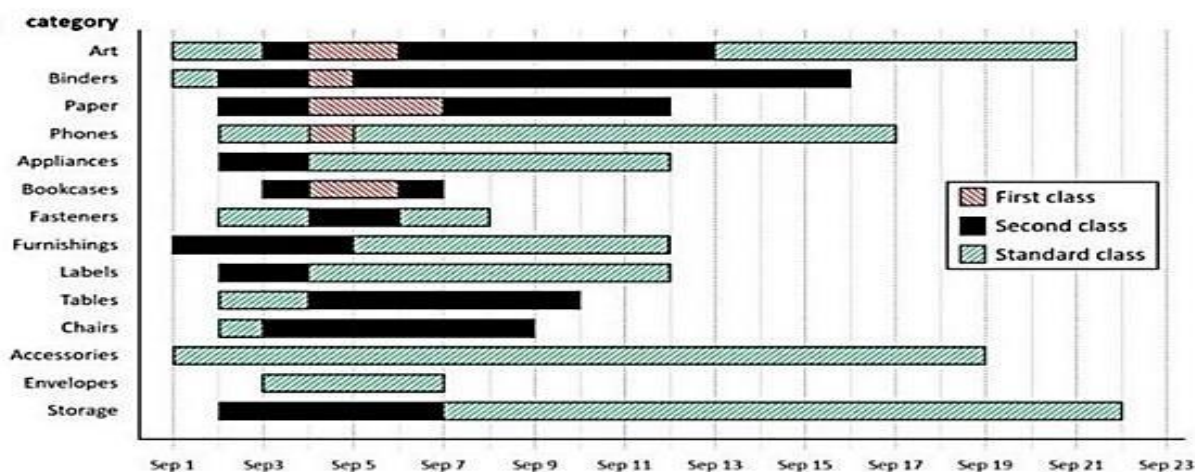


**25.** How many days between Sep 1 and Sep 14 (both inclusive) had no booking from this client considering all the above categories?

**26.** What was the average processing time of all orders in the categories which had only one type of ship mode?

**27.** The sequence of categories -- Art, Binders, Paper and Phones -- in decreasing order of average processing time of their orders in this period is:

    (a) Phones, Art, Binders, Paper
    (b) Paper, Binders, Art, Phones
    (c) Art, Binders, Paper, Phones
    (d) Phones, Binders, Art, Paper

**28.** Approximately what percentage of orders had a processing time of one day during the period Sep 1 to Sep 22 (both dates inclusive)?
    (a) 25%          (b) 22%
    (c) 16%          (d) 20%

**Directions (Q.29-Q.34): Answer the next 6 questions based on the information given**
Ravi works in an online food-delivery company. After each delivery, customers rate Ravi on each of four parameters - Behaviour, Packaging, Hygiene, and Timeliness, on a scale from 1 to 9. If the total of the four rating points is 25 or more, then Ravi gets a bonus of ₹20 for that delivery. Additionally, a customer may or may not give Ravi a tip. If the customer gives a tip, it is either ₹30 or ₹50.

One day, Ravi made four deliveries - one to each of Atal, Bihari, Chirag and Deepak, and received a total of ₹120 in bonus and tips. He did not get both a bonus and a tip from the same customer.
The following additional facts are also known.
1. In Timeliness, Ravi received a total of 21 points, and three of the customers gave him the same rating points in this parameter. Atal gave higher rating points than Bihari and Chirag in this parameter.
2. Ravi received distinct rating points in Packaging from the four customers adding up to 29 points. Similarly, Ravi received distinct rating points in Hygiene from the four customers adding up to 26 points.
3. Chirag gave the same rating points for Packaging and Hygiene.
4. Among the four customers, Bihari gave the highest rating points in Packaging, and Chirag gave the highest rating points in Hygiene.
5. Everyone rated Ravi between 5 and 7 in Behaviour. Unique maximum and minimum ratings in this parameter were given by Atal and Deepak respectively.
6. If the customers are ranked based on ratings given by them in individual parameters, then Atal's rank based on Packaging is the same as that based on Hygiene. This is also true for Deepak.

29. What was the minimum rating that Ravi received from any customer in any parameter?

30. The COMPLETE list of customers who gave the maximum total rating points to Ravi is
(a) Atal          (b) Bihari
(c) Atal and Bihari          (d) Bihari and Chirag

31. What rating did Atal give on Timeliness?

32. What BEST can be concluded about the tip amount given by Deepak?
(a) Either Rs. 0, or Rs. 30 or Rs. 50

(b) Either Rs. 30 or Rs. 50
(c) Rs. 50
(d) Rs. 30

33. In which parameter did Atal give the maximum rating points to Ravi?
(a) Timeliness          (b) Hygiene
(c) Behaviour          (d) Packaging

34. What rating did Deepak give on Packaging?
(a) 5          (b) 8
(c) 6          (d) 7

**Directions (Q.35-Q.38): Answer the next 4 questions based on the information given**
The game of Chango is a game where two people play against each other; one of them wins and the other loses, i.e., there are no drawn Chango games. 12 players participated in a Chango championship. They were divided into four groups: Group A consisted of Aruna, Azul, and Arif, Group B consisted of Brinda, Brij, and Biju; Group C consisted of Chitra, Chetan, and Chhavi; and Group D consisted of Dipen, Donna, and Deb.
Players within each group had a distinct rank going into the championship. The players have NOT been listed necessarily according to their ranks. In the group stage of the game, the second and third ranked players play against each other, and the winner of that game plays against the first ranked player of the group. The winner of this second game is considered as the winner of the group and enters a semi-final.
The winners from Groups A and B play against each other in one semi-final, while the winners from Groups C and D play against each other in the other semi-final. The winners of the two semi-finals play against each other in the final to decide the winner of the championship.
It is known that:
• Chitra did not win the championship.
• Aruna did not play against Arif. Brij did not play against Brinda.
• Aruna, Biju, Chitra, and Dipen played three games each, Azul and Chetan played two games each, and the remaining players played one game each.

35. Who among the following was DEFINITELY NOT ranked first in his/her group?
(a) Brij          (b) Chitra
(c) Dipen          (d) Aruna

36. Which of the following pairs must have played against each other in the championship?
(a) Azul, Brij          (b) Chitra, Dipen

(c) Deb, Donna          (d) Donna, Chetan

37. Who won the championship?
(a) Brij
(b) Chitra
(c) Aruna
(d) Cannot be determined

**38.** Who among the following did NOT play against Chitra in the championship?

(a) Aruna      (b) Biju
(c) Chetan      (d) Dipen

**Directions (Q.39-Q.44): Answer the next 6 questions based on the information given**

Ten objects o1, o2, o10 were distributed among Amar, Barat, Charles, Disha, and Elise. Each item went to exactly one person. Each person got exactly two of the items, and this pair of objects is called her/his bundle.

The following table shows how each person values each object.

The value of any bundle by a person is the sum of that person's values of the objects in that bundle. A person X envies another person Y if X values Y's bundle more than X's own bundle.

For example, hypothetically suppose Amar's bundle consists of o1 and 02, and Barat's bundle consists of o3 and 04. Then Amar values his own bundle at 4 + 9 = 13 and Barat's bundle at 9 + 3 12. Hence Amar does not envy Barat. On the other hand, Barat values his own bundle at 7 + 5 = 12 and Amar's bundle at 5 + 9 14. Hence Barat envies Amar.

|  | o1 | o2 | o3 | o4 | o5 | o6 | o7 | o8 | o9 | o10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Amar** | 4 | 9 | 9 | 3 | 7 | 3 | 8 | 7 | 9 | 5 |
| **Barat** | 5 | 9 | 7 | 5 | 5 | 3 | 6 | 8 | 10 | 8 |
| **Charles** | 8 | 8 | 8 | 3 | 6 | 4 | 5 | 8 | 9 | 6 |
| **Disha** | 8 | 8 | 8 | 5 | 5 | 3 | 6 | 4 | 9 | 8 |
| **Elise** | 6 | 8 | 9 | 5 | 6 | 5 | 6 | 3 | 7 | 10 |

The following facts are known about the actual distribution of the objects among the five people.
1. If someone's value for an object is 10, then she/he received that object.
2. Objects 01, 02, and 03 were given to three different people.
3. Objects 01 and 08 were given to different people.
4. Three people value their own bundles at 16. No one values her/his own bundle at a number higher than 16.
5. Disha values her own bundle at an odd number. All others value their own bundles at an even number.
6. Some people who value their own bundles less than 16 envy some other people who value their own bundle at 16. No one else envies others

**39.** What BEST can be said about object 08?
  (a) 08 was given to Disha
  (b) 08 was given to Charles
  (c) 08 was given to Charles or Disha
  (d) 08 was given to Amar, Charles, or Disha

**40.** Who among the following envies someone else?
  (a) Charles      (b) Elise
  (c) Barat      (d) Amar

**41.** Object 04 was given to
  (a) Barat      (b) Elise
  (c) Charles      (d) Disha

**42.** What is Amar's value for his own bundle?

**43.** Object 05 was given to
  (a) Amar      (b) Elise
  (c) Disha      (d) Charles

**44.** What BEST can be said about the distribution of object o1?
  (a) o1 was given to Charles
  (b) o1 was given to Charles, Disha, or Elise
  (c) o1 was given to Disha
  (d) o1 was given to Charles or Disha

**45.** A box has 450 balls, each either white or black, there being as many metallic white balls as metallic black balls. If 40% of the white balls and 50% of the black balls are metallic, then the number of non-metallic balls in the box is

**46.** For a 4-digit number, the sum of its digits in the thousands, hundreds and tens places is J4, the sum of its digits in the hundreds, tens and units places is 15, and the tens place digit is 4 more than the units place dipit. Then the highest possible 4-digit number satisfying the above conditions is:

**47.** A person buys tea of three different qualities at ₹ 800, ₹ 500, and ₹ 300 per kg, respectively, and the amounts bought are in the proportion 2 : 3 : 5. She mixes all the tea and sells one-sixth of the mixture at ₹ 700 per kg. The price, in INR per kg, at which she should sell the remaining tea, to make an overall profit of 50%, is:
(a)  692　　　　　　(b)  688
(c)  675　　　　　　(d)  653

**48.** Anil can paint a house in 60 days while Bimal can paint it in 84 days. Anil starts painting and after 10 days, Bimal and Charu join him. Together, they complete the painting in 14 more days. If they are paid a total of ₹ 21000 for the job, then the share of Charu, in INR, proportionate to the work done by him, is
(a)  9100　　　　　　(b)  9000
(c)  9150　　　　　　(d)  9200

**49.** The sides AB and CD of a trapezium ABCD are parallel, with AB being the smaller side. P is the midpoint of CD and ABPD is a parallelogram. If the difference between the areas of the parallelogram ABPD and the triangle BPC is 10 sq cm, then the area, in sq cm, of the trapezium ABCD is
(a)  20　　　　　　(b)  30
(c)  40　　　　　　(d)  25

**50.** The number of ways of distributing 15 identical balloons, 6 identical pencils and 3 identical erasers among 3 children, such that each child gets at least four balloons and one pencil, is

**51.** Consider the pair of equations: $x^2 - xy - x = 22$ and $y^2 - xy + y = 34$. If $x > y$, then $x - y$ equal.
(a)  8　　　　　　(b)  7
(c)  6　　　　　　(d)  4

**52.** From a container filled with milk, 9 litres of milk are drawn and replaced with water. Next, from the same

container, 9 litres are drawn and again replaced with water. If the volumes of milk and water in the container are now in the ratio of 16 : 9, then the capacity of the container, in litres, is

**53.** Two trains A and B were moving in opposite directions, their speeds being in the ratio 5 : 3. The front end of A crossed the rear end of B 46 seconds after the front ends of the trains had crossed each other. It took another 69 seconds for the rear ends of the trains to cross each other. The ratio of lenpth of train A to that of train B is
(a)  2 : 1　　　　　　(b)  3 : 2
(c)  2 : 3　　　　　　(d)  5 : 3

**54.** In a football tournament, a player has played a certain number of matches and 10 more matches are to be played. If he scores a total of one goal over the next 10 matches, his overall average will be 0.15 goals per match. On the other hand, if he scores a total of two goals over the next 10 matches, his overall average will be 0.2 goals per match. The number of matches he has played is

**55.** $\log_2 [3 + \log_3 \{4 + \log_4 (x - 1)\}] - 2 = 0$, then $4x$ equals

**56.** Raj invested T 10000 in a fund. At the end of first year, he incurred a loss but his balance was more than T 5000. This balance, when invested for another year, prew and the percentage of growth in the second year was five times the percentage of loss in the first year. If the pain of Raj from the initial investment over the two year period is 35%, then the percentage of loss in the first year is
(a)  10　　　　　　(b)  15
(c)  5　　　　　　(d)  70

**57.** For a sequence of real numbers $X_1, X_2, \ldots, X_n$, if $X_1 - X_2 + X_3 - \cdots + (-1)^{(n+1)} X_n = n^2 + 2n$ for all natural numbers n, then the sum $X_{49} + X_{50}$ equals.
(a)  -2　　　　　　(b)  2
(c)  -200　　　　　　(d)  200

**58.** Anil, Bobby and Chintu jointly invest in a business and agree to share the overall profit in proportion to their investments. Anil's share of investment is 70%. His share of profit decreases by T 420 if the overall profit goes down from 18% to 15%. Chintu's share of profit increases by T 80 if the overall profit goes up from 15% to 17%. The amount, in INR, invested by Bobby is
(a)  2000　　　　　　(b)  2400
(c)  2200　　　　　　(d)  1800

**59.** For all possible integers n satisfying $2.25 \leq 2 + 2^{n+2} \leq 202$, the number of integer values of $3 + 3^{n+1}$ is

**60.** For a real number x the condition $|3\text{-}x\ 20| + |3\text{-}x\ 40| = 20$ necessarily holds if
(a) $6 < x < 11$
(b) $9 < x < 14$
(c) $10 < x < 15$
(d) $7 < x < 12$

**61.** Suppose one of the roots of the equation $ax^2 - bx + c = 0\ is\ 2 + \sqrt{3}$, where a, b and c are rational numbers and $a \neq 0. If\ b = c^3$ then $|a|$ equals
(a) 2
(b) 4
(c) 3
(d) 1

**62.** Two pipes A and B are attached to an empty water tank. Pipe A fills the tank while pipe B drains it. If pipe A is opened at 2 pm and pipe B is opened at 3 pm, then the tank becomes full at 10 pm. Instead, if pipe A is opened at 2 pm and pipe B is opened at 4 pm, then the tank becomes full at 6 pm. If pipe B is not opened at all, then the time, in minutes, taken to fill the tank is:
(a) 140
(b) 120

(c) 144
(d) 264

**63.** Three positive integers x, y and z are in arithmetic progression. If y - x > 2 and xyz = 5(x + y + z), then z - x equals
(a) 12
(b) 8
(c) 14
(d) 10

**64.** Let D and E be points on sides AB and AC, respectively, of a triangle ABC, such that AD : BD = 2 : 1 and AE : CE = 2 : 3. If the area of the triangle ADE is 8 sq cm, then the area of the triangle ABC, in sq cm, is:

**65.** If a rhombus has area 12 sq cm and side length 5 cm, then the length, in cm, of its longer diagonal is
(a) $\sqrt{13} + \sqrt{12}$
(b) $\sqrt{37} + \sqrt{13}$
(c) $(\sqrt{13} + \sqrt{12})/2$
(d) $(\sqrt{37} + \sqrt{13})/2$

**66.** For all real values of x, the range of the function $f(x) = \frac{x^2+2x+4}{2x^2+4x+9}$ is:
(a) $[\frac{3}{7}, \frac{1}{2})$
(b) $[\frac{3}{7}, \frac{8}{9})$
(c) $[\frac{4}{9}, \frac{1}{2}]$
(d) $(\frac{3}{7}, \frac{1}{2})$

# ANSWER KEY AND EXPLANATIONS

1. **(c)** According to the author in the last paragraph - The liberal perception, has error in it, suggesting that their perception that there was social conservatism in nationalist practice, is incorrect.
Option (c) reflects social conservatism as it talks of reaffirming traditional gender roles for Indian women.
No other option talks about social conservatism in it.
Hence, option (c).

2. **(a)** The passage talks states that Indian nationalist borrowed from the material sphere, not the spiritual sphere.
Option (a) states - "there was hybridization of Indian culture in all spheres". This weakens the author's claims in the passage.
Hence, option (a).

3. **(b)** Option (a) is actually the theme of the passage and hence is eliminated.
Option (b) is not mentioned in the passage.
Option (c) is mentioned in the second last paragraph.
Option (d) can be verified from the first sentence of the second paragraph.
Hence, option (b).

4. **(d)** The passage starts by describing the 'contradictory pulls' on Indian nationalist ideology.
West dominated in science, technology, economic organization and modern methods of statecraft. To overcome this domination, instead of fighting the colonialists on this front, colonized people 'had to learn those superior techniques of organizing material life and incorporate them within their own cultures'.
In other words, despite its fight against colonial domination, Indian nationalism had adopted Western ideas in the material sphere.
Hence, option (d).

5. **(c)** Option (a) is wrong as it is clearly mentioned in the first paragraph - "the actions we take on the basis of presumed knowledge ... will be irrational and unjustifiable"
Option (b): According to the passage, the sceptic questions our ability to know 'reality' defined as things-as-they- are-in-themselves, independent of our perceptions, ideas or descriptions because 'it floats above the processes of our conceiving it'. Option (a) states that the sceptic would advocate knowing reality independently which is not correct.
Option (c) is correct.
Option (d) goes against the last paragraph of the passage - "We hold our beliefs and presumptive knowledges more or less confidently, usually depending on how we acquired them.."
Hence, option (c).

6. **(d)** Second paragraph states - "we cannot form an idea of reality that floats above the processes of our conceiving it'
The argument being made here is that if reality is independent of our perceptions, then it is clearly out of our scope of understanding, as it exists outside our ability to conceive or perceive it.
Hence, option (d).

7. **(c)** Option (a) has been discscsued in first paragraph - "..While it is not clear that the scandal matters to anyone but philosophers, philosophers point out that it should matter to everyone..."
Option {b) has been discussed in second paragraph - "..the sceptic's contention that we cannot be sure that we know anything — at least not if we think of knowledge as something like having a correct mental representation of reality..."
Option (c): Although author argues that ignoring scepticism about the veracity of knowledge is "one of the ways! it is not necessarily the best way accoring to the author. Hence, option (c) is not discussed in the passage.
Option (d) is discussed in first paragraph - " ...unless we can ground our claims to knowledge as such, which is to say, distinguish it from mere opinion, superstition, fantasy, wishful thinking, ideology, illusion or delusion..."
Hence, option {c}.

8. **(b)** The third paragraph of the passage states = "We hold our beliefs and presumptive knowledges more or less confidently, usually depending on how we acquired them (I saw it with my own eyes; | heard it on Fox News; a guy at the office told me) and how broadly and strenuously they seem to be shared or endorsed by various relevant people: experts and authorities, friends and family members, colleagues and associates". Hence, option {(b).
Option {c} relates to factors based on which we examine or defend our convictions.
Option (d) does not relate to the question.
Hence, option (b).

9. **(d)** In the last paragraph, the author suggests "..the advantages of increased social cohesion are often so big that fictional stories routinely triumph over the truth in human history' and that this is 'why scholars often had to decide whether they served the truth or social harmony...".
This implies that scholars had to find balance between truth and social harmony.
Therefore, option (d) is correct.
It is not mentioned that scholars chose myth over truth, hence option (a) is eliminated.
No comparison of past and present is made in the passage, hence option (b) is eliminated.
Option (c) is far-fetched and hence can also be eliminated.
Hence, option (d).

10. **(d)** Option (a) and (b) don't mention anything about fiction.
Option (c) is less about overemphasizing fiction than about disparaging the power of truth.
Option (d) overemphasises the power of fiction by relating equating fiction with unity and truth with disunity.
Hence, option (d).

11. **(b)** "On the one hand, power means having the ability to manipulate objective realities: to hunt animals, to construct bridges, to cure diseases, to build atom bombs." - Truth
"On the other hand, power also means having the ability to manipulate human beliefs, thereby getting lots of people to cooperate effectively." - Fiction

The whole passage is about how power can be attained by two means i.e, Truth or Fiction and the balance between the two.

Hence, option (b).

12. **(a)** Here we have to select the option which author would support.

Last line of second last paragraph states - "An American presidential candidate who tells the American public the truth, the whole truth and nothing but the truth about American history has a 100 percent guarantee of losing the elections. An uncompromising adherence to the truth is an admirable spiritual practice, but it is not a winning political strategy."

Hence, option (a).

13. **(b)** In the last paragraph, author suggests that "multilingualism can help us live in a more connected world".

Hence, option (b).

14. **(c)** Option (a) is mentioned in first paragraph, last line: "They function as vehicles for the transmission of cultural traditions, environmental understandings and knowledge ..."

Option (b) is mentioned in third paragraph.

Option (c) is not mentioned in the passage. The passage mearly suggest that indigenous languages are about much more than unusual words and intriguing grammar: They function as vehicles for the transmission of ... (first paragraph). It doesn't mentioned that grammar is challenging to document.

Option (d) is what the whole passage is about. First paragraph states - "... orality is fragile and contributes to linguistic vulnerability"

Hence, option (c).

15. **(a)** Third paragraph states - "Speakers of previously exclusively oral tongues are turning to the web as a virtual space for languages to live on. Internet technology offers powerful ways for oral traditions and cultural practices to survive, even thrive, among increasingly mobile communities."

Widespread use of internet has led to documentation of all kings of languages, hence option (a) contradicts the passage.

Hence, option (a).

16. **(c)** Author mentions Welsh language at the end of second paragraph.

Despite it being disparaged by British state, the language rebounded, hence option (a) is incorrect. The Britist state did not support the Welsh language.

Author uses the example of Welsh language to bring forward the idea that languages can bounce back even after they have been ignored by their native speakers. Hence, option (c) is the best possible choice.

Hence, option (c).

17. **(c)** Option (a) is incorrect since it mentions that most scientific communities do not accept preprints. This is not mentioned in the passage. This passage brings out the distinction between the attitudes of physicists and biologists with regards to "publishing research digitally". While the former have been publishing research digitally, the latter have not been very open to it.

Option (b) is incorrect as it contradicts the passage by stating that biologists accept the practice of preprint.

Option (c) best captures the essence of the passage.

Option (d) doesn't bring out the distinction between biologists and physicists as mentioned in the passage.

Hence, option (c).

18. **(2413)** Sentence 2 introduces the main idea of the passage i.e, 'development' and hence should be the first sentence of the passage.

Sentence 4 explains what development is and its history while setence 1 tells us about the present vision and practice of development.

Hence 41 forms a pair.

Sentence 3 concludes the passage by telling us future course of action.

Hence, 2413.

19. **(2143)** The main idea is that of the Northwest Passage which is introduced in statement 2. Hence, statement 2 is the opening statement of the passage.

Statement 1 follows statement 2 as it introduces the conflict between US and Canada over the Northwest Passage.

Statement 4 provides further details about the dispute.

Statement 3 is the best concluding statement as it gives a solution of the previously mentioned dispute.

Hence, 2143.

20. **(c)** The passage tells us about how excessive obsession with defining creativity has led to hampering the way of real creativity.

Option (a): The passage doesn't indicated that the process of creativity is destroyed.

Option (b): It is the obsession with defining creativity that has led to stifled creative process, not the creativity itself.

Option (c} best captures the essence of the passage.

Option (d): While the paragraph talks about the obsession with the idea of creativity and how that is hampering creativity, option (d) talks of the obsession with 'original thought' making it difficult to define the concept.

Hence, option (c).

21. **(3214)** The main theme across all the statements is the greatest invention ever which is 'the modern scientific method".

Statement 3 introduces the theme of the passage and hence is the opening statement.

Statement 2 explains what 'modern scientic method' is and hence follows statement 3.

Statement 1 and 4 form a pair. They explain us how 'modern scientific method' can be applied.

Hence, 3214.

22. **(b)** The paragraph suggests that an economic downturn leads to rising costs due to free market which leads to capitalist finding an ally with the distressed unemployed workers and use the cover and the political organization provided by them to capture the political agenda.

Option (a) hints that the political agenda is captured by both capitalist as well as the unemployed, which is not mentioned in the passage. Only the capitalist captures the agenda.

Option (b) This is what the passage states.

Option (c) It is the capitalist who sets up the political agenda using unemployed as cover. The unemployed do not create the political agenda.

Option (d) The does not mention anything about stifling the competition.

23. **(1)** While the main theme of statements 2 to 5 is a very specific area of genetic engineering, statement 1 focuses on broader topic of biotechnology.
Hence, 1.

24. **(5)** The main idea of most of the sentences is neuromarketing except statement 5 which focuses on how marketers and advertisers have started drawing on science/scientific methods in developing tests and theories. The correct sequence of statements will be 3412.
Hence, 5.

## DATA INTERPRETATION AND LOGICAL REASONING

25. **(6)** There were no bookings on September 8, 9, 10, 11, 12 and 14.
.. There was no booking on 6 days.
Hence, 6.

26. **(11)** Let us first calculate the total processing time for categories which had only one type of shipping mode.
Accessories - 18 days
Envelopes - 4 days
Total number of orders = 1+1=2

∴ Average processing time = (18 + 4)/2 = 11
Hence, 11.

27. **(a)** Let us calculate the average processing time for Arts:
Total number of days = 20
Total no. of orders = 4
∴ Average processing time for Art = 20/5 = 4 days
Similarly,
Average processing time for Binders = 15/4 = 3.75 days
Average processing time for Paper = 10/3 = 3.33 days
Average processing time for Phones = 15/3 = 5 days
Decreasing order of average processing time is
Phones > Art > Binders > Paper.
Hence, option (a).

28. **(d)** Total number of orders = 5 + 4 + 3 + 3 + 2 + 3 + 3 + 2 + 2 + 2 + 2 + 1 + 1 + 2 = 35
Number of orders with processing time of one day = 1 (Art) + 2 (Binders) + 1 (Phones) + 2 (Bookcases) + 1 (Chairs) = 7
∴ Percentage of orders had a processing time of one day = 7/35 x 100 = 20%
Hence, option (d).

29. **(5) Timeliness:**
From (1): Ravi's rating in Timeliness by 4 customers can be either (6, 5, 5, 5) or (9, 4, 4, 4) where Atal's rating will be higher than the other 3 customers.
**Packaging:**
From (2): Ravi's rating in Packaging by 4 customers will be (9, 8, 7, 5) in any order.
From (4): Bihari's rating in Packaging will be 9.
**Hygiene:**
From (3 and 4): Chirag gave highest rating in hygiene which is same as his rating in packaging. Since Chirag can not give a rating of 9 in packaging (which is given by Bihari), highest rating Chirag can give in hygiene can be 8 or lower, which is same as the rating given by him in packaging.
From (2 and 3 and 4): Ravi's rating in Hygiene by 4 customers is (8, 7, 6, 5).
∴ Ratings given by Chirag in packaging and hygiene is 8.
**Behaviour:**
From (5): Ravi's rating in Behaviour given by Atal and Deepak is 7 and 5 respectively and rating given by Bihari and Chirag is 6.
We can make the following table from the information we have so far.

| Name | Behaviour | Packaging | Hygiene | Timeliness | Total |
|---|---|---|---|---|---|
| **Atal** | 7 | | | 9 or 6 | |
| **Bihari** | 6 | 9 | | 4 or 5 | |
| **Chirag** | 6 | 8 | 8 | 4 or 5 | |
| **Deepak** | 5 | | | 4 or 5 | |
| **Total** | 24 | 29 | 26 | 21 | |

From (6): If Atal and Deepak will have the same ranking in packaging and hygiene.
Since Bihari and Chirag are given the two best rating in packaging, Atal and Deepak will give the two least ratings in packaging and hygiene.
∴ Rating given by Bihari in hygiene is 7.
Hence, we have two cases
**Case 1:**

| Name | Behaviour | Packaging | Hygiene | Timeliness | Total | Amount Received |
|---|---|---|---|---|---|---|
| **Atal** | 7 | 7 | 6 | 9 or 6 | 29 or 26 | 20 |
| **Bihari** | 6 | 9 | 7 | 4 or 5 | 26 or 27 | 20 |
| **Chirag** | 6 | 8 | 8 | 4 or 5 | 26 or 27 | 20 |
| **Deepak** | 5 | 5 | 5 | 4 or 5 | 19 or 20 | 0 or 30 or 50 |
| **Total** | 24 | 29 | 26 | 21 | | |

**Case 2:**

| Name | Behaviour | Packaging | Hygiene | Timeliness | Total | Amount Received |
|---|---|---|---|---|---|---|
| **Atal** | 7 | 5 | 5 | 9 or 6 | 26 or 23 | 0 or 20 or 30 or 50 |

| | | | | | |
|---|---|---|---|---|---|
| **Bihari** | 6 | 9 | 7 | 4 or 5 | 26 or 27 | 20 |
| **Chirag** | 6 | 8 | 8 | 4 or 5 | 26 or 27 | 20 |
| **Deepak** | 5 | 7 | 6 | 4 or 5 | 22 or 23 | 0 or 30 or 50 |
| **Total** | 24 | 29 | 26 | 21 | | |

[**Note:** Ravi gets a bonus of Rs. 20 from a customer if the total of four rating points by that customer is 25 or more. Else Ravi may or may not get a tip amount of Rs. 30 or Rs. 50.]

**Consider Case 1:** It is not possible for Ravi to earn a total amount of Rs. 120. Hence we can reject case 1.

**Consider Case 2:** For Ravi to earn a total amount of Rs. 120, he should not receive bonus from Atal.

∴ Ravi gets a total rating of < 25 from Atal. This is possible when Atal gives a rating of 6 for Timeliness.

Also, a total of Rs. 120 will be possible when Atal or Deepak give Ravi a tip amount of Rs. 30 or Rs. 50 in any order.

∴ We get the final table as below.

| Name | Behaviour | Packaging | Hygiene | Timeliness | Total | Amount Received |
|---|---|---|---|---|---|---|
| **Atal** | 7 | 5 | 5 | 6 | 23 | 30 or 50 |
| **Bihari** | 6 | 9 | 7 | 5 | 27 | 20 |
| **Chirag** | 6 | 8 | 8 | 5 | 27 | 20 |
| **Deepak** | 5 | 7 | 6 | 5 | 23 | 30 or 50 |
| **Total** | 24 | 29 | 26 | 21 | | Rs. 120 |

∴ Minimum rating received by Ravi in any parameter is 5.

i.e., by Deepak in Behaviour, by Atal in Packaging etc.

Hence, 5.

30. **(d)** Consider the solution to first question of this set. Bihari and Chirag give a maximum total rating of 27 to Ravi.
Hence, option (d).

31. **(6)** Consider the solution to first question of this set. Atal gave a rating of 6 in Timeliness.
Hence, 6.

32. **(b)** Consider the solution to first question of this set.

Deepak has to give a tip amount of Rs. 30 or Rs. 50. Hence, option (b).

33. **(c)** Consider the solution to first question of this set. Atal gave a maximum rating of 7 in Behaviour.
Hence, option (c).

34. **(d)** Consider the solution to first question of this set. Deepak gave a rating of 7 in packaging.
Hence, option (d).

35. **(c)** According to the information given we can draw the following table.

| Group A | Group B | Group C | Group D |
|---|---|---|---|
| Aruna (3) | Brinda (1) | Chitra (3) | Dipen (3) |
| Azul (2) | Brij (1) | Chetan (2) | Donna (1) |
| Arif (1) | Biju (3) | Chhavi (1) | Deb (1) |

The winner of any group will have to play at least 2 games (at least one game in the group stage and 1 semi-final)

**Let us first consider group B:**

The winner of group B cannot be Brinda or Brij hence it has to be Biju.

Biju must have played one game each with Brinda and Brij in any order. Biju must have won both his group matches and qualified for the semi-finals.

Now, in the semi-final Biju must have played against the winner of group A. Biju would have lost this match since Biju only plays 3 matches.

∴ The winner of semi-final between group A and B is the winner of group B.

**Let us now consider group D:**

This case is same as that of group B.

Here, Dipen must have played one game each with Donna and Deb in any order. Dipen must have won both his group matches and qualified for the semi-finals.

Now, in the semi-final Dipen must have played against the winner of group C. Dipen would have lost this match since Dipen only plays 3 matches.

∴ The winner of semi-final between group C and D is the winner of group C.

∴ Final will be played between winners of group A and C.

| | Group A | Group B | Group C | Group D |
|---|---|---|---|---|
| | Aruna (3) | Brinda (1) | Chitra (3) | Dipen (3) |
| | Azul (2) | Brij (1) | Chetan (2) | Donna (1) |
| | Arif (1) | Biju (3) | Chhavi (1) | Deb (1) |
| Semi-final | | Biju | | Dipen |
| Final | Winner of Group A | | Winner of Group C | |
| Champion | | × Chitra | | |

Now winners of group A and group C must have played at least 3 matches (at least one match in group stage, 1 semi-final and 1 final)

∴ Winner of group A can only be Aruna and winner of group C can only be Chitra.

Since Chitra cannot be the champion hence Aruna will win the final and become the Champion.

| | Group A | Group B | Group C | Group D |
|---|---|---|---|---|
| | Aruna (3) | Brinda (1) | Chitra (3) | Dipen (3) |
| | Azul (2) | Brij (1) | Chetan (2) | Donna (1) |
| | Arif (1) | Biju (3) | Chhavi (1) | Deb (1) |
| Semi-final | Aruna | Biju | Chita | Dipen |
| Final | Winner of Group A | | Winner of Group C | |
| Champion | | × Chitra | | |

As per the rules of the game, one of 2nd or 3rd ranked player of any group will play 2 matches in the group stage and the 1st ranked player will play only 1 match in group stage.

In group D, Dipen is definitely playing 2 matches during group stage, hence Dipen is definitely not the 1st ranked player in group D.

Hence, option (c).

36. **(b)** Consider the solution to first question of this set.
Chitra and Dipen play against each other in 2nd semi-final.
Hence, option (b).

37. **(c)** Consider the solution to first question of this set.
Aruna won the championship.
Hence, option (c).

38. **(b)** Consider the solution to first question of this set.
Biju definitely did not play against Chitra in the championship.
Hence, option (b).

39. **(b)** Hence, the answer is 08 was given to Charles
Choice B is the correct answer

40. **(d) Hence, the answer is 'Amar'**
Choice D is the correct answer.

41. (d) Hence, the answer is 'Disha'
Choice D is the correct answer.

42. **(12)** The question is **" What is Amar's value for his own bundle? "**
Hence, the answer is '12'

43. **(b)** Hence, the answer is 'Elise'
Choice B is the correct answer.

44. **(c)**

## QUANTITATIVE APTITUDE

45. **(250)** Let total number of black balls be 100b and total number of white balls be 100w.
∴ 100w + 100b = 450
⇒ w + b = 4.5 ...(1)
According to the question.
Number of metallic balls:
White metallic = 40% of 100w = 40w
Black metallic = 50% of 100b = 50b
Now, 40w = 50b
⇒ w = 1.25b ...(2)
From (1) and (2)
1.25b + b = 4.5
⇒ b = 2 and w - 2.5
∴ Number of non-metallic white balls = 60% of 100w = 150
and, number of non-metallic black balls = 50% of 100b = 100
∴ Total number of non-metallic balls = 150 + 100 = 250
Hence, 250.

46. **(4195)** Let the thousands, hundreds, tens and units digits be a, b, c and d.
Given, sum of its digits in the thousands, hundreds and tens places is 14 a + b + c = 14 ...(1)
The sum of its digits in the hundreds, tens and units places is 15 b + c + d = 15 ...(2)
(2) - (1) ⇒ a = d - 1 ...(3)
The tens place digit is 4 more than the units place digit w c = d + 4 ...(4)
For the number to be highest possible d should also be highest possible.
Highest possible of d is 5 (from (4)).
∴ highest possible value of c = 9 and that of a = 4
∴ The highest such number is 4195
Hence, 4195.

47. **(b)** Let 2, 3, 5 kgs is bought of each variety respectively.
∴ Total quantity bought = 2 + 3 + 5 = 10 kgs
Total cost of tea = 2 x 800 + 3 500 + 5 x 300 = 4600.
Profit on total quantity = 50%
∴ Total selling price for 10 kg tea = 4600 x 1.5 = 6900.
Selling price for 1/6'^ of 10 kg tea = 10/6 x 700 = 7000/6
⇒ Selling price for remaining 50/6 kg tea = 6900 - 7000/6 = 34400/6
∴ Selling price per kg for the remaining tea = 34400/6 = 50/6 = 688
Hence, option (b).

48. **(a)** Let the total work to be done = LCM (60, 84) = 420 units.
Efficiency of Anil = 420/60 = 7 units/day
Efficiency of Bimal = 420/84 = 5 units/day
Work done by Anil in 10 + 14 days = 24 x 7 = 168 units
Work done by Bimal in 14 days = 14 × 5 = 70 units
∴ Work done by Charu = 420 - 70 - 168 = 182 units
Fraction of work done by Charu = 182/420 = 91/210
∴ Payment received by Charu = 91/210 x 21,000 = Rs. 9,100
Hence, option (a).

49. **(b)** Refer the diagram below.
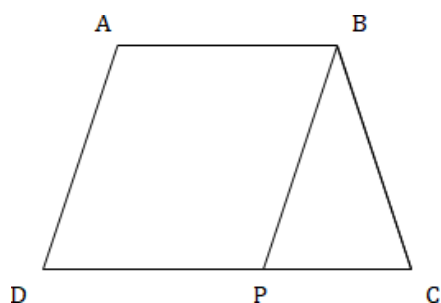
ABPD is a parallelogram.
ABPD and ABPC have equal base and same height.
Area (ABPD) = 2 × Area (ΔBPC)
Also, Area (ABPD) - Area (ΔBPC) = 10
⇒ 2 x Area (ΔBPC) - Area (ΔBPC) = 10
⇒ Area (ABPC) = 10
∴ Area (ABPD) = 20
⇒ Area (ABCD)= Area (ABPD) + Area (ΔBPC) = 20+10=30
Hence, option (b).

50. **(1000)** We know that number of distributing n identical objects amongst r different groups = $^{n+r-1}C_{r-1}$
Distributing balloons

Since each child gets at least 4 balloons, we will first give 4 balloons to each of the 3 children.
Now we have 3 identical balloons to be distributed to 3 children.
Number of ways of doing this =$^{3+3-1}C_{3-1}$ = 10 ways
Distributing pencils
Since each child gets at least 1 pencil, we will first give 1 pencil to each of the 3 children.
Now we have 3 identical pencils to be distributed to 3 children.
Number of ways of doing this $^{3+3-1}C_{3-1}$= 10 ways
Distributing erasers
We have 3 identical erasers to be distributed to 3 children.
Number of ways of doing this = $^{3+3-1}C_{3-1}$ = 10 ways
∴ Total number of ways = 10 x 10 x 10 = 1000
Hence, 1000.

51. **(a)** Given $x^2 - xy - x = 22$ and $y^2 - xy + y = 34$
Adding both the equations

m x* + y2 - 2xy - (x - y) = S6
⇒ $x^2 + y^2 - 2xy - (x - y) = 56$
⇒ $(x - y)^2 - (x - y) = 56$
⇒ $(x - y - 1) = 56$
Let (x-y)= a [a > 0 since x> y]
⇒ $a(a - 1) = 56$
⇒ $a^2 - a - 56 = 0$
⇒ $(a - 8)(a + 7) = 0$
⇒a = 8 or -7 (rejected)
Hence, option (a).

52. **(45)** Initially the container is full of milk. Let the capacity of container be 'V' liters.
When 9 liters are drawn, fraction of quantity drawn = $\frac{9}{V}$
Hence, fraction of milk drawn will also be $\frac{9}{V}$
∴ Fraction of milk remaining will be (1=$\frac{9}{V}$)
Only water is added.
⇒ Quantity of milk remaining after first replacement = V(1 - $\frac{9}{V}$)

Similarly, after second replacement quantity of milk
remaining = $V (1 - \frac{9}{V})^2$
This $\frac{16}{25}$ th of the total volume.
$V (1 - \frac{9}{V})^2 = \frac{16}{25}V$
⇒ $1 - \frac{9}{V} = \frac{4}{5}$
Hence, 45.

53. **(b)** Let the lengths of trains A and B be 'A' and 'B' and their speeds be 'a' and 'b' respectively.
Time taken for front end of A to cross rear end of B = 46 seconds
⇒ $46 = \frac{B}{a+b}$
⇒ B = 46a + 46b ...(1)
Total time taken for rear ends of the two train to cross each other = (46 + 69) = 115 seconds
⇒ $115 = \frac{A+B}{a+b}$
⇒ A + B = 115a + 115b ...(2)
(2) - (1)
⇒A = 69a + 69b ...(3)
Now, $\frac{A}{B} = \frac{69(a+b)}{46(a+b)} = \frac{69}{46} = \frac{3}{2}$
Hence, option (b).

54. **(10)** Let the number of matches played so far be 'b' and the goals scored in these 'n' matches be 'g'.
Now if 1 goal is scored in next 10 matches
⇒ g + 1 = (n + 10) x 0.15
⇒g = 0.1Sn + 1.S ...(1)
If 2 goals are scored in next 10 matches
⇒ g + 2 = (n + 10) x 0.2
⇒ g = 0.2n + 1 ...(2)
Solving (1) and (2) we get,
n = 10
Hence, 10.

55. **(5)** Given, $\log_2 [3 + \log_3 \{4 + \log_4 (x - 1)\}] - 2 = 0$
⇒ $\log_2 [3 + \log_3 \{4 + \log_4 (x - 1)\}] = 2$
⇒ $3 + \log_3 \{4 + \log_4 (x - 1)\} = 4$
⇒ $\log_3 \{4 + \log_4 (x - 1)\} = 1$
⇒ $4 + \log_4 (x - 1) = 3$
⇒ $\log_4 (x - 1) = -1$
⇒ $x - 1 = 1/4$
⇒ $x = 5/4$
⇒ $4x = 5$
Hence, 5.

56. **(a)** Let the loss incurred by Raj in first year = P%
Amount remaining after 1st year = 10,000$(1 - \frac{P}{100})$ > 5,000 .. (1)
Now the percentage growth next year = 5P%
∴ Amount after 2 years = 10,000$(1 - \frac{P}{100}) (i + \frac{5P}{100})$
Overall growth after 2 years is 35%, hence amount after 2 years should be 1 0,000 x J.35
⇒10,000 $(1 - \frac{P}{100}) (1 + \frac{5P}{100})$ =10,000 x 1.35
⇒10000 - 5$P^2$ +400P = 13500
⇒ 5$P^2$ - 400P + 3500 = 0
⇒ $P^2$ - 80P + 700 = 0
=* P = 10% or 70%.
P cannot be 70% since amount remaining after 1st year has to be greater than 5000 [from (1)]
∴ P = 10%

Hence, option (a).

57. **(a)**
Given, $x_1 - x_2 + x_3 - \cdots + (-1)^{(n+1)}x_n = n^2 + 2n$
Put $n = 1, \Rightarrow x_1 = 1^2 + 2 \times 1 = 3$
Put $n = 2, \Rightarrow x_1 - x_2 = 2^2 + 2 \times 2 = 8 \Rightarrow x_2 = 3 - 8 = -5$
Put $n = 3, \Rightarrow x_1 - x_2 + x_3 = 3^2 + 2 \times 3 = 15 \Rightarrow x_3 = 8 - 15 = -7$
$\Rightarrow x_n = (-1)^{n+1} \times (2n + 1)$
$\therefore x_{49} = 99$ and $x_{50} = -101$
$\Rightarrow x_{49} + x_{50} = 99 - 101 = -2$
Hence, option (a).

58. **(a)** Let the total investment done by all three of them is I.
When total profit decreases by 3% (from 18% to 15%)
Anil's share decreases by 420.
Decrease in total profit = 3% of I.
Decrease in Anil's profit will be 70% of decrease in total profit.
$\Rightarrow 420 = 70\%$ of 3% of I
$\Rightarrow 420 = 70/100$ x $3/100$ x I
$\Rightarrow$ I = 20,000
Now, when total profit increases by 2% (from 15% to 17%) Charu's share increases by 80.
Increase in total profit = 2% of I.
Increase in Charu's profit = C% of I [C%- percentage on investment contribution by Charu]
$\Rightarrow 80 = C\%$ of 2% of I
$\Rightarrow 80 = C/100$ x $2/J00$ x 20000
$\Rightarrow$ C = 20%
$\therefore$ Bobby's percentage share of investment = 100 - 70 - 20 = 10%
$\Rightarrow$ Investment done by Bobby = 10% of 20,000 = Rs. 2,000
Hence, option (a).

59. **(7)** Given, $2.25 \leq 2 + 2^{n+2} \leq 202$
$\Rightarrow 2.25 \leq 2^{n+2} \leq 202$
Case 1: $2.25 \leq 2^{n+2}$
$\therefore n + 2 \geq -2$
$\Rightarrow n \geq -4$
Case 2: $2^{n+2} \leq 202$
This is true when n ≤ 5
$\therefore -4 \leq n \leq 5$
Now, $3 + 3^{n+2}$ should be an integer
This is possible when n = - J, 0, 1, 2, 3, 4 and S
$\therefore$ n can take 7 values.
Hence, 7.

60. **(d) Case 1:** $3x \geq 40 \Rightarrow x \geq 13.33$
$\Rightarrow 3x - 20 + 3x - 40 = 20$
$\Rightarrow 6x = 80$
$\Rightarrow x = 13.33$
**Case 2:** $20 \geq 3x < 40 \Rightarrow 6.67 \leq x < 13.33$
$\Rightarrow 3x - 20 - 3x + 40 = 20$
$\Rightarrow 20 = 20$
This is always true.
**Case 3:** $3x \leq 20$
$\Rightarrow -3x + 20 - 3x + 40 = 20$
$\Rightarrow -6x = -40$
$\Rightarrow x = 6.67$
Combining solution from all the three cases, we get
$6.67 \leq x \leq 13.33$
Only option (d) is a subset of this range.
Hence, option (d).

61. **(a)** Since coefficients of the quadratic are rational numbers, hence the roots will be conjugate of each other.
If $2 + \sqrt{3}$ is one of the roots, the other root will be $2 - \sqrt{3}$.
$\therefore$ Sum of the roots = -(-b)/a = $(2 + \sqrt{3}) + (2 - \sqrt{3})$
$\Rightarrow$ b/a = 4
$\Rightarrow$ b = 4a
Also, product of the roots = c/a = $(2 + \sqrt{3})$ x $(2 + \sqrt{3})$
$\Rightarrow$ c/a = 4 - 3
$\Rightarrow$ c = a
Now, b = $c^3$
$\Rightarrow$ 4a = a'
$\Rightarrow a^2 = 4$
$\Rightarrow a = \pm 2$
$\therefore$ |a| = 2
Hence, option (a).

62. **(c)** Let the filling and emptying capacity of A and B be 'a' and 'b' units/hour respectively.
**Case 1:** A is opened at 2 pm and B at 3 pm
Total work done till 10 pm = 8a - 7b
**Case 2:** A is opened at 2 pm and B at 4 pm
Total work done till 6 pm = 4a - 2b
Since work done is same in both cases, we have
8a – 7b = 4a – 2b
$\Rightarrow$ 4a = 5b
Now time taken by A alone to fill the tank = (Total work)/a
= (4a -2b)/a = (5b -2b)/(5b/4) = 1 2/5 hours = 144 minutes.
Hence, option (c).

63. **(c)** Let the three integers x, y and z be (a - d), a, (a + d) respectively.
[(a - d), a and (a + d) are all positive integers]
Since y - x > 2, hence d > 2.
Given, xyz = 5(x + y + z)
$\Rightarrow$ (a - d)s a x (a + d) = 5 x 3a
$\Rightarrow$ (a - d)(a + d) = 15
Here (a - d) and (a + d) are positive integers
$\therefore$ We need to write 15 as product of 2 positive integers.
This can be done in two ways, 1 x 15 or 3 x 5
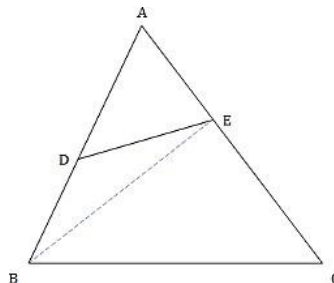Hence, (a, d) is either (8, 7) or (4, 1).
Since d > 0 hence, (4, 1) is rejected.
$\therefore$ (a, d) = (8, 7)
$\therefore$ z - x = (a + d) - (a - d) = 2d = 14
Hence, option (c).

64. **(30)** Consider the figure below.



Consider ΔAED and ΔBED.
Height of both triangles is same, hence ratio of area will be same as ratio of their base.
$\therefore$ Area(ΔAED)/Area(ΔBED) = AD/BD- 2/1
Area (ΔBED-) 8/2 = 4
$\therefore$ Area (ΔABE) = 8 + 4 = 1 2

Now, consider $\triangle AED$ and $\triangle BED$.

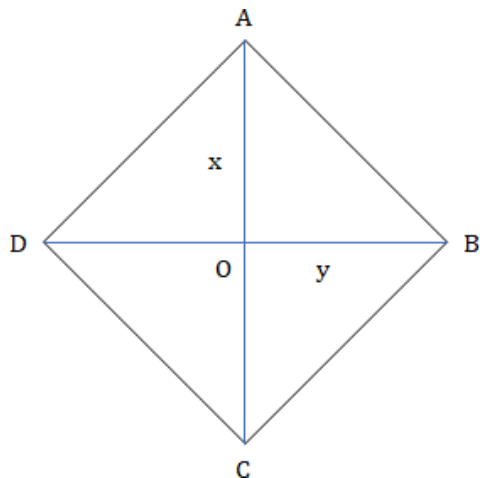Height of both triangles is same, hence ratio of area will be same as ratio of their base.

$\therefore$ Area($\triangle ABE$)/Area($\triangle CBE$) = AE/CE = 2/3

Area($\triangle CBE$) = 3/2 × 12 = 18

$\therefore$ Area ($\triangle ABC$) = 12 + 1 8 = 30 sq. cm.

Hence, 30.

65. **(b)** Consider the diagram below.



In a rhombus diagonals perpendicularly bisect each other.

$\therefore$ Let OA = OC = x and OB = OD = y

$In\ \triangle AOB \Rightarrow x^2 + y^2 = 5^2 \ ..(1)$

$Also,\ area\ of\ the\ rhombus\ ^1/_2 \times 2x \times 2y = 12$

$\Rightarrow 2xy = 12$ .. (2)

(1) + (2)

$\Rightarrow x^2 + y^2 + 2xy = 25 + 12 = 37$

$\Rightarrow (x + y)^2 = 37$

$\Rightarrow x + y = \sqrt{37}$ ...(3)

(1) - (2)

$\Rightarrow x^2 + y^2 - 2xy = 25 - 12 = 13$

$\Rightarrow (x + y)^2 = 13$

$\Rightarrow x + y = \sqrt{13}$ ...(4)

Solving (3) and (4) we get,

$2x = \sqrt{37} + \sqrt{13}\ and$

$2y = \sqrt{37} - \sqrt{13}$

The longer diagonal $2x = \sqrt{37} + \sqrt{13}$

Hence, option (b).

66. **(a)** Given, $f(x) = \frac{x^2+2x+4}{2x^2+4x+9}$

$\Rightarrow f(x) = \frac{1}{2}\left[\frac{2x^2+4x+8}{2x^2+4x+9}\right]$

$\Rightarrow f(x) = \frac{1}{2}\left[\frac{2x^2+4x+9-1}{2x^2+4x+9}\right]$

$\Rightarrow f(x) = \frac{1}{2}\left[1 - \frac{1}{2x^2+4x+9}\right]$

f(x) will be minimum when $(2x^2 + 4x + 9)$ is minimum.

Now, $2x^2 + 4x + 9$ will be minimum when x = -(4)/2 x 2 = -1

$\therefore$ Minimum value of $2x^2 + 4x + 9 = 2(-1)^2 + 4(-1) + 9 = 7$

$\therefore$ Minimum value of f(x) $= \frac{1}{2}[1 - \frac{1}{7}] = \frac{3}{7}$

f(x) will be maximum when $(2x^2 + 4x + 9)$ is maximum.

Maximum value of $(2x^2 + 4x + 9)$ will be co.

Maximum value of $f(x) = \frac{1}{2}[1 - \frac{1}{\infty}] = \frac{1}{2}$

$\therefore$ Range of f(x) = $[\frac{3}{7}, \frac{1}{2})$

Upper value of '/z is in open bracket as value of $(2x^2 + 4x + 9)$ will never actually be $\infty$.

Hence, option (a).