

# XAT 2008 Question Paper

## Instructions:

1. This booklet consists of three sections A, B and C with 38, 38 and 44 questions respectively, i.e. a total of 120 questions. If there is a problem with your test booklet, immediately inform the invigilator/supervisor. You will be provided with a replacement.
2. Each question has five alternatives.
3. **NEGATIVE MARKS** (one fourth of a mark) may be deducted for the first six incorrect answers in each section and 0.5 (half a mark) for each incorrect answer thereafter.

## SECTION A : VERBAL AND LOGICAL ABILITY

Analyse the passage given and provide an appropriate answer for the question nos. 1 through 6 that follow.

Every conscious mental state has a qualitative character that we refer to as mood. We are always in a mood that is pleasurable or unpleasurable to some degree. It may be that bad moods relate to their being too positive reinforcement in a person's current life and too many punishments. In any case, moods are distinguished from emotions proper by not being tied to any specific object. But, this distinction is not watertight, in that emotions need not be directed at objects that are completely specific (we can be angry just at people generally) while there is always a sense of a mood having a general objective like the state of the world at large. Moods manifest themselves in positive or negative feelings that are tied to health, personality, or perceived quality of life. Moods can also relate to emotions proper as in the aftermath of an emotional incident such as the failure to secure a loan. A mood on this basis is the mind's judgment on the recent past. For Goldie, emotion can bubble up and down within a mood, while an emotion can involve characteristics that are non-object specific.

What is important for marketing is that moods colour outlook and bias judgements. Hence the importance of consumer confidence surveys, as consumer confidence typically reflects national mood. There is mood-congruence when thoughts and actions fall in-line with mood. As Goleman says, there is a "constant stream of feeling" that runs "in perfect to our stream of thought". Mood congruence occurs because a positive mood evokes pleasant associations that lighten subsequent appraisals (thoughts) and actions, while a negative arouses future judgment and behavior. When consumers are in a good mood, they are more optimistic about buying more confident in buying, and much more willing to tolerate things like waiting in line. On the other hand, being in a mood makes buying behaviour in the "right mood" by the use of music and friendly staff or, say, opens bakeries in shopping malls that delight the passer-by with the smell of fresh bread.

Thayer views moods as a mixture of biological and psychological influences and, as such, a sort of clinical thermometer, reflecting all the internal and external events that influence us. For Thayer, the key components of mood are energy and tension in different combinations. A specific mixture of energy and tension, together with the thoughts they influence, produces moods. He discusses four mood states:

- Calm - energy: he regards this as the optimal mood of feeling good
- Calm - tiredness: he regards this as feeling little tired without any stress, which can be pleasant.
- Tense - energy: involves low level of anxiety suited to a fight - or - flight disposition.
- Tense - tiredness: is mixture of fatigue and anxiety, which underlines the unpleasant feeling of depression.

People generally can “feel down” or “feel good” as result of happenings in the world around them. This represents the national mood. People feel elated when the national soccer team wins an international match or depressed when their team has lost. An elated mood of calm -energy is an optimistic mood, which is good for business. Consumers, as socially involved individuals, are deeply influenced by the prevailing social climate. Marketers recognize the phenomenon and talk about the national mood being, say for or against conspicuous consumption. Moods do change, though. Writing early in the nineteenth century.

Toqueville describes an American elite embarrassed by the ostentation of material display; in the “Gilded Age”, sixty years later, many were only too eager to embrace a materialistic vulgarity. The problem lies in anticipating changes in national mood, since a change in mood affects everything from buying of equities to the buying of houses and washing machines. Thayer would argue that we should be interested in national events that are likely to produce a move towards a tense - tiredness state or toward a calm - energy state, since these are the polar extremes and are more likely to influence behavior. Artists sensitive to national moods express the long-term changes. An example is the long - term emotional journey from Charles Dickens’ depiction of the death of little Nell to Oscar Wilde’s cruel flippancy about it. “One would have to have a heart of stone not to laugh at the death of little Nell”. Which reflects the mood change from high Victorian sentimentality to the acerbic cynicism of the end of the century, as shown in writers like Thomas Hardy and artists like Aubrey Beardsley.

Whenever the mind is not fully absorbed, consciousness is no longer focused and ordered. Under such conditions the mind falls into dwelling on the unpleasant, with a negative mood developing.

Csikszentmihalyi argues that humans need to keep consciousness fully active is what influences a good deal of consumer behaviour. Sometimes it does not matter what we are shopping for - the point is to shop for anything, regardless, as consuming is one way to respond to the void in consciousness when there is nothing else to do.

1. Which one of the following statements best summarizes the above passage?
  - A. The passage highlights how moods affect nations.
  - B. The passage draws distinction between moods and emotions.
  - C. Some writer influenced national moods through their writings.
  - D. Thayer categorised moods into four states.
  - E. The passage highlights the importance of moods and emotions in marketing.

2. Which of the following is the closest to “conspicuous consumption” in the passage?
- A. Audible consumption
  - B. Consumption of material items for impressing others
  - C. Consumption driven by moods and emotions
  - D. Socially responsible consumption
  - E. Private but not public consumption

3. What is “moods congruence”?
- A. When moods and emotions are synchronized.
  - B. When emotions are synchronous with actions and thoughts.
  - C. When moods are synchronous with thoughts but not with action.
  - D. When moods are synchronous with thoughts but not with action.
  - E. When moods are synchronous with action but not with thought.

4. Implication and Proposition are defined as follows:  
Implication: a statement which follows from the given text.  
Proposition: a statement which forms a part of the given text.

Consider the two statements below and decide whether they are implications or propositions.

- I. The marketers should understand and make use of moods and emotions in designing and selling products and services.
  - II. Consuming is nothing but way of feeling the void in consciousness.
- A. Both statements are implications.
  - B. First is implication, second is proposition.
  - C. Both are propositions.
  - D. First is propositions, second is implication.
  - E. Both are neither implication nor proposition.
5. Which statements from the ones given below are correct?
- 1. In general, emotions are object specify
  - 2. In general, moods are not object specific.
  - 3. Moods and emotions are same.
  - 4. As per Thayer, moods are a mix of biological and psychological influences
- A. 1, 2, 3      B. 2, 3, 4      C. 1, 2, 4      D. 2, 4, 3      E. All four are right
6. The statement “Moods provide energy fro human actions” is\_\_\_\_\_.
- A. always right.
  - B. sometimes right.
  - C. always wrong
  - D. not derived from the passage.
  - E. contradictory.

**Directions (7 to 9): Carefully read the statements in the questions below and arrange them in a logical order.**

- 7:
1. So too it is impossible for there to be proposition of ethics. Proposition cannot express that is higher.
  2. The sense of the world must be outside the world. In the world everything is as it is and everything happens as it does happen: in it no value exists-and if it did exist, it would have no value. If there is any value that does have a value, it must lie outside whole sphere of what happens and is the case. For all that happens and is the case is accidental. What makes it non-accidental cannot lie within the world, since if it did it would it self be accidental. It must lie outside world.
  3. It is clear that ethics cannot be put into words. Ethics is transcendental.
  4. All propositions are of equal value.

A. 4 - 2 - 1 - 3

B. 2 - 1 - 3 - 4

C. 1 - 3 - 4 - 2

D. 4 - 3 - 1 - 2

E. 3 - 1 - 2 - 4

- 8:
1. The fact all contribute only to setting the problem, not to its solution.
  2. How things are in the world is a matter of complete indifference for what is higher. God does not reveal himself in the world.
  3. To view the world *sub specie aeterni* is to view it as a whole - a limited whole. Feelings the world as a limited whole - it is this that is mystical.
  4. It is not how things are in the world that is mystical, but that it exists.

A. 1 - 2 - 3 - 4

B. 2 - 1 - 3 - 4

C. 3 - 1 - 4 - 2

D. 3 - 4 - 1 - 2

E. 2 - 1 - 4 - 3

- 9:
1. The operation is what has to be done to one proposition in order to make other out of it.
  2. Structure of proposition stands in internal relations to one another.
  3. In order to give prominence to these internal relations we can adopt the following mode of expression: we can represent a proposition as the result of an operation that produces it out of other propositions (which are bases of the operation).
  4. An operation is the expression of a relation between the structure of its result and of its bases.

A. 2 - 3 - 4 - 1

B. 1 - 2 - 3 - 4

C. 4 - 3 - 1 - 2

D. 2 - 1 - 3 - 4

E. 4 - 1 - 2 - 3

**Directions (10 to 14): Choose the appropriate words to fill in the blanks.**

10. Mark Twain was responsible for many striking, mostly cynical \_\_\_\_\_, such as "Always do right. That will gratify some of the people, and astonish the rest". \_\_\_\_\_ can sometimes end up as \_\_\_\_\_, but rarely would someone use them as an \_\_\_\_\_.

A. epitaphs, Epitaphs, epigrams, epigraph

B. epigraphs, Epigraphs, epitaphs, epigraph

C. epigrams, Epigrams, epigraphs, epitaph

D. epigrams, Epitaphs, epigrams, epigraph

E. epitaphs, Epitaphs, epigraphs, epigram

11. A candidate in the medical viva voce exam faced a tinge of intellectual \_\_\_\_\_ when asked to spell the \_\_\_\_\_ gland. The fact that he carried notes on his person would definitely be termed as \_\_\_\_\_ by factually, but may be termed as \_\_\_\_\_ by more generous sections of students.
- A. ambivalence, prostate, immoral, amoral
  - B. ambivalence, prostrate, amoral, immoral
  - C. ambiguity, prostrate, amoral immoral
  - D. ambivalence, prostrate, immoral, amoral
  - E. ambiguity, prostrate, immoral amoral
12. It is not \_\_\_\_\_ democratic that the parliament should be \_\_\_\_\_ on issues and resort to passing \_\_\_\_\_ rather than have an open debate on the floor of the house.
- A. quite, quite, ordinances
  - B. quite, quiet, ordinances
  - C. quiet, quite, ordinances
  - D. quiet, quiet, ordinances
  - E. quite, quiet, ordinances
13. In a case of acute \_\_\_\_\_, \_\_\_\_\_ membranes secrete excessive \_\_\_\_\_.
- A. sinus, mucous, mucous
  - B. sinus, mucus, mucous
  - C. sinusitis, mucous, mucus
  - D. sinus, mucous, mucus
  - E. sinusitis, mucus, mucous
14. If a person makes the statement: "I never speak the truth." The person can be said to be \_\_\_\_\_.
- A. speaking the truth.
  - B. lying.
  - C. lying as well as speaking the truth
  - D. making a logically contradictory statement
  - E. partially speaking the truth and partially lying.

**Analyse the passage given and provide an appropriate answer for the question nos. 15 through 18 that follow.**

Enunciated by Jung as an integral part of his psychology in 1916 immediately after his unsettling confrontation with the unconscious, the transcendent function was seen by Jung as uniting the opposites, transforming psyche, and central to the individuation process. It also undoubtedly reflects his personal experience in coming to terms with the unconscious. Jung portrayed the transcendent function as operating through symbol and fantasy and mediating between the opposites of consciousness and the unconscious to prompt the emergence of a new, third posture that transcends the two. In exploring the details of the transcends function and its connection to other Jungian constructs, this work has unearthed significant changes, ambiguities, and inconsistencies in Jung's writings. Further, it has identified two separate images of the transcendent function: (1) the narrow transcendent function, the function or process within Jung's pantheon of psychic structures, generally seen as the uniting of the opposites of consciousness and the unconscious from which a new attitude emerges; and (2) the expensive transcendent function, the root metaphor for psyche or being psychological that subsumes Jung' pantheon and that apprehends the

most fundamental psychic activity of interacting with the unknown or other. This book has also posited that the expansive transcendent function, as the root metaphor for exchanges between conscious and the unconscious, is the wellspring from whence flows other key Jungian structures such as the archetypes and the Self, and is the core of the individuation process. The expansive transcendent function has been explored further by surveying other schools of psychology, with both death and non-death orientations, and evaluating the transcendent function alongside structures or process in those other schools which play similar mediatory and / or transitional roles.

15. The above passage is most likely an excerpt from:
- A. research note
  - B. An entry on a psychopathology blog
  - C. A popular magazine article
  - D. A newspaper's article
  - E. A scholarly treatise
16. It can be definitely inferred from the passage above that
- A. The expansive transcendent function would include elements of both the Consciousness and the Unconscious.
  - B. The transcendent is the core of the individuation process.
  - C. Archetypes emerge from the narrow transcendent function.
  - D. The whole work, from which this excerpt is taken, primarily concerns itself with the inconsistencies in Jung's writings.
  - E. Jung's pantheon of concepts subsumes the root metaphor of psyche.
17. A comparison similar to the distinction between the two images of the transcendent function would be:
- A. raucous: hilarious
  - B. synchronicity: ontology
  - C. recession: withdrawal
  - D. penurious: decrepit
  - E. None of these
18. As per the passage, the key Jungian structure - other than the Self - that emerges from the expansive transcendent function may NOT be expressed as a (n):
- A. Stereotype
  - B. Anomaly
  - C. Idealized model
  - D. Original pattern
  - E. Epitome

**Directions: (19 to 26): Go through the caselets below and answer the questions that follow.**

**Question No. (19 to 20):** According to recent reports, CEOs of large organisations are paid more than CEOs of small organizations. It does not seem fair that just because a CEO is heading a big organization s/he should be paid more. CEOs salary should be related to performance, especially growth in terms of sales and profits. Of course, big organisations are more complex than the small, but all CEOs require significant amount of energy and time in managing organisations. There is no proof then CEOs of small organisations. All CEOs should be paid according to their performance.

19. A person seeking to refute the argument might argue that
- A. CEOs should be paid equally.
  - B. Managing big organisation is more challenging than small.
  - C. If CEOs of small companies perform well, the company would become big and so would be CEOs salary.
  - D. CEOs who travel more should be paid more.
  - E. Highly qualified CEOs should be paid more because they have acquired difficult education.
20. Which of the following, if true, would strengthen the speaker's argument?
- A. CEOs of small organisations come from good educational background.
  - B. CEOs in big organisation take much longer to reach top, as compared to their counterparts in small organisations.
  - C. CEOs of big organisations are very difficult to hire.
  - D. A few big family businesses have CEOs from within the family.
  - E. Big organisations contribute more towards moral development of society.

**Question no (21 to 22)** Hindi ought to be the official language of India. There is no reason of the government to spend money printing documents in different languages, just to cater to people who cannot read/write Hindi. The government has better ways to spend tax payers' money. People across India should read/write Hindi or learn it at the earliest.

21. Which of the following, if true, would weaken the speaker's argument the most?
- A. The government currently translates official documents into more than eighteen languages.
  - B. Hindi is the most difficult language in the world to speak.
  - C. People who are multilingual usually pay maximum taxes.
  - D. Most people who travel across India learn Hindi within five years.
  - E. Making Hindi the official language is a politically unpopular idea.
22. United Nations members contribute funds, proportionate to their population, for facilitating smooth functioning of the UN. By 2010, India, being the most populous nation on the planet, would contribute the maximum amount to the UN. Therefore, official language of United Nations should be changed to Hindi.?
- Which of the following is true?
- A. The point above contradicts the speaker's argument.
  - B. The point above is similar to speaker's argument.
  - C. The point above concludes speaker's argument.
  - D. The point above extends the speaker's argument.
  - E. The point above strengthens the speaker's argument.

**Questions No (23 and 24):** The Bistupur - Sakchi corner needs a speed - breaker. Loyola school children cross this intersection, on their way to the school, and many a times do not check out for traffic. I get to read regular reports of cars and other vehicles hitting children. I know that speed - breakers are irritating for drivers and I know that children cannot be protected from every danger, but this is one of the worst intersections in town. There needs to be a speed - breaker so that vehicles have to slow down and the children be made safer.

23. Which of the following arguments is used in the above passage?
- A. Analogy - comparing the intersection to something dangerous
  - B. Statistical analysis - noting the number of children hit by vehicles
  - C. Personalization - telling the story of one child's near accident at the intersection
  - D. Attack - pointing out people who are against speed - breakers as being uncaring about children
  - E. Emotive - referring to the safety of children to get people interested
24. According to a recent research conducted by the district road planning department, ten percent students come with parents in cars, twenty percent students use auto - rickshaws, twenty percent students use taxis, forty percent students use the school buses and ten percent students live in the hostel inside the school.
- Which of the following is true about the above paragraph?
- A. It extends speaker's argument using a analogy.
  - B. It extends the speaker's argument using statistical data.
  - C. It is similar to speaker's argument.
  - D. It contradicts the speaker's argument using statistical data.
  - E. It concludes speaker's argument by using personalization.

**Question No (25 and 26):** History, if viewed as a repository not merely of anecdotes or chronology, could produce a decisive transformation in the image of science by which we are now possessed. That image has previously been drawn, even by scientists themselves, mainly from the study of finished scientific achievements as thee are recorded in the classics and, more recently, in the textbooks from which each new scientific generation learns to practice its trade.

25. Which of the following best summarizes the above paragraph?
- A. Scientific achievements are record in classics and text books.
  - B. Different ways of looking at history can produce altogether different knowledge.
  - C. History of science can be inferred from finished scientific achievement
  - D. Text books may be biased.
  - E. All of above.
26. Which of the following statements is the author most likely to agree with?
- A. History of science presents a scientific way of looking at scientific development and thus contributes to progress in science.
  - B. History of science should contain only the chronology of the scientific achievements.
  - C. More number of scientific theories results in more number of publications, which benefits publishers.
  - D. History of science should purposely present different images of science to people.
  - E. History of science can present multiple interpretations to people regarding the process of scientific development.

**Direction (27 and 28): Go through the caselets below and answer the questions that follow.**

27. Goodricke Group Ltd is planning to give top priority to core competence of production and marketing of tea in 2007. The company intends to increase the production of orthodox varieties of tea. Goodricke is planning to invest Rs. 10 crore to modernise the factors. The company has announced a net profit of Rs. 5.49 crore for 2006 as against Rs. 3.76 crore in 2005. Which of the following can be deduced from the caselet?
- A. Production and marketing is core competence of Goodricke Group.
  - B. Increase in production of existing products enhances core competence.
  - C. Core competence leads to modernization.
  - D. Goodricke has given top priority to production because it has earned net profit of Rs. 5.49 crore.
  - E. Core competence can be used for furthering company's interests.
28. The author reflects on the concept of Blue Ocean Strategy. He explains that this concept delivers an instinctive framework for developing uncontested market space and making the competition irrelevant. The author marks that Blue Ocean Strategy is about having the best mix of attributes that result in creation of uncontested market space and high growth, and not about being the best. The above paragraph appears to be an attempt at
- A. reviewing an article or a book on Blue Ocean strategy.
  - B. defining Blue Ocean strategy.
  - C. developing the framework for Blue Ocean strategy.
  - D. highlighting how Blue Ocean strategy leads to better returns.
  - E. None of above.

**Analyse the following passage and provide an appropriate answer for the question nos. 29 through 35 that follow.**

India is renowned for its diversity. Dissimilitude abounds in every sphere from the physical elements of its land and people to the intangible workings of its beliefs and practices. Indeed, given this variety, India self appears to be not a single entity but an amalgamation, a “constructs” arising from the conjoining of innumerable, discrete parts. Modern scholarship has, quite properly, tended to explore these elements in isolation. (In part, this trend represents the conscious reversal of the stance taken by an earlier generation of scholars whose work reified India into a monolithic entity - a critical element in the much maligned “Orientalist” enterprise). Nonetheless, the representation of India as a singular “Whole” is not an entirely capricious enterprise; for India is an identifiable entity, united by - if not born out of - certain deep and pervasive structures. Thus, for example, the Hindu tradition has long maintained a body of mythology that weaves the disparate temples, gods, even geographic landscapes that exist throughout the subcontinent into a unified, albeit syncretic, whole.

In the realm of thought there is no more pervasive, unifying structure than *karma*. It is the “doctrine” or “law” that ties actions to results and creates a determinant link between an individual's status in this life and his or her fate in future lives. Following what is considered to be its appearances in the Upanishads, the doctrine reaches into nearly every corner of Hindu thought. Indeed, its dominance is such in the Hindu world view that karma encompasses, at the same time, life-affirming and life-negating functions; for just as it defines the world in terms of the “positive” function of delineating a doctrine of rewards and punishments, so too it defines the world through its “negative” representation of action as an all but inescapable trap, an unremitting cycle of death and rebirth.

Despite - or perhaps because of - karma's ubiquity, the doctrine is not easily defined. Wendy Doniger O'Flaherty reports of a scholarly conference devoted to the study of karma that although the participants admitted to a general sense of the doctrine's parameters, considerable time was in a "lively but ultimately vain attempt to define ... karma and rebirth". The base meaning of the term "Karma" (or, more precisely, in its Sanskrit stem form, Karman a neuter substantive) is "action". As a doctrine, Karma encompasses a number of quasi-independent concepts: rebirth (punarjanam), consequence (phala, literally "fruit," a term that suggests the "ripening" of actions into consequences), and the valuation or "ethic-ization" of acts, qualifying them as either "good" (punya or sukarman) or "bad" (papam or duskarman).

In a general way, however, for at least the past two thousand years, the following (from the well known text, the Bhagavata Purana) has held true as representing the principal elements of the Karma doctrine: "The same person enjoys the fruit of the same sinful or a meritorious act in the next world in the same manner and to the manner and extent according to the manner and extent to which that (sinful or meritorious) act has been done by him in this world." Nevertheless, depending on the doctrine's context, which itself ranges from its appearance in a vast number of literary sources to its usage on the popular level, not all these elements may be present (though in a general way they may be implicit).

29. The orientalist perspective, according to the author:
- A. Viewed India as country of diversity.
  - B. Viewed India both as single and diverse entity.
  - C. Viewed India as if it was a single and unitary entity devoid of diversity.
  - D. Viewed India as land of ?Karma.
  - E. Viewed India in the entirety.
30. "Reify" in the passage means:
- A. Reversal of stance
  - B. Unitary whole
  - C. To make real out of abstract
  - D. Diversity
  - E. Unity in diversity
31. "Ethic-ization" in the passage means
- A. Process making something ethical
  - B. Converting unethical persons into ethical
  - C. Teaching ethics
  - D. Judging and evaluation
  - E. None of these
32. Consider the following statements:
- 1. Meaning of Karma is contextual.
  - 2. Meaning of Karma is not unanimous.
  - 3. Meaning of Karma includes many other quasi-independent concepts.
  - 4. Karma also means actions and their rewards.

Which of the above statements are true?

- A. 1, 2, 3
- B. 2, 3, 4
- C. 1, 3, 4
- D. None of these
- E. All the four are true.

33. The base meaning of "Karma, is:
- A. Reward and punishment.
  - B. Only those actions which yield a "phala".
  - C. Any action.
  - D. Ripening of actions into consequences.
  - E. None of these.
34. As per the author, which of the following statements is wrong?
- A. India is a diverse country.
  - B. Doctrine of Karma runs across divergent Hindu thoughts.
  - C. Doctrine of Karma has a rich scholarly discourse.
  - D. Modern scholars have studied Hinduism as a syncretic whole.
  - E. Scholars could not resolve the meaning of Karma.
35. Which of the following, if true, would be required for the concept of Karma - as defined in Bhagavata Purana - to be made equally valued across different space-time combinations?
- A. The information of the past actions and the righteousness of each action would be embodied in the individual.
  - B. Karma is judged based on the observers' perception, and hence the observer is a necessary condition for its validity.
  - C. Karma is an orientalist concept limited to oriental countries.
  - D. Each epoch will have its own understanding of Karma and therefore there can not be uniform validity of the concept of Karma.
  - E. Each space-time combination would have different norms of righteousness and their respective expert panels which will judge each action as per those norms.

**Analyse the passage given and provide an appropriate answer for the question nos. 36 through 38 that follow.**

Deborah Mayo is a philosopher of science who has attempted to capture the implications of the new experimentalism in a philosophically rigorous way. Mayo focuses on the detailed way in which claims are validated by experiment, and is concerned with identifying just what claims are borne out and how. A key idea underlying her treatment is that a claim can only be said to be supported by experiment if the various ways in which the claim could be as fault have been investigated and eliminated. A claim can only be said to be borne out by experimental and a severe test of a claim, as usefully construed by Mayo, must be such that the claim would be unlikely to pass it if it were false.

Her idea can be explained by some simple examples. Suppose Snell's law of refraction of light is tested by some very rough experiments in which very large margins of error are attributed to the measurements of angles of incidence and refractions, and suppose that the results are shown to be compatible with the law within those margins of error. Has the law been supported by experiments that have severely tested it? From Mayo's [perspective the answer is "no" because, owing to the roughness of the measurements, the law of refraction would be quite likely to pass this test even if it were false and some other law differing not too much from Snell's law true. An exercise I carried out in my school-teaching days serves to drive this point home. My students had conducted some not very careful experiments to test Snell's law. I then presented them had been suggested in antiquity and mediaeval times, prior to the discovery of Snell's law and invited the students to test them with the measurements they had used to test Snell's law; because

of the wide margins of error they had attributed to their measurements, all of these alternative laws pass the test. This clearly brings out the point that the experiments in question did not constitute a severe test of Snell's law. The law would have passed the test even if it were false and one of the historical alternatives true.

36. Which of the following conclusion can be drawn from the passage?
- A. Precise measurement is a sufficient condition to ensure validity of conclusions resulting from an experiment.
  - B. Precise measurement is both a necessary and sufficient condition to ensure validity of conclusion resulting from an experiment.
  - C. Experimental data might support multiple theoretical explanations at the same time, hence validity of theories needs to be tested further.
  - D. Precise measurement along with experimenter's knowledge of the theory underpinning the experiment is sufficient to ensure the validity of conclusions drawn from experiment.
  - E. All of these
37. As per Mayo's perspective, which of the following best defines the phrase "scientific explanation"?
- A. One which is most detailed in its explanation of natural phenomena.
  - B. One which survives examinations better than other explanations./
  - C. One which has been thoroughly tested by scientific experts.
  - D. One which refutes other explanations convincingly.
  - E. All of these.
38. The author's use of Snell's law of refractions to illustrate Mayo's perspective can best said to be
- A. Contrived.
  - B. Premeditate.
  - C. Superfluous.
  - D. Illustrative
  - E. Inadequate.

## SECTION B: ANALYTICAL REASONING & DECISION MAKING

**Directions (Questions No. 39 to 59):** Each group of questions in this section is based on a set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. Choose the response that most accurately and completely answers each question and blacken the corresponding space on your answer sheet.

**Questions No 39 42:** Professor Mukhopadhyay works only on Mondays, Tuesday, Wednesday, Friday and Saturday. She performs four quizzes, evaluating quizzes, and working on consultancy projects. Each working day she performs exactly one activity in the morning and exactly one activity in the afternoon. During each week her work schedule MUST satisfy the following restrictions:

She conducts quizzes on exactly three mornings.

If she conducts quizzes on Monday, she does not conduct a quiz on Tuesday.

She lectures in the afternoon on exactly two consecutive calendar days.

She evaluates quizzes on exactly one morning and three afternoons.

She works on consultancy project on exactly one morning.

On Saturday, she neither lectures nor conducts quizzes.

39. On Wednesdays, the Professors could be scheduled to
- A. Conduct a quiz in the morning and lecturer in the afternoon
  - B. Work on a consultancy project in the morning and conduct a quiz in the afternoon.
  - C. Lecturer in the morning and evaluate quizzes in the afternoon
  - D. Conduct a quiz in the morning and work on consultancy project in the afternoon
  - E. Evaluate quizzes in the morning and evaluate quizzes in the afternoons.
40. Which one of the following statements must be true?
- A. There is one day on which she evaluates quizzes both in the morning and in the afternoon.
  - B. She works on consultancy project on one of the days ion which lecturers.
  - C. She lectures on one of the days on which she conducts quiz.
  - D. She works on consultancy project on one of the days on which she evaluates quizzes.
  - E. She lectures on one of the days on which evaluates quizzes.
41. If the Professor conducts a quiz on Tuesday, then her schedule for evaluating quizzes could be
- A. Monday morning, Monday afternoons, Friday morning, Friday afternoon.
  - B. Monday morning, Friday afternoons, Saturday morning, Saturday afternoon
  - C. Monday afternoons, Wednesdays morning, Wednesdays afternoon, Saturday afternoons
  - D. Wednesdays morning, Wednesday afternoon, Friday afternoons, Saturday afternoon
  - E. Wednesday afternoon, Friday afternoons, Saturday morning, Saturday afternoon
42. Which one of the following must be a day on which Professor lectures?
- A. Monday
  - B. Wednesday
  - C. Friday
  - D. Tuesday
  - E. Saturday

**Question No 43 to 46:** Six states having equal area in a country are located in North-South directions in two columns next to each other. States are located in the given order, State 1, State 3, and State 5 are on the western side and State 2, State 4, and State 6 are on the eastern side. Within the six states, there are on the eastern side. Within the six states, there are exactly four medical institutes, two management institutes, and two technical institutes. These eight institutions are located as follows.

No institutions is in more than one of the states.

None of the states contains more than one management institute, and none contains more than one technical institute.

None of the states contains both a management institute and a technical institute.

Each management institute is located in a state that contains at least one medical institute.

The technical institute are located in two states that do not share a common boundary.

State 3 contains a technical institute, and

state 6 contains a management institute.

43. Which one of the following could be true?
- A. State 1 contains exactly one technical institute
  - B. State 2 contains exactly one management institute
  - C. State 5 contains exactly one technical institute
  - D. State 6 contains exactly one technical institute
  - E. State 1 contains exactly one medical institute
44. A complete and accurate list of the states, any one of which could contain the management institute that is not in State 6, would be \_\_\_\_\_.
- A. 1, 4            B. 2, 4            C. 1, 4, 5            D. 4, 5            E. 1, 2, 4, 5
45. If each of the six states contains at least one of the eight institutions, then which one of the following must be true?
- A. There is management institute in state 1
  - B. There is a medical institute is state 2
  - C. There is a medical institute in state 3
  - D. There is a medical institute in state 4
  - E. There is a management institute in state 4
46. If one of the states contains exactly two medical institutes and exactly one technical institute, then which combinational of three states might contain no medical institute?
- A. 1, 4, 5            B. 2, 3, 5            C. 2, 4, 6            D. 1, 3, 5            E. 4, 5, 6

**Question No 47 to 50:** During a four-week period each one of seven previously unadvertised products - G, H, J, K, L, M and O - will be advertised. A different pair of these products will be advertised each week. Exactly one of the products will be a member of two of these four pairs. None of the other products gets repeated in any pair.

Further, the following constraints must be observed:

J is not advertised during a given week unless H is advertised during the immediately preceding week.

The product that is advertised twice is advertised during week 3.

G is not advertised during a given week unless either J or O is also advertised that week.

K is advertised during one of the first two weeks.

O is one of the products advertised during week 3.

47. Which one of the following could be the schedule of the advertisements?
- A. Week 1: G, J; week 2: K, L; week 3: O, M; week 4: H, L
  - B. Week 1: H, K; week 2: J, G; week 3: O, L; week 4: M, K
  - C. Week 1: H, K; week 2: J, M; week 3: O, L; week 4: G, M
  - D. Week 1: H, L; week 2: J, M; week 3: O, G; week 4: K, L
  - E. Week 1: K, M; week 2: H, J; week 3: O, G; week 4: L, M
48. If L is the product that is advertised during two of the weeks, which one of the following is a product that **MUST** be advertised during one of the weeks in which L is advertised?
- A. G
  - B. H
  - C. M
  - D. K
  - E. J
49. Which one of the following is a product that could be advertised in any of the four weeks?
- A. H
  - B. L
  - C. K
  - D. L
  - E. O
50. Which one of the following is a pair of products that could be advertised during the same week?
- A. M and O
  - B. G and M
  - C. H and J
  - D. H and O
  - E. K and O

**Questions No 51 to 55:** In a game, "words" (meaningful or meaningless) consist of any combination of at least five letters of the English alphabets. A "sentence" consists of exactly six words and satisfies the following conditions:

The six words are written from left to right on a single line in alphabetical order.

The sentence can start with any word, and successive word is formed by applying exactly one of three operations to the preceding word: delete one letter; add a letter; replace a one letter with another.

At the most three of the six words can begin with the same letter. Except for the first word the same letter, except for the first word each word is formed by a different operation used for the preceding word.

51. Which one of the following could be a sentence in the word game?
- A. Bzaeak blaek laek paeak paea paeen
  - B. Doteam goleam golean olean omean omman
  - C. Crobek croek roek soek sxoek xoek
  - D. Feted freted reted seted seteg aseteg
  - E. Forod forol forols forpls orpls morpls

52. The last letter of the English alphabet that the first word of a sentence in the word game can begin with is  
 A. t                      B. w                      C. x                      D. y                      E. z
53. If the word in a sentence is "illicit" and the fourth word is "licit", then the third word can be  
 A. Implicit              B. Explicit              C. Enlist              D. Inlist              E. Elicit
54. If "clean" is the first word in a sentence and "learn" is another word in the sentence, then which one of the following is a complete and accurate list of the positions "learn" could occupy?  
 A. Third                      B. Second, third, fourth                      C. Third, fourth, fifth sixth  
 D. Third, fourth              E. Third, forth fifth
55. If the first word in a sentence consists of five letters, then the maximum number of letters that the fifth word ion the sentence could contain is  
 A. Four                      B. Five                      C. Six                      D. Seven                      E. Eight

**Question No 56 to 59:** There are exactly ten stores and no other building on a straight street in Bistupur Market, On the northern side of the street, from West to East, are stores 1, 3, 5, 7 and 9; on the southern side of the street, also from West to east, are stores 2, 4, 6, 8 and 10. The stores on the northern side are located directly across the street from those on the southern side, facing each other in pairs, as follows: 1 and 2; 3 and 4; 5 and 6; 7 and 8; 9 and 10. Each store is decorated with lights in exactly one of the following coloures: green, red, and yellow. The stores have been decorated with lights according to the following conditions:

No store is decorated with lights of the same colour as those of any store adjacent to it.  
 No store is decorated with lights of the same colour as those of the store directly cross the street from it.  
 Yellow lights decorate exactly one store on each side of the street.  
 Red lights decorate store 4.  
 Yellow lights decorate store 5.

56. Which one of the following could be an accurate list of the colours of the lights that decorate stores 2, 4, 6, 8 and 10, respectively?  
 A. green, red, green, red, green  
 B. green, red, green, yellow, red  
 C. green, red, yellow, red, green  
 D. yellow, green, red, green, red  
 E. yellow, red, green, red, yellow
57. If green lights decorate store 7, then each of the following statements could be false  
**EXCEPT:**  
 A. Green lights decorate store 2  
 B. Green lights decorate store 10  
 C. Red lights decorate store 8  
 D. Yellow lights decorate store 2  
 E. Red lights decorate store 9

58. Which one of the following statements **MUST** be true?  
 A. Red lights decorate store 1  
 B. Green lights decorate store 10  
 C. Red lights decorate store 8  
 D. Yellow lights decorate store 8  
 E. Yellow lights decorate store 10
59. Suppose that yellow lights decorate exactly two stores on the south side of the street and exactly one store on the north side. If all other conditions remain the same, then which one of the following statements **Must** be true?  
 A. Green lights decorate store 1  
 B. Red lights decorate store 7  
 C. Red lights decorate store 10  
 D. Yellow lights decorate store 2  
 E. Yellow light decorate store 8

**Go through the situation and the accompanying table, and pick up the best alternatively to answer Question nos. 60 to 62**

**Question No 60-61:** There are five sets of digits - Set A, Set B, Set C, Set D, and Set E as shown in given diagram. Set A contains one digit, Set B contains two digits, Set C contains three digits, set D contains two digits, and Set E contains one digit.

Rearrange the digits, across the sets, such that the number formed out of digits of Set C is multiple of the numbers formed from digits in sets on either side. For example; in the given diagram, SET C is a multiple of digits in SET A and SET B but not of SET D and SET E

SET A	SET B	SET C	SET D	SET E
7	28	196	34	5

60. What is the minimum number of rearrangements required to arrive at the solution? A rearrangement is defined as an exchange of positions between digits across two sets. For example: when 1 from set C is exchanged with 5 of set E, it is counted as one rearrangement.  
 A. 2                      B. 5                      C. 8                      D. 3                      E. 7
61. Which of the following pair of digits would occupy set A and E?  
 A. 2 and 4              B. 2 and 6              C. 3 and 6              D. 3 and 9              E. 4 and 8

**Question No. 62: Magic Box**

5	15	1	16
10	4	8	9
11	6	12	2
4	3	13	7

Cut the square given above into four pieces along the lines and rearrange in such a manner that sum of all rows, columns and diagonals is equal to 34. One of the pieces, comprising 1 and 8, is shown in the diagram given below

1			
8			

How many numbers would be there in the largest piece?

- A. 5                      B. 6                      C. 9                      D. 10                      E. 8

**Read the following situation and choose the best possible alternative.**

**Question No. 63:** The surnames of four professionals are: Bannerji, Chatterji, Mukherji and Pestonji. Their professions are accountant, lawyer, dentist and doctor (not necessarily in this order). The accountant and lawyer work in their offices, while the dentist and doctor work in their nursing homes. The accountant looks after Mukherji's and Chatterji's account. Chatterji, does not know Bannerji, although his nursing home is in the same street as Bannerji's office. Chatterji is not a doctor.

What are the occupations of the four people.

- A. Bannerji- Doctor, Chatterji- Dentist, Mukherji- accountant and Pestonji- Lawyer.
- B. Bannerji- Lawyer, Chatterji- Dentist, Mukherji- accountant and Pestonji- Doctor.
- C. Bannerji- Lawyer, Chatterji- Dentist, Mukherji- Doctor and Pestonji- Accountant.
- D. Bannerji- Doctor, Chatterji- Accountant, Mukherji- Dentist and Pestonji- Lawyer.
- E. Bannerji- Dentist, Chatterji- Lawyer, Mukherji- Doctor and Pestonji- Accountant.

**Questions 64 - 67:**

**Read the following situations and choose the best possible alternative.**

64. Seema was a finance manager in an MNC and felt that gender discrimination at the workplace hampered her career growth. Frustrated, she quit the job and started a company. While starting her company, Seema decided that she would have equal proportion of males and females. Over the last six years, Seema emerged as a very successful entrepreneur and expanded her business to eight locations in the country. However, Seema recently started facing an ethical dilemma because she realized that female employees were not willing to travel across cities and work late hours, as the work required them to do so. Male employees did not hesitate undertaking such work. Seema started to feel the pressure of reducing the proportion of female employees. On the other hand, she is aware that equal representation was one of the strongest reasons for her to

have founded the company. What should she do as a conscientious female entrepreneur?

- A. See if unwilling female employees could be given assignments which do not require travel and involve less overtime.
- B. Reduce the number of female employees, as it is a business requirement. She should not let anything affect her business.
- C. Let the status quo continue.
- D. Henceforth hire only male employees.
- E. She should close the business.

65. You, a recruitment manager, are interviewing Mayank, a hard-working young man, who has problems in speaking fluent English. He has studied in vernacular medium schools and colleges. Amongst the following options, what would you choose to do, if your company has vacancies?
- A. I would hire him at all costs.
  - B. I would hire him for the job he is good at, and provide training in other areas.
  - C. I would hire him for production or finance job but not for marketing job, which requires good communication skills.
  - D. I would ask him to improve his communication skills and come back again.
  - E. I would not hire him as he might be a burden on organisation because of his poor communication skills.
66. The city of Nagar has a population of 10 million, 2 millions amongst whom were rich, 3 million poor and 5 million belonged to the middle class. Saundarya Cosmetics manufactured and sold beauty product to rich class at a premium price. Its products were very popular with customers. Many people from middle and poor segments of population aspired to buy these products but could not afford because of high prices. Of late, sales growth was stagnating in the rich segment. Which of the following is the best option for Saundarya Cosmetics to maximize long-term profits?
- A. Sell the same products at lower prices to middle and poor classes.
  - B. Sell similar products, of different quality standards with different brand names, to middle classes and poor classes.
  - C. Sell its products under different brand names to middle and poor classes.
  - D. Continue to target rich only and hope that today's middle class would be tomorrow's rich class.
  - E. Target middle class as it is the largest segment and forget about the rich.
67. A database software manufacturing company found out that a product it has launched recently had a few bugs. The product has already been bought by more than a million customers. The company realized that bugs could cost its customers significantly. However, if it informs the customers about the bug, it feared losing credibility. What would be the most ethical option for the company?
- A. Apologize and fix up the bug for all customers even if it has to incur losses.
  - B. Do not tell customers about bugs and remove only when customers face problems, even if it means losses for the customers.
  - C. Keep silent and do nothing.
  - D. Keep silent but introduce and improved product that is bug-free at the earliest.
  - E. Take the product off the mark and apologize to customers.

Go through the table that follows and pick up the best alternative to answer question Question no. 68 to 70.

Teams A, B, C and D are participating in a cricket tournament. Team A has to pick up five batsmen out of the ten available. All batsmen have played 100 matches each in the past. Past data indicates that C beats A 8 out of 10 times. B beats A 5 out of 10 times and D beats A 1 out of 10 times. The conditions for series are likely to be normal and bowling strength of all teams is same. Manager of Team A, based on his past experience, feels that team should take high risk against stronger opponents and low risk against weaker opponents for maximizing chances of winning the game.

The average score of the top 10 batsmen of team A is provided in the table given below.

Name of the batsman	Average of batmen based on past performance	Number of times dismissed below 20	Number of times dismissed around average	Number of times scores more than a century
RD	40	20	70	3
ST	44	20	60	10
SG	41	25	50	10
VS	31	50	20	15
RU	28	55	25	12
YS	35	40	40	10
VV	35	35	50	5
MK	30	30	45	5
MT	36	45	30	10
MD	45	30	50	10

The average scores of the top 5 batmen for each team playing in the tournament are: C (270); B (215); D (180) and A (215).

68. Team A would play the third match with B. Based on the statistics above, whom should the manager choose so that A has maximum chances of winning?
- A. RD, RU, MU, VS, YS  
 B. RD, VS, MT, RU, YS  
 C. RD, VV, SG, VS, MD  
 D. ST, RD, MK, MD, SG  
 E. SG, RU, YS, MK, VV
69. Team A is playing its first match with team C. Based on the statistics above, whom should the manager choose so that the team has maximum chances of winning?
- A. RD, ST, SG, MD, YS  
 B. VS, YS, RU, MD, MT  
 C. RD, ST, SG, VS, MD  
 D. YS, RU, VS, MK, MD  
 E. ST, VS, RU, MD, SG
70. Team A would play the second match with D. Based on the statistics above, whom should the manager choose so that A has maximum chances of winning?
- A. RD, ST, MD, VS, YS  
 B. ST, RD, VV, SG, MD  
 C. RD, ST, SG, VS, MD  
 D. SG, RU, YS, MK, MD  
 E. ST, RD, MK, MD, SG

**Read the following caselet and choose the best alternative (Question 71 - 76):**

Mr. Rajiv Singhal, Chairman of the Board of Directors of Loha India Ltd., (a steel manufacturing company) had just been visited by several other directors of the company. The directors were upset with recent actions of the company president, Mr. Ganesh Thakur. They demanded that the board consider firing the president.

Mr. Thakur, recently appointed as president, had undertaken to solve some of the management-employees problems by dealing directly with the individuals, as often as possible. The company did not have a history of strikes or any other form of collective action and was considered to have good work culture. However, Mr. Thakur felt that by dealing directly with individuals, he could portray the management's concern for the employees. An important initiative of Mr. Thakur was to negotiate wages of the supervisors with each supervisor with each supervisor. In these negotiation meetings, he would not involve anyone else, including the personnel Department which reported to him, so as to take unbiased decision. After negotiation, a wage contract would be drawn up for each supervisor. This, he felt, would recognize and reward the better performers. Mr. Thakur successfully implemented the process for most of the supervisors, except those working in night shift with that of supervisors of the day shift.

For several days Ram Lal, a night shift supervisor, had been trying to seek and appointment with Mr. Thakur about his wages. He was disgruntled, not only over his failure to see the president, but also over the lack of discussions about his wage contract prior to its being effected. As a family man with six dependents, he felt his weekly wage should be higher than that granted to him.

Last Thursday afternoon Ram Lal stopped by the president's office and tried to see him. Mr. Thakur's secretary refused his request on the grounds that Mr. Thakur was busy. Infuriated, Ram Lal stormed into the president's office and confronted the startled Mr. Thakur, with stood up and told Ram Lal to get out of his office and express his grievance through official channel. Ram Lal took a swing at the president, who in turn punched Ram Lal on the jaw and knocked him unconscious.

71. The most important causal factor for this entire episode could be:
- Trying to follow a divide-and-rule policy in his dealings with the supervisors.
  - Inconsistent dealings of Mr. Thakur with supervisors.
  - Paternalistic approach towards mature individuals in the organisation.
  - Legalistic approach to employee problems.
  - Inadequate standards for measurement of supervisors' on-job performance.
72. The situation with Mr. Lal could have been avoided if Mr. Thakur had
- Delegated the task of negotiation of wage contracts for night shift employees to Personnel department.
  - Created a process for supervisors working the night shift so that they could have and opportunity to interact with him.
  - Created an open door policy that would have allowed employees to see him without any appointment.
  - Postponed the decision of wage revision for supervisors in the night shift for two months, since supervisors were rotated on different shifts after every two months.

The option that best arranges the above managerial interventions in decreasing order of organisational impact is:

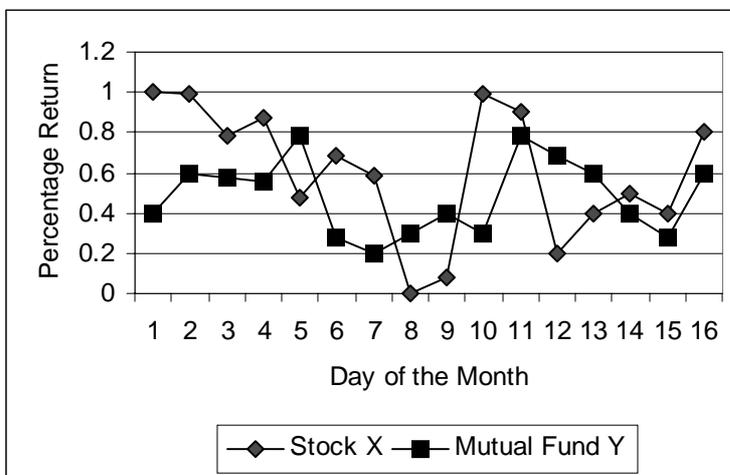
- A. 4, 2, 3, 1      B. 4, 3, 2, 1      C. 4, 3, 1, 2      D. 4, 1, 2, 3      E. 2, 3, 1, 4

73. The most likely premise behind Mr. Thakur's initiative regarding individualised meetings with the supervisors seems to be
- Employee related policies should allow scope for bargaining by employees.
  - Involvement of company's president in wage problems of employees will lead to a better goodwill towards the management among the workers.
  - Individual agreements with supervisors would allow the management to prevent any possible collective action by the supervisors.
  - Management will be able to force supervisors to accept lesser wages individually in this way.
  - He would be able to know who the trouble makers in the plant are by interacting with the supervisors.
74. Out of the following, which one seems to be the most likely cause of Ram Lal's grievance?
- His disappointment with the management's philosophy of having one to one interaction as the supervisors were in a way being forced to accept the wage contracts.
  - His being in the night shift had worked to his disadvantage as he could not interact with the management regarding his problem.
  - He was not allowed to meet chairman of the board of directors of the company.
  - Employment in the night shift forced him to stay away from his family during the day time and therefore he could not interact with his family members much.
  - All of these.
75. Apart from the supervisors working the night shift, executives of which department will have most justified reasons to be disgruntled with MR. Thakur's initiative?
1. Production department - for not being consulted regarding the behaviour of the supervisors on the shop floor.
  2. Finance department - for not taken into confidence regarding the financial consequences of the wage contracts.
  3. Marketing department - for not being consulted on the likely impact of the wage contracts on the image of the company.
  4. Quality control - for not being able to give inputs to Mr. Thakur on how to improve quality of steel making process.
  5. Personnel department - for it was their work to oversee wage policies for employees and they had been ignored by Mr. Thakur.
- A. 1 + 2 + 3      B. 1 + 4 + 5      C. 1 + 2 + 5      D. 1 + 3 + 4      E. 3 + 4 + 5
76. Which of the following managerial attributes does Mr. Thakur seem to lack the most?
- Emotional instability under pressure.
  - Proactive problem solving.
  - Ethical behaviour.
  - Emotional stability under pressure.
  - Independent decision making.

## SECTION C: DATA INTERPRETATION AND QUATITATIVE ABILITY

Note: All units of measurement are in centimetres, unless otherwise specified.

77. Four digits of the number 29138576 are omitted so that the result is as large as possible. The largest omitted digit is  
 A. 9                      B. 8                      C. 7                      D. 6                      E. 5
78. Interpret relationship between the returns of Stock X and Mutual Fund Y based on the following graph, where percentage return of Stock X and Mutual Fund Y are given for sixteen days of a month.



- A. Returns of stock X are directly proportional to mutual fund Y.  
 B. Average returns from stock X and mutual fund Y are the same.  
 C. Stock X is less volatile than mutual fund Y.  
 D. Stock X is more volatile than mutual fund Y.  
 E. Stock X is inversely proportional to mutual fund Y.

**Question 79 - 80:** In second year, students at a business school can opt for Systems, Operations, or HR electives only. The number of girls opting for Operations and the number of boys opting for Systems electives is 37. Twenty-two students opt for operations electives. Twenty girls opt for Systems and Operations electives. The number of students opting for Systems electives and the number of boys opting for Operations electives is 37. Twenty-five students opt for HR electives.

79. The number of students in the second year is \_\_\_?  
 A. 73                      B. 74                      C. 76                      D. 53                      E. 54
80. If 20% of the girls opt for HR electives, then the total number of boys in the second year is \_\_\_?  
 A. 50                      B. 52                      C. 51                      D. 53                      E. 54

81. ABCD is a rectangle with AD = 10. P is a point on BC such that  $\angle APD = 90^\circ$ . If DP = 8 then the length of BP is \_\_\_\_?  
 A. 6.4                      B. 5.2                      C. 4.8                      D. 3.6                      E. None of the above
82. Rajiv is a student in a business school. After every test he calculates his cumulative average. QT and OB were his last two tests. 83 marks in QT increased his average by 2. 75 marks in OB further increased his average by 1. Reasoning is the next test, if he gets 51 in Reasoning, his average will be \_\_\_\_?  
 A. 59                      B. 60                      C. 61                      D. 62                      E. 63
83. ABCD is a quadrilateral. The diagonals of ABCD intersect at the point P. The area of the triangles APD and BPC are 27 and 12, respectively. If the areas of the triangles APB and CPD are equal then the area of triangle APB is  
 A. 12                      B. 15                      C. 16                      D. 21                      E. 18
84. If  $F(x, n)$  be the number of ways of distributing "x" toys to "n" children so that each child receives at the most 2 toys then  $F(4, 3) =$  \_\_\_\_?  
 A. 2                      B. 6                      C. 3                      D. 4                      E. 5
85. In a cricket match, Team A scored 232 runs runs without losing a wicket. The score consisted of byes, wides and runs scored by two opening batsmen: Ram and Shyam. The runs scored by the two batsmen are 26 times wides. There are 8 more byes than wides. If the ratio of the runs scored by Ram and Shyam is 6 : 7, then the runs scored by Ram is  
 A. 88                      B. 96                      C. 102                      D. 112                      E. None of the above.

**For question 86 and 87, a statement is followed by three conclusions. Select the answer from the following options.**

- A. Using the given statement, only conclusion I can be derived.
- B. Using the given statement, only conclusion II can be derived.
- C. Using the given statement, only conclusion III can be derived.
- D. Using the given statement, all conclusion I, II and III can be derived.
- E. Using the given statement, none of the three conclusion I, II and III can be derived.

86. An operation "#" is defined by

$$a \# b = 1 - \frac{b}{a}$$

Conclusion I.  $(2 \# 1) \# (4 \# 3) = -1$

Conclusion II.  $(3 \# 1) \# (4 \# 2) = -2$

Conclusion I.  $(2 \# 3) \# (1 \# 3) = 0$

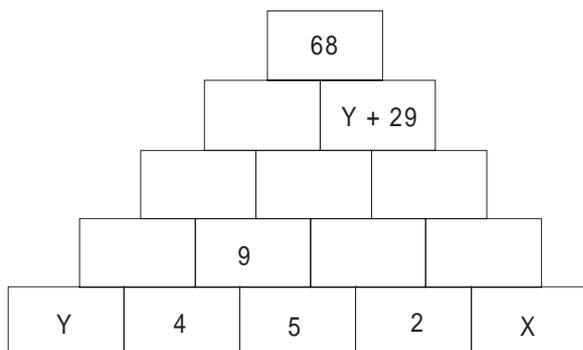
87. A, B, C and D are whole numbers such that  
 $A + B + C = 118$   
 $B + C + D = 156$   
 $C + D + A = 166$   
 $D + A + B = 178$

Conclusion I. A is the smallest number and  $A = 21$ .  
 Conclusion II. D is the smallest number and  $D = 88$ .  
 Conclusion III. B is the smallest number and  $B = 56$ .

88. Let  $X = \{a, b, c\}$  and  $Y = \{1, m\}$ .  
 Consider the following four subsets of  $X \times Y$ .  
 $F_1 = \{(a, 1), (a, m), (b, 1), (c, m)\}$   
 $F_2 = \{(a, 1), (b, 1), (c, 1)\}$   
 $F_3 = \{(a, 1), (b, m), (c, m)\}$   
 $F_4 = \{(a, 1), (b, m)\}$

Which one, amongst the choices given below, is a representation of functions from  $X$  to  $Y$ ?  
 A.  $F_2$  and  $F_3$       B.  $F_1, F_2$  and  $F_3$       C.  $F_2, F_3$  and  $F_4$       D.  $F_3$  and  $F_4$       E. None of the above

89. In the figure, number in any cell is obtained by adding two numbers in the cells directly below it.  
 For example, 9 in the second row is obtained by adding the two number 4 and 5 directly below it.  
 The value of  $X - Y$  is



- A. 2                      B. 4                      C. 3                      D. 5                      E. 6
90. For each  $p > 1$ , a sequence  $\{A_n\}$  is defined by  $A_0 = 1$  and  $A_n = pn + (-1)^n A_{n-1} - 1$  for each  $n \geq 1$ . For how many integer values of  $p$ , 1000 is a term of the sequence?  
 A. 8                      B. 7                      C. 5                      D. 4                      E. None of the above.
91. If  $0 < p < 1$  then roots of the equation  $(1 - p)x^2 + 4x + p = 0$  are \_\_\_\_?  
 A. Both 0  
 B. Real and both negative  
 C. Imaginary  
 D. Real and both positive  
 E. Real and of opposite sign.

92. If  $x > 0$ , the minimum value of  $\frac{\left(x + \frac{1}{x}\right)^6 - \left(x^6 + \frac{1}{x^6}\right) - 2}{\left(x + \frac{1}{x}\right)^3 + \left(x^3 + \frac{1}{x^3}\right)}$  is \_\_\_\_?
- A. 1                      B. 2                      C. 3                      D. 6                      E. None of the above.
93. The number of possible real solution (s) of  $y^2 - 2y \cos x + 1 = 0$  is \_\_\_\_?
- A. 0                      B. 1                      C. 2                      D. 3                      E. None of the above.
94. In a triangle ABC,  $AB = 3$ ,  $BC = 4$  and  $CA = 5$ . Point D is the midpoint of AB point E is on segment AC and point F is on segment BC. If  $AE = 1.5$  and  $BF = 0.5$  then  $\angle DEF =$
- A.  $30^\circ$                       B.  $60^\circ$                       C.  $45^\circ$                       D.  $75^\circ$                       E. Cannot be determined
95. If  $3f(x+2) + 4f\left(\frac{1}{x+2}\right) = 4x, x \neq -2$ , then  $f(4) =$
- A. 7                      B.  $\frac{52}{7}$                       C. 8                      D.  $\frac{56}{7}$                       E. None of the above.
96. A train left station X at A hour B minutes. It reached station Y at B hour C minutes on the same day, after travelling for C hour A minutes (clock shows time from 0 hours to 24 hours). Number of possible value (s) of A is \_\_\_\_.
- A. 3                      B. 2                      C. 1                      D. 0                      E. None of the above.
97. If  $[x]$  denotes the greatest integer  $\leq x$ , then  $\left[\frac{1}{3}\right] + \left[\frac{1}{3} + \frac{1}{99}\right] + \left[\frac{1}{3} + \frac{2}{99}\right] + \dots + \left[\frac{1}{3} + \frac{98}{99}\right] =$
- A. 98                      B. 33                      C. 67                      D. 66  
E. 34
98. ABCD is a square. P is the midpoint of AB. The line passing through A and Perpendicular to DP intersects the diagonal at Q and BC at R. If  $AB = 2$  then  $PR =$  \_\_\_\_?
- A.  $\frac{1}{2}$                       B.  $\sqrt{2}$                       C. 1                      D.  $\frac{\sqrt{3}}{2}$                       E. None of the above.
99. Two circles of radius 1 cm. touch at point P. A third circle is drawn through the points A, B, and C such that PA is the diameter of the first circle, and BC - perpendicular to AP - is the diameter of the second circle. The radius of the third circle is \_\_\_\_ cms.
- A.  $\frac{9}{5}$                       B.  $\frac{7}{4}$                       C.  $\frac{5}{3}$                       D.  $\frac{\sqrt{10}}{2}$                       E. 2

100. Consider a sequence  $-6, -12, 18, 24, -30, -36, 42, \dots$ . If sum of the first  $n$  terms of the sequence is 132, then the value of  $n$  is \_\_\_\_?
- A. 11                      B. 22                      C. 13                      D. 18                      E. 24

**Question No. 101 - 102 are followed by two statements labelled as I and II. You have to decide if these statements are sufficient to conclusively answer the question. Choose the appropriate answer from options given below:**

- A . If Statement I alone is sufficient to answer the question.  
B. If Statement II alone is sufficient to answer the question.  
C. If Statement I and Statement II together are sufficient but neither of the two alone is sufficient to answer the question.  
D. If either Statement I or Statement II alone is sufficient to answer the question.  
E. Both Statement I and Statement II and insufficient to answer the question.
101. The base of a triangle is 60 cms, and one of the base angles is  $60^\circ$ . What is length of the shortest side of the triangle?
- I. The sum of lengths of other two sides is 80 cms.  
II. The other base angle is  $45^\circ$ .
102. A, B, C, D, E and F are six integers such that  $E < F, B > A, A < D < B$ . C is the greatest integer. Is A the smallest integer?
- I.  $E + B < A + D$   
II.  $D < F$
103. The coordinates of P and Q are  $(0, 4)$  and  $(a, 6)$ , respectively. R is the midpoint of PQ. The perpendicular bisector of PQ cuts X- axis at point S  $(b, 0)$ . For how many integer value (s) of "a", b is and integer?
- A. 3                      B. 2                      C. 4                      D. 1                      E. 0

Answer the question no. 104 to 108 on the basis of the data given below.

Area/ Month		January	February	March
<b>Sale in Bistupur</b>				
	Television	900	1050	1200
	Ipods	15750	16800	17850
<b>Sales in Sakchi</b>				
	Television	1800	2100	2400
	Ipods	9450	10080	10710
<b>Sale in Kadma</b>				
	Television	6300	7350	8400
	Ipods	6300	6720	7140
Units ordered = Units Sold + Ending Inventory – Beginning Inventory All sales figures are in Rupees thousand. All other things are constant. All Rupees figures are in thousands.				

104. In the period from January to March, Jamshedpur Electronics sold 3150 unit of television, having started with a beginning inventory of 2520 units and ending with an inventory of 2880. What was value of order placed (Rupees in thousands) by Jamshedpur Electronics during the three months period? [Profits are 25% of cost price, uniformly].  
A. 28080      B. 2808      C. 26325      D. 22320      E. 25200
105. What was the total value of surcharge paid – at the rate of 14% of sales value – by Jamshedpur Electronics, over the period of three months?  
A. Cannot be calculated      B. 18548      C. 18425  
D. 18522      E. 18485
106. 10% of sales price of Ipods and 20% of sales price of television contribute to the profits of Jamshedpur Electronics. How much profit did the company earn in the month of January from Bistupur and Kadma from the two products?  
A. 513      B. 4410      C. 3645      D. 5230      E. 5350
107. In the period from January to March, consider that Jamshedpur Electronics ordered 7560 units of Ipods for all three areas put together. What was unit sales price of Ipod during the period? The ending inventory was 6120 units and the beginning inventory stood at 5760.  
A. 14.65      B. 14.80      C. 13.00      D. 13.60      E. 14.00
108. For Jamshedpur Electronics beginning inventory was 720 for television and 1800 for Ipod and ending inventory was 840 for television and 1920 for Ipod in the month of January. How many units of televisions and Ipods did Jamshedpur Electronics order for the month of January?  
Additional data: In the month of February, 1050 units of television and 2400 units of Ipods were sold in all three areas put together.  
A. 1020, 2270      B. 1020, 2370      C. 2270, 1030      D. 1030, 2370      E. 1020, 2280

**Question 109 - 111:** A, B, C, D, E and F are six positive integers such that

$$B + C + D + E = 4A$$

$$C + F = 3A$$

$$C + D + E = 2F$$

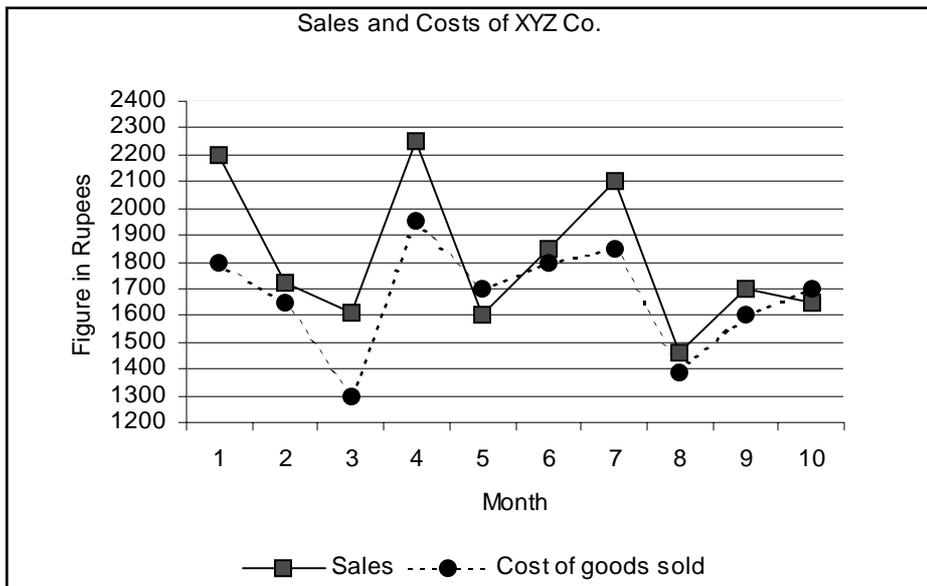
$$F = 2D$$

$$E + F = 2C + 1$$

If A is a prime number between 12 and 20, then

109. The value of C is  
 A. 13                      B. 17                      C. 23                      D. 19                      E. 21
110. The value of F is  
 A. 14                      B. 16                      C. 20                      D. 24                      E. 28
111. Which of the following must be true?  
 A. B is the lowest integer and  $B = 12$   
 B. D is the lowest integer and  $D = 14$   
 C. C is the greatest integer and  $C = 23$   
 D. F is the greatest integer and  $F = 24$   
 E. A is the lowest integer and  $A = 13$

**Answer question no. 112 to 114 on the basis of the graph given below.**



112. In which month did the company earn maximum profits?  
 A. 1                      B. 4                      C. 3                      D. 2                      E. 5
113. In which month did the company witness maximum sales growth?  
 A. 9                      B. 4                      C. 6                      D. 7                      E. 1

114. What were average sale and costs figures for XYZ Co. over the period of ten months?  
 A. 1819, 1651    B. 1919, 1751    C. 1969, 1762    D. 1719, 1601    E. 1619, 1661

**In the question 115 - 116, one statement is followed by three conclusions. Select the appropriate answer from the options given below.**

- A. Using the given statement, only conclusion I can be derived.  
 B. Using the given statement, only conclusion II can be derived.  
 C. Using the given statement, only conclusion III can be derived.  
 D. Using the given statement, conclusion I, II and III can be derived.  
 E. Using the given statement, none of the three conclusion I, II and III can be derived.
115.  $A_0, A_1, A_2, \dots$  is a sequence of numbers with  $A_0 = 1$ ,  $A_1 = 3$ , and  $A_t = (t+1)A_{t-1} - tA_{t-2} = 2, 3, 4, \dots$   
 Conclusion I.  $A_8 = 77$   
 Conclusion II.  $A_{10} = 121$   
 Conclusion III.  $A_{12} = 145$
116. A, B, C be real numbers satisfying  $A < B < C$ ,  $A + B + C = 6$  and  $AB + BC + CA = 9$   
 Conclusion I.  $1 < B < 3$   
 Conclusion II.  $2 < A < 3$   
 Conclusion III.  $0 < C < 1$

**Answer question no. 117 through 120 on the basis of the data given below.**

Gender Bias is defined as disproportion in percentage of drop - out rate of the two genders.

Drop Out Rates, in percentage, at Primary, Elementary and Secondary Classes in India									
	Primary (I, V)			Elementary (I- VIII)			Secondary (I-X)		
Year	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1996-97	39.7	40.9	40.2	54.3	59.5	56.5	67.3	73.7	70.0
1997-98	37.5	41.5	39.2	53.8	59.3	56.1	66.6	73	69.3
1998-99	40.9	41.3	41.5	54.2	59.2	56.3	64.5	69.8	66.7
1999-00	38.7	42.3	40.3	52.0	58.0	54.5	66.6	70.6	68.3
2000-01	39.7	41.9	40.7	50.3	57.7	53.7	66.4	71.5	68.6
2001-02	38.4	39.9	39.0	52.9	56.9	54.6	64.2	68.6	66
2002-03	35.8	33.7	34.8	52.3	53.5	52.8	60.7	65.0	62.6
2003-04	33.7	28.6	31.5	51.9	52.9	52.3	61.0	64.9	62.7
2004-05	31.8	25.4	29.0	50.4	51.2	50.8	60.4	63.8	61.9

117. Based on the data above, choose the true statement from the following alternatives:  
 A. Gender bias in primary education has consistently decreased over the years.  
 B. Gender bias decreases as students move from primary to secondary classes.  
 C. Total dropout rate decreased consistently for primary classes children from 1996-97 to 2004-05.  
 D. Gender bias was consistently highest for secondary classes.  
 E. None of the above.

118. Assume that girls constituted 55% of the students entering school. In which year, as compared to the previous year, number of boys in secondary education would be more than the number of girls?
- A. 1997-98      B. 1996-97      C. 2000-01      D. 1998-99      E. 2001-02
119. Suppose, every year 7,000 students entered Class I, out of which 45% were boys. What was the average number (integer value) of girls, who remained in educational system after elementary classes, from 1996-97 to 2004-05?
- A. 1475      B. 1573      C. 1673      D. 1743      E. 3853
120. Suppose the total number of students in 1996-97 were 1,000 and the number of students increased every year by 1000, up to 2004-05. The total number of drop outs from primary classes, from 1996-97 to 2004-05, were approximately)\_\_\_\_?
- A. 18500      B. 19500      C. 24500      D. 16000      E. 11500

# XAT 2008 Answers

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1	b	16	e	31	c	46	d	61	a	76	e	91	b	106	c
2	d	17	e	32	e	47	b	62		77	e	92	b	107	e
3	b	18	b	33	c	48	c	63	c	78	d	93	c	108	b
4	b	19	b	34	e	49	b	64	a	79		94	c	109	c
5	d	20	b	35	d	50	a	65	e	80		95	e	110	e
6	c	21	e	36	a	51	c	66	c	81	d	96	c	111	a
7	a	22	b	37	d	52	d	67	a	82	e	97	b	112	a
8	c	23	b	38	d	53	e	68		83	e	98	b	113	b
9	c	24	e	39	a	54	c	69		84	b	99	c	114	e
10	e	25	c	40	e	55	d	70		85	b	100		115	e
11	d	26	e	41	e	56	b	71	b	86	e	101	d	116	a
12	d	27	c	42	d	57	e	72	e	87	e	102	a		
13	e	28	c	43	e	58	a	73	b	88	a	103	c		
14	d	29	b	44	c	59	d	74	b	89	b	104	e		
15	d	30	a	45	d	60	d	75	c	90	c	105	d		

1. b THE PASSAGE HIGHLIGHTS THE IMPORTANCE OF MOODS AND EMOTIONS IN MARKETING - The entire passage focuses on the different aspects of moods and emotions and how they influence consumer behaviour.
2. d CONSUMPTION OF MATERIAL ITEMS FOR IMPRESSING OTHERS-  
Refer to the fourth paragraph where it is stated that "Consumers as socially involved individuals.....by the prevailing social climate".
3. b WHEN MOODS ARE SYNCHRONOUS WITH THOUGHTS AND ACTIONS - Refer to sixth line, second paragraph of the passage.
4. b FIRST IS IMPLICATION, SECOND IS PROPOSITION - The first statement can be derived from the passage and the second statement is given in the last sentence of the passage.
5. d 1,2,4 - Only option 3 is incorrect as it is contradicted in the first paragraph of the passage.
6. c SOMETIMES RIGHT - Refer to the lines starting with "When consumers are in a good mood....." in para 2 and the line starting with "An elated mood .....business....." in para 4. Here it is clear that moods when they are positive provide energy otherwise not.
7. a 4213 SOURCE GIVEN BELOW  
All propositions are of equal value.
- 6.41 The sense [Sinn] of the world must lie outside the world. In the world everything is as it is, and everything happens as it does happen: **in** it no value exists—and if it did exist it would have no value. If there is any value that does have value, it must lie outside the whole sphere of what happens and is the case. For all that happens and is the case is accidental. What makes it non-accidental cannot lie **within** the world, since if it did it would itself be accidental. It must lie outside the world.
  - 6.42 So too it is impossible for there to be any propositions of ethics.  
Propositions can express nothing that is higher.
  - 6.421 It is clear that ethics cannot be put into words. Ethics is transcendental.  
(Ethics and aesthetics are one.)  
<http://shell.cas.usf.edu/~alevine/tp/100s.htm>
8. c 2143 SOURCE GIVEN BELOW  
6.432 **How** things are in the world is a matter of complete indifference for what is higher. God does not reveal himself **in** the world.  
6.4321 The facts all contribute only to setting the problem, not to its solution.
- 6.44 It is not **how** things are in the world that is mystical, but that it exists.
  - 6.45 To view the world sub specie aeterni is to view it as a whole—a limited whole.  
Feeling the world as a limited whole—it is this that is mystical.
  - 6.5 When the answer cannot be put into words, neither can the question be put into words.  
**The riddle** does not exist.  
<http://shell.cas.usf.edu/~alevine/tp/100s.htm>
9. c 2341 SOURCE GIVEN BELOW  
The structures of propositions stand in internal relations to one another.
- 5.21 In order to give prominence to these internal relations we can adopt the following mode of expression: we can represent a proposition as the result of an operation that produces it out of other propositions (which are the bases of the operation).
- 5.22 An operation is the expression of a relation between the structures of its result and of its bases.
- 5.23 The operation is what has to be done to the one proposition in order to make the other out of it.
- 5.231 And that will, of course, depend on their formal properties, on the internal similarity of their forms.  
[http://en.wikipedia.org/wiki/User\\_talk:DrL\\_ontology](http://en.wikipedia.org/wiki/User_talk:DrL_ontology)
10. e An epigram is a concise, clever, often paradoxical statement. An epigraph is an inscription, as on a statue / building or a motto / quotation. An epitaph is an inscription on a tombstone.  
So, it is likely that a clever statement becomes a quotation / an inscription but unlikely that people engrave it on tombstones.
11. d "prostate" is a gland in men whereas "prostrate" means to lay flat. There is only one option with the word "prostate"
12. d "ordinance" is a rule/decreed whereas "ordnance" is another term for weapons.
13. e 'Sinus' is one of the hollow cavities in the skull connecting with the nasal cavities whereas 'Sinusitis' is the condition of inflammation of the sinus. 'Mucous' is an adjective used for tissues/membranes (that secretes mucus) 'mucus' is the viscous, slimy mixture secreted by the nasal gland.
14. d "I never speak the truth" is a logically contradictory statement because -  
case (a) if it is true then it means that the person never speaks the truth so he should be lying, but we started with the premise that he is speaking the truth this time.  
  
case (b) if it is false then it means that the person always speaks the truth but we have established the statement as being false already.

15. d A SCHOLARLY TREATISE - It is evident by seeing the pattern of the passage.
16. e THE TRASCENDENT IS THE CORE OF THE INDIVIDUATION PROCESS - Refer to the first sentence of the first paragraph of the passage.
17. e NONE OF THE ABOVE - None of the answer options are similar to the distinction between the two images of the transcendent function.
18. b ANOMALY - Refer to the second last sentence of the passage.
19. b MANAGING BIG ORGANISATION IS MORE CHALLENGING THAN SMALL - It rejects the argument of the author that CEOs of big organisations should not be paid more salary as compared to the small ones.
20. b CEOs OF BIG ORGANISATIONS ARE VERY DIFFICULT TO HIRE- The speaker referred to here is not the author but the person who is refuting the argument.
21. e PEOPLE WHO ARE MULTILINGUAL USUALLY PAY MAXIMUM TAXES - Refer to the paragraph given where it is stated " the government has better ways to spend taxpayers money". Hence this argument is contradicted only by option E.
22. b THE POINT ABOVE EXTENDS THE SPEAKER'S ARGUMENT- The initial argument is discussing the relation between India and hindi and then later it shifts to the relation between UN and India and therefore the final conclusion focusses on the inter relationship between UN and Hindi as an official language. Hence the point above extends the speaker's point of view,
23. b EMOTIVE - REFERRING TO THE SAFETY OF CHILDREN TO GET PEOPLE INTERESTED - All the other options are out of context keeping in mind the premise of the given paragraph.
24. e IT CONTRADICTS THE SPEAKER'S ARGUMENT USING STATISTICAL DATA -The paragraph given provides statistical data which proves that not too many children pass by that intersection.
25. c DIFFERNT WAYS OF LOOKING AT HISTORY CAN PRODUCE ALTOGETHER DIFFERENT KNOWLEDGE - As the opening line of the paragraph suggests that history can produce decisive transformation with respect to the image of science.
26. e HISTORY OF SCIENCE CAN PRESENT MULTIPLE INTERPRETATIONS TO PEOPLE REGARDING THE PROCESS OF SCIENTIFIC DEVELOPMENTS - Going by the elimination approach , the only choice we are left with is E.
27. c CORE COMPETENCE CAN BE USED FOR FURTHERING COMPANY'S INTEREST - Rest all answer options are very direct and as the paragraph suggests with the help of core competence of production and marketing of tea, the company has been able to increase the profits in past.
28. c REVIEWING AN ARTICLE OR A BOOK ON BLUE OCEAN STRATEGY- As the language of the argument clearly indicates, it is a review of an article.
29. b VIEWED INDIA AS IF IT WAS A SINGLE AND UNITARY ENTITY DEVOID OF DIVERSITY - refer to the first para which says in part , this trend.....reified India into a monolithic entity . The word 'monolithic' points towards being devoid of diversity.
30. a TO MAKE REAL OUT OF ABSTRACT - the dictionary gives this meaning. Also, the passage says 'scholars' work reified India into a monolithic entity. 'Real' implies concrete here.
31. c JUDGING AND EVALUATING - the last few lines of the third para state that 'ethic-ization' means qualifying acts as good/bad.
32. e ALL OF THE FOUR ARE TRUE. - all four sentences can be found in the passage.
33. c ANY ACTION- the third para clearly states that the base meaning of the term 'karma' is 'action'.
34. e MODERN SCHOLARS HAVE STUDIED HINDUISM AS A SYNCRETIC WHOLE - para one says that modern scholarship has tended to explore these elements in isolation.
35. d THE INFORMATION OF THE PAST ACTIONS AND THE RIGHTEOUSNESS OF EACH ACTION WOULD BE EMBODIED IN THE INDIVIDUAL - to make the concept of 'karma' equally valid across different space-time combinations , it is mandatory that in the next life one is aware of the previous life's actions.
36. a EXPERIMENTAL DATA MIGHT SUPPORT MULTIPLE.....- It is the main idea of the passage which is continued throughout the passage.
37. d ONE WHICH REFUTES OTHER EXPLANATIONS CONVINCINGLY - This is given in the first paragraph of the passage. Refer to the lines "A claim can only be said to be .....false."
38. d ILLUSTRATIVE - The author uses the example of Snell's law to highlight the main idea of the passage.

**For question 39 to 42:** According to the information given in the question, following table for the given informations can be drawn.

	Monday		Tuesday		Wednesday		Friday		Saturday	
	M	A	M	A	M	A	M	A	M	A
Conduct-Quiz	√				√		√		X	X
Evaluate Quiz		√	√					√		√
Lecture				√		√			X	X
Work on Consultancy Project									√	

Subscriptions M and A stand for morning and afternoon. Now, referring the above table, answers for the given questions are as follows.

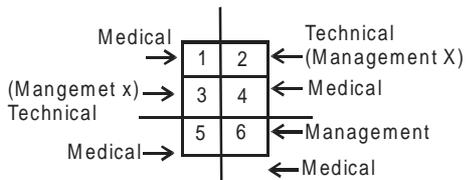
39. a Refer the conduct quiz and lecture column.

40. e

41. e

42. d She must lecture on Tuesday otherwise the condition that "she lectures in the afternoon on exactly two consecutive calendar days" will not be satisfied.

**For question 43 to 46:** For the given question, we can draw the following diagram and conclusions.



(i) State 3 contains technical Institute and state 6 contains a management Institute. State 6 cannot contain a technical institute and also state 1, 4 and 5 cannot contain a technical institute as they share the common boundary. Therefore state 2 contains a technical institute.

(ii) State 6 will contain at least one medical institute. Since only four medical institutes are given and none of the states can contain more than one institute, therefore available sates for medical institutes are 1, 4, 5, 6.

43. e

44. c

45. d

46. d

**For question 47 to 50:** From the given mother data we have

H ← J

G G

J or O

K = Week 1 or 2

Week 3 = O

Week 4 = product that is advertised twice.

47. b J should come after H so, (a) and (e) are eliminated. G cannot be with M, so (c) is also eliminated. (d) cannot be the correct choice as K is not present in the first 2 weeks. So option (b) is the correct choice.

48. c The two possible cases can be

Week 1 = H,K

Week 2 = L,J

Week 3 = O,G

Week 4 = L,M

Or

Week 1 = H,L

Week 2 = K,J

Week 3 = O,G

Week 4 = L,M

So, option (c) is correct

49. b One more case can be

Week 1 = H,K

Week 2 = G,J

Week 3 = O,L

Week 4 = K,M

So. L can occupy any place.

50. a G and H as well as H and J can never be together, so (b) and (c) are eliminated.

K and O cannot be together other wise K cannot be in the first two weeks.

H and O cannot be other wise J would have to come before H.

Hence M and O can be together.

51. c Option (d) and (e) are out as all the words are not in alphabetical order  
(a) is also out as paea has just 4 letters.  
(b) Is out because in order to get the second word 2 operations have been performed at the same time.  
Hence option (c)
52. d Such a letter will be Y as three words can start with Y and the next three can start with Z.  
So, option (d)
53. e Considering only one operation to have happened the third word can be Elicit.
54. c Clean Clean learn  
Clean Cleabn Clean learn  
Clean Cleabn Cleadn Clean learn  
Clean Cleabn Cleadn Cleafn Clean learn  
So, option (c)
55. d With the left of conditions for formation of words. Maximum two times we can add one more letter, Each time. Hence starting with 5 letter word, we can maximum make a seven letter word.  
Hence option (d) is correct.

**For question 56 to 59:**

56. b For question 56, we can have the following arrangements

R	G	R	G	Y
1	3	5	7	9
G	R	G	Y	R
2	4	6	8	10

We can easily see that for stores 2, 4, 6, 8 and 10, lights used to decorate are green, red, green, yellow and red respectively.

Hence, option (b) is the correct choice

57. e

R	G	Y	G	R
1	3	5	7	9
Y	R	G	R	G
2	4	6	8	10

58. a See the arrangements for questions 56 and 57.

59. d

R	G	Y	R	G
1	3	5	7	9
Y	R	G	Y	R
2	4	6	8	10

**For questions 60 and 61:**

Since the number in Set C has to be a multiple of the two numbers on the left as well on the right hand side of it, so we are looking for a three digit number of the form  
 $ABC = DE \times F = GH \times I$

Now let's consider the last digits ,viz. 'C', 'E', 'F', 'H' and 'I'  
All these 5 digits are different. Now if 'C' is odd, none of the other digits can be even. This means all 5 are odd, so one of the digits should be 5. Now if 5 gets multiplied by any odd number , another 5 gets produced, which is not allowed. This means 'C' cant be odd. Now if 'C' is even, atleast two more digits are even  $\Rightarrow$  atleast 3 evens are there. We have {2, 4, 6, 8} as the set of evens to choose from. Now if 6 is there it cant be anyone amongst 'E', 'F', 'H', 'I'.

So lets assume '6' is not there.

So 'C' could be any one amongst '2', '4', '8'.

Case 1 : C = 2 , with 4 we have a 3 to get a 2 and with 8 , we have 9 to get 2.

The set which is left is {1,5,6,7}

(a)  $AB2 = D3 \times 4 = G9 \times 8$

(b)  $AB2 = D3 \times 4 = G8 \times 9$

(c)  $AB2 = D4 \times 3 = G9 \times 8$

(d)  $AB2 = D4 \times 3 = G8 \times 9$

we can have the following values of  $D3 \times 4$

{52, 212, 252, 292}..All of them are invalid.

we can have the following values of  $D4 \times 3$

{42, 162, 192, 222}..All of them are invalid.

Case 2 : C = 4 , with 2 we have a 7 to get a 4 and with 8 , we have 3 to get 4

The set which is left is { 1,5,6,9 }

(a)  $AB4 = D2 \times 7 = G8 \times 3$

(b)  $AB4 = D2 \times 7 = G3 \times 8$

(c)  $AB4 = D7 \times 2 = G8 \times 3$

(d)  $AB4 = D7 \times 2 = G3 \times 8$

we can have the following values of  $D2 \times 7$

{84 , 364 ,434, 644 }..All of them are invalid.

we can have the following values of  $D7 \times 2$

{34, 114 ,134, 194 }..All of them are invalid.

Case 3 : C = 8 , with 2 we have a 9 to get a 8 and with 4, we have 7 to get 8

The set which is left is { 1,3,5,6 }

(a)  $AB8 = D2 \times 9 = G4 \times 7$

(b)  $AB8 = D2 \times 9 = G7 \times 4$

(c)  $AB8 = D9 \times 2 = G7 \times 4$

(d)  $AB8 = D9 \times 2 = G4 \times 7$

we can have the following values of  $D2 \times 9$

{108, 288,468, 558}..All of them are invalid.

we can have the following values of  $D9 \times 2$

{38, 78, 118, 138}..All of them are invalid.

Case 4 : C = 6, with 2 we have 3 and 8, with 4 we have 9, with 8 we have 2 and 7

4 Permutations of a)  $AB6 = D2 \times 3 = G8 \times 7$  {1, 4, 5, 9}

4 Permutations of b)  $AB6 = D2 \times 3 = G4 \times 9$  {1, 5, 7, 8}

4 Permutations of c)  $AB6 = D2 \times 8 = G4 \times 9$  {1, 3, 5, 7}

4 Permutations of d)  $AB6 = D8 \times 7 = G4 \times 9$  {1, 2, 3, 5}

for a) we have the following values of  $D2 \times 3$  {36,126,156,276}

and the following values of  $D3 \times 2$  {26, 86, 106, 186}

All are invalid

For b) we have the following values of  $D2 \times 3$  {36, 156, 216, 246} and the following values of  $D3 \times 2$  {26, 106, 146, 166}

All are invalid For c) we have the following values of  $D2 \times 8$  {96, 256, 416, 576}

and the following values of  $D8 \times 2$  {36, 76, 116, 156}

All are invalid except 156

$D = 7$  and  $G = 3$

$78 \times 2 = 39 \times 4 = 156$

60. d Minimum re-arrangement required is 3

61. a The pair of digits occupying A and E is 2 and 4.

62. Incorrect Question

63. c Option (a) and (b) cannot be the right choice as Mukharji cannot be the accountant as it is given that the accountant looks after Mukharji's and Chaterji's account all option d and e are not possible as Chaterji cannot be accountant or lawyer (Read the last statement of the question). Hence, (c) is the correct answer

64. a Since Seema is a conscientious female entrepreneur, she should realize that one of the basic premises behind her forming her company was to provide equal opportunity to female employees. Hence she cannot step back from that aim. At the same time she has to run her business profitably. Hence she should look at placing female employees in jobs where they can perform productively without the company's interests being compromised. For jobs requiring overtime and travel she could then look at perhaps hiring more male employees.

65. e As a recruitment manager one should focus Mayank's strengths and not necessarily his weaknesses. If Mayank has strengths in an area where there is a vacancy then he should be hired for that position. His lack of communication skills is a drawback which can be rectified through proper training on the job so long as it is not directly affecting his productivity too much. Hence the recruitment manager should give more priority to his qualities and not be governed by his drawbacks which may not be strictly relevant for the position he can join in.

66. c Since Saundarya Cosmetics has to maximize long-term profits, it has to look at moving beyond the 'rich' segment it has serviced so long. It has to look at catering to the middle class and poor segments which aspire to its products. Also sales in the rich segment are stagnating. Therefore the company should target products of different quality (and hence by implication price) to these other segments. Option A is ruled out because by selling-high quality products at low prices the company will lose money in the long run. B also implies selling the same products previously targeted

at the rich (under different brand names) to the poor and middle classes. This would also potentially lead to losses through higher cost of productions and the need to maintain lower prices. Continuing to target only the rich would not maximize long-term profits as sales in this segment is clearly stagnating.. Targeting only the middle-class would also be putting all eggs in one basket and hence not desirable.

67. a The company has sold its software to more than a million of customers. The bug poses a significant threat to these customers. Hence if the problem is left unattended the company will face even greater loss of credibility and bad word-of-mouth if it keeps quiet and the customers discover the bug. Hence in order to keep its reputation with its customers and show its commitment to them the company should own up and fix the bug for all software copies sold even if it involves expenses for it. B,C and D talk about keeping silent about the problem and hence can be ruled out. E is also not correct. Taking off a product that has sold more than a million copies is also an extreme step which will show up the company in a poor light.

**Questions from 68 to 70 cannot be answered as data given is inconclusive**

68. \*\*\*\*\*

69. \*\*\*\*\*

70. \*\*\*\*\*

71. b The important cause behind this entire incident was definitely the fact that while Mr Thakur took the bold initiative of negotiating wage contracts directly with supervisors he was inconsistent. He took the trouble to negotiate with day supervisors personally but failed to follow the same process for night supervisors which led to Ram Lal feeling aggrieved and the incident happening.

72. e Since the immediate cause of the problem was the inability of night supervisors to deal directly with Mr Thakur, if Thakur had created a process for night supervisors to meet him then the unpleasant incident with Ram Lal and its effect on the organization could have been avoided. Hence 2 comes first in terms of impact on organization. 3 would be next in terms of positive impact if Thakur had generally followed a policy of allowing employees to see him without an appointment. The problem with Ram Lal was aggravated by his repeated inability to see Thakur. Delegating the task of negotiating wage contracts with night shift employees to the Personnel Deptt. Would have been next most effective though it would have been overall inconsistent with Thakur's policy. Postponing the decision of wage revision of night shift supervisors would

have been least effective. Since contracts had been already made out for day supervisors this would have only added fuel to the problem. Hence the sequence 2-3-1-4 is the right one.

73. b Obviously the reason Mr Thakur decided to bypass the personnel department and negotiate wage contracts directly with supervisors was to send a positive signal to the employees about top management's concern for them and earn goodwill. This is clearly mentioned in third sentence of second paragraph. B is not correct. His objective was definitely not to create unsatisfied employees. C is not correct because the company had not history of collective action by supervisors. D and E also attribute clearly false motives to Mr Thakur.

74. b Ram Lal worked in the night shift and hence was not able to negotiate his wages with Mr Thakur who only worked out contracts with day supervisors. Ram Lal also felt that the contract worked out was unfavorable to him. Hence the fact that he could not resolve his problem directly with Mr Thakur by meeting him was the cause for his grievance.

75. c Obviously the Personnel Department would be disgruntled with Mr.Thakur's initiative because he had deliberately aggravated the problem by keeping it out of the picture. Since Thakur was unilaterally negotiating contracts without keeping the company in the picture about the financial implications of his contracts the Finance Deptt would also be disturbed about it. Lastly since the problem involved factory supervisors the production department would also be annoyed. If consulted it would have been able to advise Thakur about day and night shift workers and how they were likely to react to his manner of dealing with them.

76. e The fact that Mr Thakur hit Ram Lal back when he tried to assault him shows that he clearly became emotionally unstable under pressure and did not deal with the problem in a manner befitting a mature, senior executive. B.C D are attributes which he clearly possesses. A is the opposite of E and hence not correct given the situation and the way Thakur dealt with Ram Lal.

77. e Removing 2, 1, 3, 5 makes the result largest as 9876. Therefore the largest omitted digit is 5. option (e) is the correct choice.

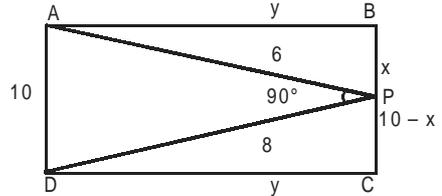
78. d It can be easily seen from the graphs that stock X is more volatile then mutual fund Y. Option (d) is correct choice.

**For questions 79 and 80: Cannot be answered as the data given is inconsistent**

79. \*\*\*\*

80. \*\*\*\*

81. d According to the question, we have



$$AP = \sqrt{10^2 - 8^2}$$

$$= 6$$

Now let  $AB = y = DC$

$$y^2 + x^2 = 6^2 \quad \dots (1)$$

$$(10 - x)^2 + y^2 = 8^2 \quad \dots (2)$$

Solving (1) and (2) we get

$$BP = x = 3.6$$

Hence (d) is the correct option.

82. e Let  $x$  be the average marks and  $n$  be the number of tests, then we can write here

$$\frac{83 - x}{n} = 2 \quad \dots(i)$$

$$\frac{75 - (x + 2)}{n + 1} = 1 \quad \dots(ii)$$

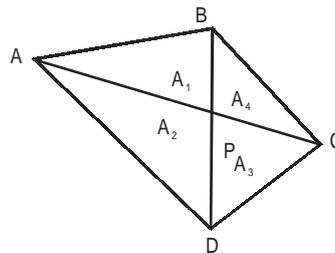
Solving (i) and (ii), we get

$$x = 61 \text{ and } n = 11$$

If Rajiv get 51, his average will be 63.

Hence (e) is the correct option.

83. e According to the question, Let  $A_1$  and  $A_3$  be  $x$  as both are equal.



We can easily write here

$$A_1 A_3 = A_2 A_4$$

$$\text{or } x \times x = 27 \times 12$$

$$\text{or } x = 18$$

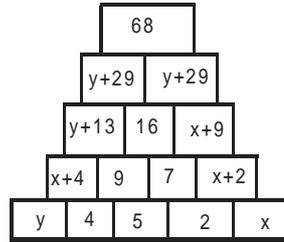
Option (e) is the correct choice.

84. b  $F(4, 3)$  is the number of ways of distributing 4 tags to 3 children A, B, C (say). Consider child A. A can get either 0 or 1 or 2 toys, correspondingly, the 4 toys can be distributed among A, B and C in 6 ways, as shown.

A	B	C
2	2	0
2	1	1
2	0	2
1	1	2
1	2	1
0	2	2

85. b As per the statements in the question, we can write here
- $$R = 26W \quad \dots (1)$$
- $$R + S + W + B = 232 \quad \dots (2)$$
- $$B = 8 + W \quad \dots (3)$$
- $$7R = 6S \quad \dots (4)$$
- Subscription R, S, W, B represent the runs scored by Ram, Shyam, Wides and Byes.  
Solving (1), (2), (3) and (4), we get  
 $R = 96$   
Hence (b) is the correct option.
86. e None of the conclusion can be derived. Hence option (e) is the correct choice.
87. e Given that
- $$A + B + C = 118 \quad \dots (i)$$
- $$B + C + D = 156 \quad \dots (ii)$$
- $$C + D + A = 166 \quad \dots (iii)$$
- $$D + A + B = 178 \quad \dots (iv)$$
- Adding all the four equations, we get  
 $3(A + B + C + D) = 618$   
or  $A + B + C + D = 206 \quad \dots (v)$   
Subtracting (i) from (v) we get  
 $D = 88$   
Similarly  $A = 50, B = 40$   
None of the conclusions can be derived. Hence option (e) is the correct choice.
88. a For the Subsets to be a representation of function for x to y, they should be in accordance with one-one and onto function principles. Only  $F_2$  and  $F_3$  satisfy this. Hence option (a) is the correct choice.

89. b According to the condition given in the question, we can draw the following frame of cells as follows.



Now for first two rows from the top

$$2y + 58 = 68$$

$$\Rightarrow y = 5$$

Now for second and third row from top

$$34 = x + 25$$

$$\Rightarrow x = 9$$

Therefore  $x - y = 4$ .

Hence (b) is the correct choice.

90. c  $A_0 = 1$  and  $A_n = pn + (-1)^n$ .  $A_{n-1}$   
 $\Rightarrow A_1 = 1.p + (-1)^1$ .  $A_{1-1} = p - A_0 = p - 1$   
 $A_2 = 2.p + (-1)^2$ .  $A_{2-1} = 2p + (p - 1) = 3p - 1$   
 $A_3 = 3.p + (-1)^3$ .  $A_{3-1} = 3p - (3p - 1) = 1$   
 $A_4 = 4.p + (-1)^4$ .  $A_2 = 4p + 1$   
 $A_5 = 5.p + (-1)^5$ .  $A_4 = 5p - (4p + 1) = p - 1$   
 $A_6 = 6.p + (-1)^6$ .  $A_5 = 6p + (p - 1) = 7p - 1$   
 $A_7 = 7.p + (-1)^7$ .  $A_6 = 7p - (7p - 1) = 1$   
 $A_8 = 8.p + (-1)^8$ .  $A_7 = 8p + 1 = 8p + 1$   
 $\dots \dots \dots$   
Each term of the above sequence is either 1 or  $xp - 1$  (where x is an odd number) or  $yp + 1$  (where y is an even number)  
If  $A_n = yp + 1$   
 $p = \frac{1000 - 1}{y} = \frac{999}{y}$   
 $\Rightarrow p$ , cannot be an integer.  
If  $A_n = xp - 1 = 1000$   
 $\Rightarrow p = \frac{1000 + 1}{x} = \frac{1001}{x}$   
As  $1001 = 7 \times 11 \times 13$ , except for  $(p - 1)$  all the term of the type  $xp - 1$  appear such that  $x = 4a + 3$  (where a is a non-negative integer)  
So, the values correspond to  $(p - 1)$ ,  $(7p - 1)$ ,  $(11p - 1)$ ,  $(91p - 1)$  and  $(143p - 1)$  so, there are 5 integer values of p.

91. b The given equation is  $(1 - P)x^2 + 4x + P = 0$   
 It's discriminant  $16 - 4(1 - P)P$  or  $16 - 4P(1 - P)$   
 is positive as  $0 < P < 1$ .

Also sum of roots  $\left(\frac{-4}{(1-P)}\right)$  and Product roots  $\left(\frac{P}{1-P}\right)$   
 are negative and positive in sign respectively.  
 Therefore roots are real and negative.  
 Hence (b) is the correct choice.

92. b Given that  $x > 0$   
 and the terms in the brackets in numerator and denominators are reciprocal of each other, therefore their sum has a minimum value of 2. Therefore

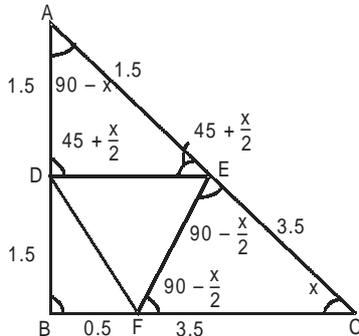
$$\frac{\left(x + \frac{1}{x}\right)^6 - \left(x^6 + \frac{1}{x^6}\right) - 2}{\left(x + \frac{1}{x}\right)^3 + \left(x^3 + \frac{1}{x^3}\right)} = \frac{2^6 - 2 - 2}{2^3 + 2} = 6$$

Hence (b) is the correct choice.

Note:  $x + \frac{1}{x}$  has a minimum value of 2 for  $x > 0$ .

93. c The given equation is  $y^2 - 2y \cos x + 1 = 0$  ... (i)  
 In the above equation when  $\cos x = 1$  and  $\cos x = -1$ , it gives  $y$  as  $-1$  and  $1$ .  
 Hence number of possible real solutions = 2  
 option (c) is the correct choice.

94. c As per the data given in the question, we have



Let  $\angle DEF = y$

Now for the straight line AEC,  $\angle AEC = 180$

or

$$\angle AED + y + \angle FEC = 180$$

$$\text{or } 45 + \frac{x}{2} + y + 90 - \frac{x}{2} = 180 \quad \dots(i)$$

or  $y = 45^\circ$

Hence (c) is the correct choice.

95. e  $3f(x+2) + 4f\left(\frac{1}{x+2}\right) = 4x$

Putting  $x = z - 2$  we get:

$$3f(z) + 4f\left(\frac{1}{z}\right) = 4z - 8 \quad \dots (1)$$

Now replacing  $z$  with  $\frac{1}{z}$  in the above equation, we get

$$3f\left(\frac{1}{z}\right) + 4f(z) = \frac{4}{z - 8} \quad \dots (2)$$

From (1) and (2),

$$f(z) = \frac{12}{7} \left\{ \frac{4}{3z} - \frac{8}{3} - z + 2 \right\}$$

$$\Rightarrow f(4) = \frac{12}{7} \left\{ \frac{1}{3} - \frac{8}{3} - 2 \right\} = \frac{-52}{7}$$

So option (e) is the right choice.

96. c Train left at Ahr. B min or we can say after  $(60A + B)$  minute and Reaches at (Bhr C Min)  $\Rightarrow (60B + C)$  min.  
 Total time of journey.  
 $(60B + C) - (60A + B) = 60C + A$ .  
 $\Rightarrow 59(B - C) = 61A$

$$A = (B - C) \frac{59}{61}$$

For  $A = 0$  ( $A, B, C$ )  $< 24$ .

Hence one value of  $A$  satisfies it as journey is completed on the same day.

Hence, (c) is correct choice.

97. b The maximum value of any term of the sequence can be 1 and that happens for the range of values inside

$$\text{the greatest integer function from } \frac{1}{3} + \frac{66}{99} \text{ to } \frac{1}{3} + \frac{98}{99}$$

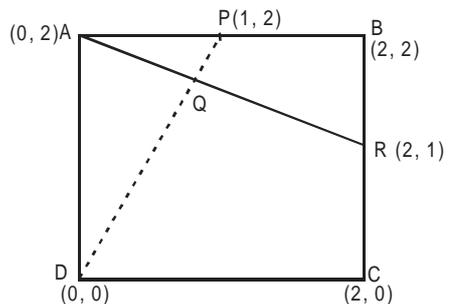
For all the other values the output is 0.

So number of times 1 occurs in the series sum is  $98 - 66 + 1 = 33$

So, the required sum = 33

So, option (b) is the right choice.

98. b



Equation of line AR.

$$(y - 2) = -\frac{1}{2}(x - 0) \Rightarrow 2y + x = 4.$$

Slope of line DP

$$= \frac{(2 - 0)}{(1 - 0)} = 2$$

Slope of line AR

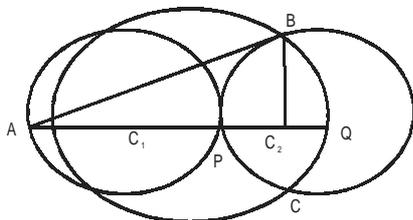
$$= -\frac{1}{2}.$$

Coordinate of point R = (2, 1).

$$\text{Hence } PR = \sqrt{(1-2)^2 + (2-1)^2} = (\sqrt{2}) \text{ unit}$$

Hence, option (b) is the correct choice.

99. c



$\Delta ABQ$  and  $\Delta ABC_2$  are similar

$$\frac{AB}{AQ} = \frac{AC_2}{AB}$$

$$AB = \sqrt{3^2 + 1^2} = \sqrt{10}$$

Let  $C_2Q = x$

$$\frac{\sqrt{10}}{3x} = \frac{3}{\sqrt{10}}$$

$$\Rightarrow 3(3 + x) = 10$$

$$x = \frac{1}{3}.$$

$$\text{Hence diameter of bigger circle is } \left(3 \times \frac{1}{3}\right) = \frac{10}{3}$$

$$\text{or radius} = \frac{5}{3} \text{ unit.}$$

Hence option (c) is correct.

### 100. Incorrect Question

101. d Using statement I we can have sides as,  $60 - x$  and  $80 - x$  and one of the angles as 60 degrees. Using the cosine law we can find out the value of  $x$  and hence the shortest side.

Using statement II, we know all the angles and one side and hence all sides are known using sine law. So option (d) is the right choice.

102. a C

F B  
E D  
A

From statement I, we have

$$E + B < D + A$$

Also, we know from the mother data that

$$E + B > E + D$$

$$\text{Hence, } E + D < D + A$$

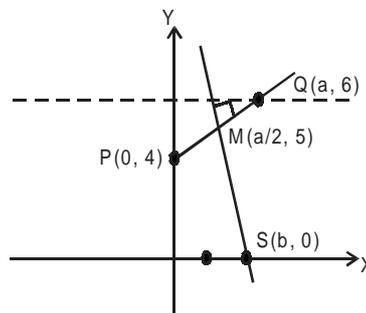
$$\Rightarrow E < A$$

So, A is not the smallest integer.

From statement II, we cannot deduce whether or not A is the smallest integer.

Hence option (a) is the right choice.

103. c



The co-ordinates of the point M are

$$\left(\frac{a+0}{2}, \frac{6+4}{2}\right) \text{ or } \left(\frac{a}{2}, 5\right)$$

$$\text{Slope of the straight line } PQ \text{ is } \frac{6-4}{a-0} = \frac{2}{a}$$

$$\Rightarrow \text{Slope of the straight line } MS = -\frac{a}{2}$$

$$\Rightarrow \text{equation of the straight line } MS \text{ is } \frac{y-5}{x-\frac{a}{2}} = -\frac{a}{2}$$

$$\text{or, } y + \frac{a}{2}x = 5 + \frac{a^2}{4}$$

As point  $S(b, 0)$  lies on it, we must have;

$$0 + \frac{a}{2} \times (b) = 5 + \frac{a^2}{4}$$

$$\Rightarrow b = \left(\frac{10}{a} + \frac{a}{2}\right)$$

for  $a = 2, -2, 10$  and  $-10$ ;  $b$  is an integer Hence, (c) is correct option.

104. e

105. d Adding all the sales value column wise =  $40, 500 + 47, 700 + 44, 100 = 132, 300$   
 Now  $14\% \text{ of } 132, 300 = 18522$ . Hence (d) is the correct option.

106. c For Bistupur and Kadma, ipod sale value = 22050  
 And Television sales value = 7200  
 Now  $10\% \times 22050 + 20\% \times 7200 = 3645$   
 Hence (c) is the correct option.

107. e Given that  
 Units ordered = Units sold + Ending Inventory – Beginning Inventory  
 $7560 = \text{units sold} + 6120 - 5760$   
 or units sold = 7200  
 ipods sold in rupees (thousand) = 100800  
 Therefore unit sales price =  $\frac{100800}{7200} = 14$   
 Hence (e) is the correct option.

108. b

109. c Given equations are  
 $B + C + D + E = 4A$   
 $C + F = 3A$   
 $C + D + E = 2F$   
 $F = 2D$   
 $E + F = 2C + 1$   
 Also given that A is a prime number between 12 and 20. Therefore A can be 13 or 17. Assuming  $A = 17$ , we have  
 $C + F = 51$   
 $23 + 28 = 51$   
 or  $23 + 2(14) = 51$   
 $C = 23, D = 14, F = 28, A = 17$   
 $E = 2C + 1 - F = 56 + 1 - 28 = 29$ .

110. e

111. a Note: When  $A = 13$ , equation does not satisfy the given conditions.

112. a Profit = Sales – Cost. It can be easily seen that for the month 1, the difference between sales and cost is maximum. Hence (a) is the correct option.

113. b Graph clearly suggests that in the month of 4, maximum sales growth is witnessed as from 3 to 4 line is the most steepest.

114. e

115. e  $A2 = 3A1 - 2A0 = 7$   
 $A3 = 4A2 - 3A1 = 19$   
 $A4 = 5 \times 19 - 4 \times 7 = 67$   
 $A5 = 6 \times 67 - 5 \times 19 = 307$   
 Clearly,  $(t + 1) A_t - 1 > t A_t - 2$   
 Hence, none of the conclusions are true.  
 So option (e) is the right choice.

116. a Taking  $b = 2$ , we have  $ac = 1$  and  $a + c = 4 \Rightarrow a$  can be

$\frac{1}{2 + 3^2}$  and  $c$  can be  $2 - \frac{1}{3^2}$  which satisfies the condition. If we chose  $a = 2.5$ , the condition is not satisfied. Hence option (a) is correct

**Question from 117 to 120 cannot be answered as the data given is inconclusive.**