

2A**PREVIOUS XAT QUESTION PAPER**

XAT 2013

Name _____

Test Booklet No.763558

XAT ID _____

Booklet Series: **A****INSTRUCTIONS**

1. **DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO.**
2. Fill in the information required in the answer sheet. Your test may not be evaluated if the required details are not entered on the answer sheet.
3. **This booklet consists of three sections A, B and C with 30, 25 and 36 questions respectively, i.e. a total of 91 questions. If there is a problem with your test booklet, inform the invigilator / supervisor immediately. You will be provided with a replacement.**
4. **Do not seek clarification on any item in the test booklet from anyone including the test invigilator or the centre supervisor. Use your best judgement**
5. **The time available for completing the three sections is 140 minutes. You are required to answer questions from all three sections and expected to maximize scores in each section.**
6. All questions carry equal marks.
7. Each question has five alternatives. Answer each question by darkening the appropriate bubble against the question number on the answer sheet. For example, if your answer to question number 1 is 'B', darken fully the circle 'B' against question 1.
8. All answers are to be marked only on the (OMR) answer sheet. Use the margin in the test booklet for rough work. No other piece of paper is permitted to be used for rough work.
9. **Use only BLUE/BLACK BALL-POINT PEN for making answers on the OMR answer sheet. Please do not use gel pens or ink pens.**
10. **NEGATIVE MARKS (one fourth of the mark) may be deducted for each incorrect answer.**
- 10 Failure to follow instructions and examination norms will lead to disqualification.

To open the test booklet, insert a pencil/pen beneath this page and tear along the right side of the test booklet as indicated by the arrow at the bottom of the page.

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BEST OF LUCK!

Open from this side



Section A – Verbal and Logical Ability

1. Choose the most appropriate option after reading the following statements.

1. Whether due to haste or design, the new laws are marked by vagueness, leaving officials all down the organization's bureaucratic chain great latitude in enforcing them.
2. The opacity of the language leaves the law open to manipulation on political grounds.

- (1) Statement 2 can be induced from statement 1.
- (2) Statement 1 can be induced from statement 2.
- (3) Statement 2 can be deduced from statement 1.
- (4) Statement 1 can be deduced from statement 2.
- (5) Statement 1 and 2 are independent.

2. Choose the most appropriate option after reading the following statements.

1. If there is any endeavor whose fruits should be freely available, that endeavor is surely publicly financed science.
2. There is a widespread feeling that the journal publishers who have mediated the scientific exchange for the past century or more are becoming an impediment to free distribution of knowledge.
3. Internet revolution is happening, making knowledge transfer cheaper. Technology permits it; researchers and politicians want it, more public money can be spent on it.

- (1) Statement 2 definitely illustrates statement 1.
- (2) Statement 3 is a facilitating condition for statement 1
- (3) Statement 3 states a condition under which statement 1 would be invalid
- (4) Statement 2 can be deduced from statement 3 but independent of Statement 1.
- (5) Statement 1, 2 and 3 are necessarily independent

3. Choose the most appropriate option after reading the following statements.

1. Business schools are ideally positioned to point out when an action that provides a benefit for an individual comes at a cost to society, but in reality they rarely bother.
2. It is part of the malaise that has befallen the political debate on capitalism, which has been taken over by special interest and people who have no faith in a real market-based system.
3. When governments favours the private sector it is all too often by being "pro-business" rather than "pro-market", meaning that favourable conditions are provided to particular institutions rather than to institutions broadly.

- (1) Statements 1 and 2 are necessarily dependent.
- (2) Statements 2 and 3 are necessarily dependent.
- (3) Statements 2 and 3 may be dependent.
- (4) Statements 1, 2 and 3 cannot be independent.
- (5) All the three statements are necessarily independent.

Directions for questions 4 – 6: Fill in the blanks with the most appropriate option that follows.

4. _____ wolf, meeting with _____ lamb astray from _____ fold, resolved not to lay violent hands on him, but to find some plea to justify to _____ lamb _____ wolf's right to eat him.

- (1) a, a, the, the, the
- (2) the, a, the, a, the
- (3) a, a, a, the, the
- (4) the, the, the, the, the
- (5) the, a, the, a, a

5. _____ bat who fell upon _____ ground and was caught by _____ weasel pleaded to be spared his life _____ weasel refused, saying that he was by nature _____ enemy of all birds. _____ bat assured him that he was not _____ bird, but _____ mouse, and thus was set free.

- (1) a, the, a, the, the, the, the, a

- (2) a, the, a, the, a, the, a, a
 (3) the, a, a, the, the, a, the, the
 (4) a, the, a, the, the, the, a, a
 (5) the, a, a, a, the, the, a, a

6. He got ____ next morning, to be sure, and had his meals ____ usual, though he ate ____ and had more, I am afraid, than his usual supply of rum, for he helped himself ____ the bar, scowling and blowing ____ his nose, and no one dared ____ cross him.

- (1) Down, like, a little, out of, out, to
 (2) Down, as, little, of, out, to
 (3) Downstairs, as, little, out of, out of, through
 (4) Downstairs, like, a little, out, of, to
 (5) Down, like, a little, of, of, through

7. Read the following sentences and choose the option that best arranges them in a logical order.

1. I was scarcely in position ere my enemies began to arrive, seven or eight of them, running hard, their feet beating out of time along the road and the man with the lantern some paces in front.
2. My curiosity, in a sense, was stronger than my fear, for I could not remain where I was, but crept back to the bank again, whence, sheltering my head behind a bush of broom, I might command the road before our door.
3. Three men ran together, hand in hand; and I made out, even through the mist, that the middle man of this trio was the blind beggar.
4. The next moment his voice showed me that I was right.

- (1) 1, 2, 3, 4 (2) 2, 1, 3, 4
 (3) 1, 2, 4, 3 (4) 1, 3, 4, 2
 (5) 1, 4, 2, 3

8. Read the following sentences and choose the option that best arranges them in a logical order.

1. Finally he took a wrong turn and ran a few steps past me, towards the hamlet, crying, "Johnny, black Dog, Drik," and other names, "you won't leave old Pew, mates—not old Pew!"
2. This quarrel was the saving of us, for while it was still raging, another sound came from

the top of the hill on the side of the hamlet—the tramp of horses galloping.

3. And that was plainly the last signal, of danger, for the buccaneers turned at once and ran, separating in every direction, one seaward along the cove, one slant across the hill, and so on, so that in half a minute not a sign of them remained but Pew.
4. Him they had deserted, whether in sheer panic or out of revenge for his ill words and blows I know not: but there he remained behind, tapping up and down the road in a frenzy, and groping and calling for his comrades.
5. Almost at the same time a pistol—, flash and report, came from the hedge side.

- (1) 5, 1, 3, 4, 2 (2) 1, 2, 3, 5, 4
 (3) 2, 5, 3, 4, 1 (4) 4, 3, 2, 5, 1
 (5) 2, 5, 4, 3, 1

9. Read the following sentences and choose the option that best arranges them in a logical order.

1. As chroniclers of an incremental process, they discover that additional research makes it harder, not easier, to answer questions like: When was oxygen discovered? Who first conceived of energy conservation?
2. Simultaneously, these same historians confront growing difficulties in distinguishing the "scientific" component of past observation and belief from what their predecessors had readily labeled "error" and "superstition" I
3. Increasingly, a few of them suspect that these are simply the wrong sorts of questions to ask. Perhaps science does not develop by the accumulation of individual discoveries and inventions.
4. In recent years, however, a few historians "of science have been finding it more and more difficult to fulfill the functions that the concept of development-by-accumulation assigns to them.

- (1) 2, 1, 3, 4 (2) 4, 3, 1, 2
 (3) 4, 2, 3, 1 (4) 4, 3, 2, 1
 (5) 4, 1, 3, 2

10. Read the following sentence and choose the best alternative which should replace the italicized part of the sentence.

To be a great manager *requires, strong inter-personal skills, the ability to think fast, and demands* a can-do attitude.

- (1) requires strong inter-personal skills, the ability to think fast, and demands
- (2) requires strong inter-personal skills, the ability to think fast, and
- (3) requires strong inter-personal skills, demands the ability to think fast, and
- (4) requires strong inter-personal skills, an ability to think fast, and demands
- (5) requires strong inter-personal skills, an ability to think fast, but with

11. Read the following sentence and choose the best alternative which should replace the italicized part of the sentence.

The tremendous insight of Einstein was that the passage of time does not appear to be the same *while standing still as it does to a person traveling* at a speed which is a significant fraction of the speed of light.

- (1) while standing still as it does to a person traveling
- (2) to a person standing still as to a person traveling
- (3) to a person who is standing still as a person who is traveling
- (4) While standing still as to traveling
- (5) to a person standing still as to a person who travels

12. Read the following sentence and choose the best alternative which should replace the italicized part of the sentence.

Economic theory fails to explain the extent *to which savings from personal income has shifted* to short-term bonds, money-market funds, and other near-term investments by the instability in the futures market.

- (1) to which savings from personal income has shifted
- (2) of savings from personal income that has been shifted

- (3) of savings from personal income shifting
- (4) to which savings from personal income have shifted
- (5) to which savings from personal income have been shifted

Analyse the following passage and provide appropriate answers for the questions 13 through 17 that follow.

"Whatever actions are done by an individual in different embodiments, [s]he reaps the fruit of those actions in those very bodies or embodiments (in future existences)".

A belief in karma entails, among other things, a focus on long run consequences, i.e., a long term orientation. Such an orientation implies that people who believe in karma may be more honest with themselves in general and in setting expectations in particular—a hypothesis we examine here. This research is based on three simple premises. First, because lower expectations often lead to greater satisfaction, individuals in general, and especially those who are sensitive to the gap between performance and expectations, have the incentive to and actually do "strategically" lower their expectations. Second, individuals with a long term orientation are likely to be less inclined to lower expectations in the hope of temporarily feeling better. Third, long term orientation and the tendency to lower expectations are at least partially driven by cultural factors. In India, belief in karma, with its emphasis on a longer term orientation, will therefore to some extent counter-act the tendency to lower expectations. The empirical results support our logic; those who believe more strongly in karma are less influenced by disconfirmation sensitivity and therefore have higher expectations.

Consumers make choices based on expectations of how alternative options will perform (i.e., expected utility). Expectations about the quality of a product also play a central role in subsequent satisfaction. These expectations may be based on a number of factors including the quality of a typical brand in a category, advertised quality, and disconfirmation sensitivity. Recent evidence suggests that consumers, who are more disconfirmation sensitive (i.e., consumers who are more satisfied when products perform better than expected or more dissatisfied

when products perform worse than expected) have lower expectations. However, there is little research concerning the role of culture-specific variables in expectation formation, particularly how they relate to the impact of disconfirmation Sensitivity on consumer

13. "Future existences" in the paragraph can refer to'.

1. Human life, 5 years afterwards
2. Next birth in human form
3. Next birth in any embodiment

Which of the following statement(s) is correct?

- (1) 1, 2 (2) 2, 3 (3) 1, 3
(4) 2 only (5) None of the three

14. Consider the following assertion and conclusion:

Assertion: The meaning of *karma* in the above passage (refer to first two lines of the paragraph in italics.)

Conclusion: Belief that long term consequences are important.

Now read the following statements carefully.

1. The conclusion will always follow the assertion.
2. The conclusion may follow the assertion.
3. The conclusion may follow the assertion only if an individual lives long enough.
4. The conclusion cannot follow the assertion.

Which of the following statement(s) is correct?

- (1) 1 only (2) 1 and 2 only
(3) 2 only (4) 3 only
(5) 4 only

15. Which of the following statements, if true, would contradict the first of the three premises mentioned in the first paragraph?

- (1) Higher satisfaction leads to lower expectation.
- (2) Lower expectation leads to long term consequences
- (3) Satisfaction depends on achievement and not on expectation
- (4) Karma affects our immediate feelings
- (5) Lower expectation would lead to lower efforts

16. Read the following statements carefully:

1. Temporary feelings and law of *karma* are independent
2. As per theory of karma, temporary feelings would not lower the expectation.
3. Temporary feelings and law of *karma* are contradictory.

Which of the following combination of statements is consistent with the second premise?

- (1) 1 only (2) 1 and 2 only
(3) 1 and 3 only (4) 3 only
(5) 1, 2 and 3 only

17. A manager went out to have dinner in a restaurant and found the food to be good. When asked to provide feedback on the quality of food, the manager rated the quality as "excellent". Which of the following can be concluded from this?

- (1) The manager does not believe in karma
- (2) The manager definitely has disconfirmation sensitivity.
- (3) It is not possible to comment on the disconfirmation sensitivity of the manager.
- (4) The manager does not have disconfirmation sensitivity.
- (5) None of the above.

Analyse the following passage and provide appropriate answers for the questions 18 through 21 that follow.

An example of scientist who could measure without instruments is Enrico Fermi (1901-1954), a physicist who won the Nobel Prize in physics in 1938. He had a Well-developed knack for intuitive, even casual-sounding measurements. One renowned example of his measurement skills was demonstrated at the first detonation of the atom bomb, the Trinity Test site, on July 16, 1945, where he was one of the atomic scientists observing from base camp. While final adjustments were being made to instruments used to measure the yield of the blast, Fermi was making confetti out of a page of notebook paper. As the wind from the initial blast wave began to blow through the camp, he slowly dribbled the confetti into the air, observing how far back it was scattered by the blast

(taking the farthest scattered pieces as being the peak of the pressure wave), Fermi concluded that the yield must be greater than 10 kilotons. This would have been news, since other initial observers of the blast did not know that lower limit. After much analysis of the instrument readings, the final yield estimate was determined to be 18.6 kilotons. Like Eratosthenes⁷ Fermi was aware of a rule relating one simple observation—the scattering of confetti in the Wind—to a quantity he wanted to measure.

The value of quick estimates was something Fermi was familiar with throughout his career. He was famous for teaching his students skills at approximation of fanciful-sounding quantities that, at first glance, they might presume they knew nothing about. The best-known example of such a “Fermi question” was Fermi asking his students to estimate the number of piano tuners in Chicago, when no one knows the answer. His students—science and engineering majors—would begin by saying that they could not possibly know anything about such a quantity. Of course, some solutions would be to simply do a count of every piano tuner perhaps by looking up advertisements, checking with a licensing agency of some sort, and so on. But Fermi was trying to teach his students how to solve problems where the ability to confirm the results would not be so easy. He wanted them to figure out that they knew something about the quantity in question.

18. Suppose you apply the same logic as Fermi applied to confetti, which of the following statements would be the most appropriate?

- (1) You can calculate the minimum pressure inside the cooker by calculating the maximum distance travelled by any of its parts after it explodes.
- (2) You can calculate the average potency of a fire cracker by calculating the distance covered by one of its bigger fragments.
- (3) You can easily find out the average policy of an earthquake by measuring the length of a crack it makes on the surface of the earth.
- (4) You can calculate the exact volume of water stored in a tank by measuring the distance covered by the stream of water coming out of the tap fixed on the lower corner of the tank.
- (5) All the above conclusions can be drawn.

19. Quick estimate, as per Fermi, is most useful in:

- (1) In finding an approximate that is more useful than existing values.
- (2) In finding out the exact minimum value of an estimate.
- (3) In finding out the exact maximum value of an estimate.
- (4) In finding out the range of values of an estimate.
- (5) In finding out the average value of an estimate.

20. Given below are some statements that attempt to capture the central idea of the passage:

1. It is useful to estimate; even when the exact answer is known.
2. It is possible to estimate any physical quantity.
3. It is possible to estimate the number of units of a newly launched car that can be sold in a city.
4. Fermi was a genius.

Which of the following statements(s) best captures the central idea?

- | | |
|----------------|----------------|
| (1) 1, 2 and 4 | (2) 2, 3 and 4 |
| (3) 2 and 3 | (4) 2 only |
| (5) 1, 2 and 3 | |

21. Read the statements given below:

1. Atomic bomb detonation was a result of Fermi’s Nobel Prize contribution
2. Fermi’s students respected him as a scientist
3. Yield of atomic bomb can only be measured in Kilotons

Which of the following statement(s) can be inferred from the passage?

- | | |
|---------------------------------------------|------------|
| (1) 1, 2 | (2) 2, 3 |
| (3) 1, 3 | (4) 2 only |
| (5) None of the three statements is correct | |

Analyse the following passage and provide appropriate answers for the questions 22 through 25 that follow.

Popper claimed, scientific beliefs are universal in character, and have to be so if they are to serve us in explanation and prediction. For the universality of a

scientific belief implies that, no matter how many instances we have found positive, there will always be an indefinite number of unexamined instances which may or may not also be positive. We have no good reason for supposing that any of these unexamined instances will be positive, or will be negative, so we must refrain from drawing any conclusions. On the other hand, a single negative instance is sufficient to prove that the belief is false, for such an instance is logically incompatible with the universal truth of the belief. Provided, therefore, that the instance is accepted as negative we must conclude that the scientific belief is false. In short, we can sometimes deduce that a universal scientific belief is false but we can never induce that a universal scientific belief is true.

It is sometimes argued that this 'asymmetry' between verification and falsification is not nearly as pronounced as Popper declared it to be. Thus, there is no inconsistency in holding that a universal scientific belief is false despite any number of positive instances; and there is no inconsistency either in holding that a universal scientific belief is true despite the evidence of a negative instance. For the belief that an instance is negative is itself a scientific belief and may be falsified by experimental evidence which we accept and which is inconsistent with it. When, for example, we draw a right-angled triangle on the surface of a sphere using parts of three great circles for its sides, and discover that for this triangle Pythagoras' Theorem does not hold, we may decide that this apparently negative instance is not really negative because it is not a genuine instance at all. Triangles drawn on the surfaces of spheres are not the sort of triangles which fall within the scope of Pythagoras' Theorem. Falsification, that is to say, is no more capable of yielding conclusive rejections of scientific belief than verification is of yielding conclusive acceptances of scientific beliefs. The asymmetry between falsification and verification, therefore, has less logical significance than Popper supposed.

We should, though, resist this reasoning. Falsifications may not be conclusive, for the acceptances on which rejections are based are always provisional acceptances. But, nevertheless, it remains the case that, in falsification, if we accept falsifying claims then, to remain consistent, we must reject

falsified claims. On the other hand, although verifications are also not conclusive, our acceptance or rejection of verifying instances has no implications concerning the acceptance or rejection of verified claims. Falsifying claims sometimes give us a good reason for rejecting a scientific belief, namely when the claims are accepted. But verifying claims, even when accepted, give us no good and appropriate reason for accepting any scientific belief, because any such reason would have to be inductive to be appropriate and there are no good inductive reasons.

22. According to Popper, the statement "Scientific beliefs are universal in character" implies that

- (1) Positive instances of scientific belief imply that it is universal in character.
- (2) There are equal numbers of negative and positive instances of a universal scientific belief.
- (3) If there are negative and positive instances of a scientific belief then it cannot be universal.
- (4) We can only deduce that a scientific belief is false but cannot induce that it is true.
- (5) We can only induce that a scientific belief is false but cannot induce that it is true.

23. The statement, "this 'asymmetry' between verification and falsification is not nearly as pronounced as Popper declared it to be", implies that

- (1) Falsification is better than verification in universal acceptance beliefs.
- (2) Verification is better than falsification in universal acceptance of scientific beliefs.
- (3) Both falsification and verification together can result in universal acceptance of scientific beliefs.
- (4) Capability of falsification in accepting of scientific beliefs is not better than that of verification in rejection of scientific beliefs.
- (5) Capability of falsification in rejection of scientific beliefs is not always better than that of verification in acceptance of scientific beliefs.

24. With which of the following statements, would the author agree most?

- (1) Verification is better than falsification in establishing the claims.
- (2) Falsification and verification are equally good in establishing the claims.
- (3) Verification and falsification are equally bad in establishing the claims. A
- (4) Falsification is better than verification in disproving the claims.
- (5) Verification is better than falsification in disproving the claims.

25. Which of the following would be the most appropriate conclusion?

- (1) Falsification gives us an appropriate reason for rejecting a scientific belief.
- (2) Falsification gives us all the reasons for accepting a claim.
- (3) Verification gives us a reason for rejecting a claim.
- (4) Verification gives us an appropriate reason for accepting a scientific belief.
- (5) Verification gives us an appropriate reason for rejecting a scientific belief.

Analyse the following passage and provide appropriate answers for the questions 26 through 30 that follow.

Soros, we must note, has never been a champion of free market capitalism. He has followed for nearly all his public life the political ideas of the late Sir Karl Popper who laid out a rather jumbled case for what he dubbed "the open society" in his *The Open Society and Its Enemies* (1953). Such a society is what we ordinarily call the pragmatic system in which politicians get involved in people's lives but without any heavy theoretical machinery to guide them, simply as the ad hoc parental authorities who are believed to be needed to keep us all on the straight and narrow. Popper was at one time a Marxist socialist but became disillusioned with that idea because he came to believe that systematic ideas do not work in any area of human concern.

The Popperian open society Soros promotes is characterized by a very general policy of having no firm principles, not even those needed for it to have some constancy and integrity. This makes the open society a rather wobbly idea, since even what Popper himself regarded as central to all human thinking,

critical rationalism, may be undermined by the openness of the open society since its main target is negative: avoid dogmatic thinking, and avoid anything that even comes close to a set of unbreachable principles. No, the open society is open to anything at all, at least for experimental purposes. No holds are barred, which, if you think about it, undermines even that very idea and becomes unworkable.

Accordingly, in a society Soros regards suited to human community living, the state can manipulate many aspects of human life, including, of course, the economic behavior of individuals and firms. It can control the money supply, impose wage and price controls, dabble in demand or supply-side economics, and do nearly everything a central planning board might - provided it does not settle into any one policy firmly, unbendingly. That is the gist of Soros's Popperian politics.

Soros' distrusts capitalism in particular, because of the alleged inadequacy of neoclassical economics, the technical economic underpinnings of capitalist thinking offered up in >many university economics departments. He, like many others outside and even inside the economics discipline, finds the arid reductionism of this social science false to the facts, and rightly so. But the defense of capitalist free markets does not rest on this position.

Neo-classical thinking depends in large part on the 18th- and 19th-century belief that human society operates according to laws, not unlike those that govern the physical universe. Most of social science embraced that faith, so economics isn't unusual in its loyalty to classical mechanics. Nor do all economists take the deterministic lawfulness of economic science literally - some understand that the laws begin to operate only once people embark upon economic pursuits. Outside their commercial ventures, people can follow different principles and priorities, even if it is undeniable that most of their endeavors have economic features. Yet, it would be foolish >to construe religion or romance or even scientific inquiry as solely explicable by reference to the laws of economics.

In his criticism of neo-classical economic science, then, George Soros has a point: the discipline is too dependent on Newtonian physics as the model of

science. As a result, the predictions of economists who look at markets as if they were machines need to be taken with a grain of salt. Some - for example the school of Austrian economists - have made exactly that point against the neo-classical.

Soros draws a mistaken inference: if one defense of the market is flawed, the market lacks defense. This is wrong. If it is true that from A we can infer B, it does not prove that B can only be inferred from A; C or Z, too, might be a reason for B.

26. As per the paragraph, author believes that

- (1) Free market capitalism can be explained using neo-classical economics.
- (2) Neo-classical economics does not address the idea of free-market system.
- (3) Free market capitalism and open society are not different from each other.
- (4) Free market capitalism and laissez-faire are not different from each other.
- (5) Technical underpinning of neo-classical economics can address the idea of laissez-faire.

27. As per the paragraph, which of the following is true?

- (1) Economic benefits of open society and laissez-faire are same.
- (2) Soros' open society means no interference from the government.
- (3) Free market capitalism means no interference from the government.
- (4) Laws of economics are not capable of explaining the human nature completely.
- (5) Laws of economics capture the human nature completely as most of the human endeavors are economic in nature.

28. According to the author,

- (1) George Soros believes in regulated economies.
- (2) George Soros does not believe in government intervention in state policies.
- (3) George Soros believes in state intervention provided it does not remain static.

- (4) George Soros believes that laissez-faire economics perform better than free-market economies.
- (5) George Soros believes that free-market economies perform better than controlled economies.

29. According to the author which of the following statement could be true about critical rationalism.

- (1) Ideas of critical rationalism underpin the foundation of neo-classical economics.
- (2) Ideas of critical rationalism underpin the foundation of laissez-faire.
- (3) Ideas of critical rationalism underpin the foundation of open society.
- (4) Ideas of critical rationalism underpin the foundation of Newtonian physics.
- (5) None of the above.

30. The word *deterministic* (used in fourth line of fifth paragraph), in the above passage refers to:

- (1) An effect can only be caused by a single event.
- (2) An effect may be produced by many causes.
- (3) An effect cannot be produced by a cause.
- (4) Cause(s) of an effect can always be known.
- (5) Economics does not follow cause and effect relationship.

Section B – Decision Making

Direction for question 31 to 34: Read the following caselet and choose the best alternative.

The BIG and Colourful Company

You are running “BIG and Colourful (BnC)” company that sells book to customers through three retail formats:

- You can buy books from bookstores,
- You can buy books from supermarket,
- You can order books over the Internet (Online)

Your manager has an interesting way of classifying expenses: some of the expenses are classified in terms of size: Big, Small and Medium; and others are classified in terms of the colors, Red, Yellow, Green and Violet. The company has a history of categorizing overall costs into initial costs and additional costs. Additional costs are equal to the sum of Big, Small and Medium expenses. There are two types of margin, contribution (sales minus initial costs) and profit (contribution minus additional costs). Given below is the data about sales and costs of BnC:

Sales		60000
Initial Costs		39000
Contribution (Sales - Initial Costs)		21000
Additional Costs		
Big	9300	
Small	3000	
Medium	3500	
		15800
Profit (Contribution - Additional Cost)		5200

Each of the Big, Small and Medium cost is categorized by the manager into Red, Yellow, Green and Violet costs. Breakdown of the additional costs under these headings is shown in the table below:

Expenses	Total	Red	Yellow	Green	Violet
Big	9300	5100	1200	1400	1600
Small	3000		400	2000	600
Medium	3500	400	1500	1400	200
Total	15800	5500	3100	4800	2400

Red, Yellow, Green and Violet costs are allocated to different retail formats. These costs are apportioned

in the ratio of number of units consumed by each retail format. The number of units consumed by each retail format is given in the table below:

Retail Format	Red	Yellow	Green	Violet
Online	200	50	50	50
Supermarket	65	20	21	21
Book Store	10	30	9	9
Total	275	100	80	80

Read the following Statement

31. Statement I:

Online store accounted for 50% of the sales at BnC and the ratio of supermarket sales and book store sales is 1 : 2

Statement II:

Initial Cost is allocated in the ratio of sales.

If you want to calculate the profit/loss from the different retail formats, then

- Statement I alone is sufficient to calculate the profit/loss.
- Statement II alone is sufficient to calculate the profit/loss.
- Both statements I and II are required to calculate the profit/loss.
- Either of the two statements is sufficient to calculate the profit/loss.
- Neither Statement I nor Statement II is sufficient to calculate the profit/loss.

Based on your answer to the above question, answer question nos. 32 - 34

32. What is the profit/loss from “online” sales?

- 0
- 310
- +20
- +450
- Cannot be determined from given information

33. Which retail format is least profit making for BnC

- Online
- Supermarket
- Book Store
- All formats are loss making.
- All formats are profit making.

34. Which retail format gives the highest profit for BnC?

- (1) Book Store
- (2) Supermarket
- (3) Online
- (4) All are equally profitable.
- (5) Cannot be determined from given information

Direction for question 35 to 36: Read the following caselet and choose the best alternative.

A teacher wanted to administer a multiple choice (each question having six choices) based quiz of high difficulty levels to a class of sixty students. The quiz had sixty questions. The probability of selecting the correct answer for a good student and a brilliant student was 0.2 and 0.25 respectively. The poor students had no learning advantage. The teacher did not want students to cheat but does not have time and resources to monitor. All students were seated serially in 10 rows and 6 columns.

35. Is it possible for teacher to detect cheating without monitoring? Choose the statement that best describe your opinion:

- (1) It is not at all possible; teacher will have to introduced technology if there is no human support
- (2) It is always possible; but teacher has to calculate exact answer
- (3) It is possible when many students sitting next to each other have the same incorrect answers for multiple questions. However, there can be a small error in judgment.
- (4)) It is possible when many students sitting next to each other have a same correct answers for multiple questions. However, there can be a small error in judgment.
- (5) It is possible only for poor students but not for good and brilliant students. However, there can be a smaller error in judgment.

36. Three good students were sitting next to each other. What is the probability of them having the same incorrect choice for four consecutive questions?

- (1) $256/390625$
- (2) $256/3125$
- (3) $4/3125$
- (4) $1/3125$
- (5) Cannot be calculated

37. Students from four sections of a class accompanied by respective class teachers planned to go for a field trip. There were nineteen people in all. However, on the scheduled day one of the four teachers and few students could not join the rest. Given below are some statement about the group of people who ultimately left for the trip.

- I. Section A had the largest contingent.
- II. Section B had fewer students than Section A
- III. Section C's contingent was smaller than Section B.
- IV. Section D had the smallest contingent
- V. The product of the number of the students from each section is a multiple of 10.
- VI. The number of students from section C is more than 2
- VII. The product of the number of students from each section is a multiple of 24.
- VIII. The largest contingent has more than 4 students.
- IX. Each section contributed different number of students

The statement that taken together can give us the exact number of students from each section:

- (1) I, II, III, IV, VI
- (2) I, VI, VIII, IX
- (3) I, II, III, IV, V, VI
- (4) I, II, III, IV, VI, VII
- (5) I, IV, VI, VII, IX

38. There is a lot of interest in the first five ranks for Class XI students. One student guessed the rank order as Ankita, Bhagyashree, Chanchal, Devroopa and Esha. Later upon announcement of the result, it was found that not only did he get each student out off her true position, none of the students in his ranking correctly followed her immediate predecessor. Another student guessed Devroopa, Ankita, Esha, Chanchal and Bhagyashree. Even his guess was wrong. It was found that he had got two positions correct, and two students in his ranking correctly followed their immediate predecessors. Which of the following is true about the correct rank order?

- (1) Ankita got the third position
- (2) Bhagyashree got the fourth position
- (3) Chanchal got the second position
- (4) Devroop stood first
- (5) Esha got the fourth position

Direction for question 39 to 40: Read the following caselet and choose the best alternative.

Island of growth was witnessing a rapid increase in GDP. Its citizen had become wealthier in recent times, and there had been a considerable improvement in the standards of living. However, this rapid growth had increased nepotism in the Island. In the recent times, a fear had gripped the population that corruption would destroy the inclusive nature of the society and hinder economic progress. However, most citizens had kept quiet because:

- They had benefitted from the corruption indirectly, if not directly.
- They did not have time and energy to protest.
- They did not have courage to rise against the established power centers.

There was a need to remove corruption but no one was willing to stick his neck out. Many politicians, bureaucrats and private organization were corrupt. Media and intellectuals kept quiet as they benefitted indirectly from corruption. The common man was scared of state's retribution and the youngsters feared insecure future.

Against this background, an old, unmarried, and illiterate of high moral and ethical authority, Shambhu, decided to take on the issue of corruption. He sat on a hunger strike in the heart of the capital city of the Island. Shambhu demanded that the Government should constitute new laws to punish the corrupt across all walks of life, Media and the citizens of the island gave massive support to Shambhu. Buckling under the pressure, the Government promised to accept Shambhu's demands. He ended the hunger strike immediately following the Government's announcement. Shambhu became the darling of the media. He used this opportunity as a platform to spread the message that only citizens with an unblemished character should be allowed to hold a public office.

A few months later, it was found that the government had not fulfilled any of its promises made to Shambhu. Infuriated, he was thinking of launching another inland-wide protest. However, this time, he sensed that not many people and media person were willing to support him.

39. Read the following statements:

- People's latent anger against corruption
- Shambhu's moral courage
- Hungary media looking to raise issues
- Raising income level

In your opinion, which combination of the above statements is the most unlikely reason for Shambhu's initial success?

- | | | |
|-------------|----------------|----------|
| (1) 1, 2, 4 | (2) 3, 4 | (3) 1, 3 |
| (4) 1, 3, 4 | (5) 1, 2, 3, 4 | |

40. Which of the following could be the most likely reason for decline in public support for Shambhu?

- The common man had become sick and tired of Government's inaction against rising corruption.
- Shambhu was old and he lacked energy to garner the same support that he enjoyed from the media and the public in the initial stages.
- The general public may have realized that Shambhu was focusing too much on "indirect involvement" in past incidences of corruption. Common men found it difficult to live up to the high standards set by Shambhu.
- Shambhu's colleagues were misleading him.
- Shambhu came from a village, while most of his supporters were city dwellers.

Direction for question 41 to 43: Read the following caselet and choose the best alternative.

Head of a nation in the Nordic region was struggling with the slowing economy on one hand and restless citizens on the other. In addition, his opponents were doing everything possible to discredit his government. As a famous saying goes, "There is no smoke without a fire", it cannot be said that the incumbent government was doing all the right things. There were reports of acts of omission and commission coming out every other day.

Distribution of public resources for private businesses and for private consumption had created a lot of problems for the government, it was being alleged that the government has given the right to exploit these public resources at throw-away prices

to some private companies. Some of the citizens were questioning the government policies in the Supreme Court of the country as well as in the media. In the midst of all this, the head of the nation called his cabinet colleagues for a meeting on the recent happenings in the country.

He asked his minister of water resources about the bidding process for allocation of rights to setup mini-hydel power plants. To this, the minister replied that his ministry had followed the laid out policies of the government. Water resources were allocated to those private companies that bid the highest and were technically competent. The minister continued that later on some new companies had shown interest and they were allowed to enter the sector as per the guidelines of the Government. This, the minister added, would facilitate proper utilization of water resources and provide better services to the citizens. The new companies were allocated the rights at the price set by the highest bidders in the previous round of bidding. After hearing this, the head of the nation replied that one would expect the later allocations to be done after a fresh round of bidding. The minister of water resources replied that his ministry had taken permissions from the concerned ministries before allocating the resources to the new companies.

41. Media reports suggested that the minister of water resources had deliberately allocated the water resources at old prices to the new companies, and in return some received kickbacks. However, the minister denied these charges. His counter argument was that he followed the stated policies of the Government and it is very difficult to price a scarce resource. He also said that the loss that the media is talking about is notional and in reality the Government and the citizens have gained by the entry of new players. Which of the following is the most appropriate inference?

- (1) If benefit to the citizens is higher than notional losses then it is not unethical.
- (2) If benefit to the citizens is lower than notional losses then it is unethical.
- (3) If to the citizens is higher than actual losses then it is not unethical.
- (4) If benefit to the citizens is lower than actual losses then it is unethical.

(5) All of the above A, B, C and D are inappropriate.

42. Subsequently, the minister questioned the role of the media in the Whole affair. He said that the media cannot act like a reporter, prosecutor and judge at the same time. Mr. Swamy, an independent observer, was asked about appropriateness of the minister's opinion. What should be Mr. Swamy's reply?

- (1) Media has been rightly accused by the minister.
- (2) Minister statement may be factually incorrect.
- (3) Media has rightly accused the minister.
- (4) Media has wrongly accused the minister.
- (5) None of above

43. Looking at the public unrest and discontent, the Government's anti-corruption branch was entrusted with the task of investigating the matter. Within a Week's time the branch charge sheeted top corporate managers and the minister for Wrong doings. Mr. Swamy was again asked to identify the guilty. Who should Mr. Swamy pick?

- (1) Only corporate managers.
- (2) Only the minister.
- (3) Only the Head of the nation.
- (4) All of the above
- (5) None of the above.

44. Over the last years, Bank of Bharat has seen the number of its retail customer accounts drop by over 40 percent. Over the same period, the share price of Bank of Bharat has increased by more than 80 percent. This amazed a few investors, who believe that a bank's share price should drop if its number of customers drops.

Which of the following, if true over the last years, best accounts for the observed movement in the price of Bank of Bharat's equity shares?

- (1) Two years ago Securities and Exchange Board started an investigation on the bank for accounting irregularities, but last year the company was cleared of all charges.
- (2) The bank recently implemented a highly publicized program for free home loans.

- (3) The bank has been switching its customer base from retail customers to commercial customers, which now accounts for over 75 percent of the bank's revenues.
- (4) There have been many new banks, which have entered retail banking business over the last five years.
- (5) The bank is known to be the best paymaster in the industry.

45. Gastric bypass surgery has been shown to be effective at helping extremely obese people lose weight. Some patients have lost as much as 300 pounds after undergoing the surgery, thereby substantially prolonging their lives. Despite the success of the treatment, most doctors have not embraced the surgery.

Which of the following statements, if true, best accounts for the lukewarm reaction of the medical community to gastric bypass surgery?

- (1) Gastric bypass surgery carries a high risk of serious complications, including death.
- (2) Obesity is one of the leading contributors to heart disease and hypertension, two leading causes of death.
- (3) Incidences of obesity among the Indian urban middle class population have been increasing consistently for the last three decades.
- (4) Many patients report that losing weight through diets is ineffective, since they usually gain the weight back within six months.
- (5) Most health insurance plans will cover the cost of gastric bypass surgery for morbidly obese patients at high risk of heart disease.

Direction for question 46 to 48: Read the following caselet and choose the best alternative.

Marathe is a vice President in a construction equipment company in the city of Mumbai. One day, his subordinate Bhonsle requested that Kale, a project manager, be transferred to the Chennai office from the Mumbai office. In Chennai, Kale would work alone as a researcher. Bhonsle gave the following reasons for his request: *"Kale is known to frequently fight with his colleagues. Kale is conscientious and dedicated only when working alone. He is friendly with seniors, but refuses to work with colleagues, in a team. He cannot accept criticism and feels hostile and*

rejected. He is over-bearing and is generally a bad influence on the team."

Marathe called upon Gore, another project manager, and sought further information on Kale. Gore recalled that colleague, Lakhote (who was also Kale's former boss) had made a few remarks on his appraisal report about Kale was not fit for further promotion as he was emotionally unstable to work in groups though he had seven years of work experience. Lakhote had described Kale as too authoritative to work under anyone. Lakhote had further told Gore that Kale had an ailing wife, and an old mother, who does not want to stay with his wife.

46. Consider the following solutions to the problem mentioned above:

- (1) Marathe should transfer Kale to Chennai office
- (2) Marathe should try and verify the facts from other sources as well
- (3) Kale should be sacked
- (4) Kale should be demoted
- (5) Marathe should suggest Kale to visit a family counselor

Which of the following would be the most appropriate sequence of decisions in terms of immediacy: starting from immediate to a longer term solution

- | | | |
|-------------|-------------|-------------|
| (1) 2, 1, 5 | (2) 1, 4, 2 | (3) 2, 3, 4 |
| (4) 2, 5, 1 | (5) 2, 5, 4 | |

47. Marathe sought an appointment with Lakhote to find out ways to help Kale. Lakhote is of the opinion that the company's responsibility is restricted to the workplace and it should not try to address the personal employees. If Marathe has to agree to Lakhote's opinion, which of the solutions presented in the previous question would be weakened:

- | | | |
|-------|-------|-------|
| (1) 1 | (2) 2 | (3) 3 |
| (4) 4 | (5) 5 | |

48. Which of the following statements, if true would weaken the decision to sack Kale the most?

- (1) A Government of India study established that employees with 5-10 years of work experience

tend to have conflicting responsibilities at home and office. However these conflicts wither away after 10 years of experience.

- (2) Another article published in the magazine, Xaviers Quarterly, highlighted that employees' problems at home affect their performance at work.
- (3) In the latest issue of a reputed journal, Xaviers Business Review, it was published that most top managers find it difficult to work in a group.
- (4) It was published in Xaviers Management Review (another reputed journal) that individuals who cannot work in teams find it difficult to adjust to a new location.
- (5) Bhonsle was of the opinion that emotionally unstable persons find it difficult to get back to normal working life.

Direction for question 49 to 51: Read the following caselet and choose the best alternative.

It was the end of the performance review cycle for the year 2012 when you asked your subordinates about any problems they were facing. Natrajan told you that an important member of his team, Vardarajan, who had also won the best performance award for the year 2011, was not taking interest in work. Despite Natrajan's counseling, no change was noticed in Vardarajan, rather his attitude deteriorated. You had also received such information from other employees. You had not interfered hoping that Natrajan, an experienced hand, would be able to solve the problem. But now that Natrajan himself brought this to your notice, you decided to call Vardarajan and counsel him.

49. Which of the following could be the most *unlikely* reason for Vardarajan's declining involvement in workplace?

- (1) Vardarajan does not find the work challenging enough as he has already achieved the best performance award.
- (2) Others in the organization have been trying to pull him down, since he was declared best performer.
- (3) Vardarajan was not promoted after his superlative performance, while another colleague, Sudararajan, was prompted

although he was not as good a performer as Vardarajan.

- (4) After putting in lots of effort for the superlative performance, Vardarajan felt burnt out.
- (5) Vardarajan was appreciated by his bosses for achievement last year.

50. Vardarajan did not find his work challenging enough, given below are some steps that could be taken to motivate him:

1. Give Vardarajan a more challenging assignment
2. Transfer Vardarajan from Projects department to Training department
3. Ask him to take a vacation for two months
4. Send him for further training on decision making under stress

Which of the following combinations would be the most appropriate?

- | | | |
|-------------|----------------|----------|
| (1) 1, 2, 3 | (2) 1, 3, 4 | (3) 1, 4 |
| (4) 2, 3, 4 | (5) 1, 2, 3, 4 | |

51. You overheard a conversation between Vardarajan and his colleague over an official dinner. He expressed his unhappiness about the fact that good performers were not given their due credit while poor performers were promoted faster. If Vardarajan is right, which of the following steps would help in creating better organization?

- (1) Promote Vardarajan with immediate effect.
- (2) Ensure that performance is objectively and transparently assessed.
- (3) Give another assignment to Vardarajan.
- (4) Give higher salary to Vardarajan.
- (5) Fire Vardarajan.

Read the following caselet and choose the best alternative (Questions 52 – 55):

Prof. Vijya, the chairperson of the Faculty Academic Committee (FAC), was trying to understand the implications of decisions taken by the Student Placement Committee (SPC) on placement issues.

It was alleged that Biswajit, a final year student, inflated his grades in his bio-data that was sent to the

recruiters. The President of SPC requested the FAC to debar Biswajit from the campus recruitment process. When the matter was brought up for discussion in FAC, one of the professors remarked that Biswajit too should be allowed to defend himself. When Biswajit arrived for the meeting the situation became even more challenging.

Biswajit raised the issue that many other students who had misrepresented grades to get coveted jobs had gone scot-free. He alleged that these students were close to the President of SPC and therefore, no action was taken against them. He stated that somebody has deliberately manipulated his grades in the bio-data.

This allegation confused the members and it was decided to adjourn the meeting. Vijya was to decide on the next course of action.

52. If you were what in your opinion would be the most appropriate action?

- (1) Debar Biswajit and the President of SPC from the placement process as they have failed to uphold the rules of the SPC.
- (2) Suspend Biswajit and the President of SPC.
- (3) Constitute a fact finding committee to investigate the matter and ask them to submit a report to you within a week's time.
- (4) Apprise the corporate recruiters of the situation and assure them that corrective actions will be taken.
- (5) Both options C and D.

53. It was found that a large section of the students have been indulging in such practices. Unfortunately, the HR manager of a much coveted campus recruiter, who is an alumnus of the college came to know about this. Considering yourself in the position of that HR manager, what would be your reaction?

- (1) Express your displeasure and stop any further recruitment from the college.
- (2) Talk to your Contact in the college and try to find out the truth.
- (3) Do not change anything and continue the process as if nothing has happened.
- (4) Ask the college to send a fresh set of bio-data as you wanted verified grades of the students.

(5) Ask the SPC to resend the details of the short-listed students including their verified grades.

54. As a potential entrant you are having an informal Facebook chat with one of the college seniors. You wanted to know about the pay packages of the graduating students. The senior replied that one will be able to understand this only after joining the college. He did not reveal any information but suggested that it is not very difficult to get a high salary job as you have already started networking. He also cautioned that you should not believe any rumors and you should directly contact the student body for any further information. What will be your most appropriate choice for seeking further information about placements?

- (1) This conversation will increase your interest and you will network more with the students of the college for increasing your chances of getting a high salary job.
- (2) You will Contact the college authorities to get more insights about the placement process.
- (3) You will start networking with the HR managers to understand their requirements.
- (4) You will try to contact the President of SPC
- (5) You will Contact your other Facebook friends to find out about the placement activities at the college.

55. Vijya found that there were many such cases of grade inflation. She was giving final touches to the report when her attention was diverted by a phone call on her personal cell phone. It was from an unlisted number. The caller conveyed to her that it will be in her interest as well as in the interest of the college if the report is not presented to the Director. The caller also told her these findings will change nothing only result in bad publicity for the college. The caller identified himself as a well-wisher of the college before hanging up. Consider yourself in Vijya's position and choose an appropriate decision from the following choices.

- (1) Disregard the phone call and do not share its details with others.

(2) Understand the implications of the phone call and apply for a leave.

(3) Call up the Director, tell him about the phone call, and excuse yourself from the responsibility.

(4) Talk to the Director and seek his opinion.

(5) Constitute a different committee to investigate the "phone call" and carry on with your other activities.

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Section C – Quantitative Ability

56. Prof. Mandal walks to the market and comes back in an auto. It takes him 90 minutes to make the round trip. If he takes an auto both ways it takes him 30 minutes. On Sunday, he decides to walk both ways. How long would it take him?
- (1) 100 minutes (2) 120 minutes
(3) 140 minutes (4) 150 minutes
(5) None of the above
57. At the centre of a city's municipal park there is a large circular pool. A fish is released in the water at the edge of the pool. The fish swims north for 300 feet before it hits the edge of the pool. It then turns east and swims for 400 feet before it hits the edge of the pool. It then turns east and swims for 400 feet before hitting the edge again. What is the area of the pool?
- (1) 62500π (2) 125000π
(3) 250000π (4) 500000π
(5) Cannot be answered from the given data
58. Mr. Mehra is planning for higher education expenses of his two sons aged 15 and 12. He plans to divide Rs 15 lakhs in two equal parts and invest in two different plans such that his sons may have access to Rs. 21 lakhs each when they reach the age of 21. He is looking for plan that will give him a simple interest per annum. The rates of interest of the plans for his younger son and elder son should be
- (1) 5% and 7.5% respectively
(2) 8% and 12% respectively
(3) 10% and 15% respectively
(4) 15% and 22.5% respectively
(5) 20% and 30% respectively
59. Albel, Bob and Chulbul have to read a document of seventy eight pages and make a presentation next day. They realize that the article is difficult to understand and they would require team work to finish the assignment. Albel can read a page in 2 minutes, Bob in 3 minutes, and Chulbul in 4 minutes. If they divide the article into 3 parts so that all three of them spend the equal amount of time on the article, the number of pages that Bob should read is
- (1) 24 (2) 25 (3) 26
(4) 27 (5) 28
60. The taxis plying in waseyapur have the following fare structure: Rs 20 for the first two kilometers, Rs 5 for every km in excess of 2 km and up to 10 km, and Rs 8 for every km in excess of 10 km. Bullock carts on the other hand charge Rs 2 per km. Sardar Khan takes a taxi from the Waseyapur railways station to his home. On the way, at a distance of 14 km from the railway station, he meets Faizal Khan, and gets down from the taxi to talk to him. Later he takes a bullock cart to reach his home. He spends a total of Rs 102 to reach his home from the railway station. How far is his home from the railways station?
- (1) 17 (2) 18 (3) 19
(4) 20 (5) 21
61. Consider the expression
- $$\frac{(a^2 + a + 1)(b^2 + b + 1)(c^2 + c + 1)(d^2 + d + 1)(e^2 + e + 1)}{abcde}$$
- Where a, b, c, d and e are positive numbers. The minimum value of the expression is
- (1) 3 (2) 1 (3) 10
(4) 100 (5) 243
62. The mean of six positive integers is 15. The median is 18, and the only mode of the integers is less than 18. The maximum possible value of the largest of the six integers is
- (1) 26 (2) 28 (3) 30
(4) 32 (5) 34
63. Ramesh bought a total of 6 fruits (apples and oranges) from the market. He found that he required one orange less to extract the same quantity of juice as extracted from apples. It Ramesh had used the same number of apples and oranges to make the blend, then which of the

following correctly represents the percentage of apple juice in the blend?

- (1) 25% (2) 33.3% (3) 60%
(4) 60.6% (5) None of the above

64. Sara has just joined Facebook. She has 5 friends. Each of her five friends has twenty five friends. It is found that at least two of Sara's friends are connected with each other. On her birthday, Sara decides to invite her friends and the friends of her friends. How many people did she invite for her birthday party?

- (1) ≥ 105 (2) ≤ 123 (3) < 125
(4) ≥ 100 and ≤ 125 (5) ≥ 105 and ≤ 123

65. 70% of the students who joined XLRI last year play football, 75% play cricket, 80% play basketball and 85% play carom. The minimum percentage of students who play all four games is:

- (1) 5% (2) 10% (3) 15%
(4) 20% (5) None of the above

66. p and q are positive numbers such that $pq = qp$, and $q = 9p$. The value of p is

- (1) $\sqrt{9}$ (2) $\sqrt[9]{9}$ (3) $\sqrt[3]{9}$
(4) $\sqrt[9]{9}$ (5) $\sqrt[3]{9}$

67. Ram, Shyam and Hari went out for a 100 km journey. Ram and Hari started the journey in Ram's car at the rate of 25 kmph, while Shyam walked at 5 kmph. After sometime, Hari got off and started walking at the rate of 5 kmph and Ram went back to pick up Shyam. All three reached the destination simultaneously. The number of hours required for the trip was:

- (1) 8 (2) 7 (3) 6
(4) 5 (5) 4

68. The central park of the city is 40 metres wide. The mayor wants to construct two roads of equal width in the park such that the roads intersect each other at right angles and the diagonals of the park are also the diagonals of the small rectangle formed at the intersection of the two roads. Further, the mayor wants that the area of the two

roads to be equal to the remaining area of the park. What should be the width of the roads?

- (1) 10 metres (2) 12.5 metres
(3) 14 metres (4) 15 metres
(5) 16 metres

69. In a square PQRS, A and B are two points on PS and SR such that $PA = 2AS$, and $RB = 2BS$. If $PQ = 6$, the area of the triangle ABQ is (is it a repeat)

- (1) 6 (2) 8 (3) 10
(4) 12 (5) 14

70. How many whole numbers between 100 and 800 contain the digit 2?

- (1) 200 (2) 214 (3) 220
(4) 240 (5) 248

71. p , q and r are three non - negative integers such that $p + q + r = 10$. The maximum value of $pq + qr + pr + pqr$ is

- (1) ≥ 40 and < 50 (2) ≥ 50 and < 60
(3) ≥ 60 and < 70 (4) ≥ 70 and < 80
(5) ≥ 80 and < 90

72. A number is *interesting* if on adding the sum of the digits of the number and the product of the digits of the number, the result is equal to the number. What fraction of numbers between 10 and 100 (both 10 and 100 included) is *interesting*?

- (1) 0.1 (2) 0.11 (3) 0.16
(4) 0.22 (5) None of the above

73. Arun has to go to the country of Ten to work on a series of task for which he must get a permit from the Government of Ten. Once the permit is issued, Arun can enter the country within ten days of the date of Issuance of the permit. Once arun enters Ten, he can stay for a maximum of ten days. Each of the tasks has a priority, and takes a certain number of days to complete. Arun cannot work on more than one task at a time. The following table gives the details of the priority and the number of days required for each task.

Task	Priority	Number of Days Required
T1	1	3
T2	2	5
T3	5	3
T4	3	4
T5	4	2

Arun's first priority is to complete as many tasks as possible, and then try to complete the higher priority tasks. His last priority is to go back as soon as possible. The tasks that Arun should try to complete are:

- (1) T1 and T2 (2) T1, T2 and T5
 (3) T1, T4 and T5 (4) T1, T2 and T4
 (5) T1, T3 and T4

74. However, Arun's manager has told him to do some background research on the tasks before leaving for Ten. At the same time, there is no guarantee that Government of Ten will give the permit to Arun. Background research involves substantial costs, and therefore Arun has decided that he will not start his background research without getting the permit.

The following table gives the details of the priority, the number of days required for each task and the number of days required for background research on each task.

Task	Priority	No. of Days Required	No. of Days Required for Background Research
T1	1	3	3
T2	2	5	5
T3	5	3	2
T4	3	4	2
T5	4	2	3

Arun's first priority is to complete as many tasks as possible, and then try to complete the higher priority tasks. His last priority is to go back as soon as possible within ten days.

- (1) T1, T2 and T3 (2) T1, T2 and T5
 (3) T1, T2 and T4 (4) T1, T3 and T4
 (5) T1, T4 and T5

75. The radius of a circle with centre O is $\sqrt{50}$ cm. A and C two points on the circle, and B is a point inside the circle. The length of AB is 6 cm, and the length of BC is 2 cm. The angle ABC is a right angle. Find the square of the distance OB .

- (1) 26 (2) 25 (3) 24
 (4) 23 (5) 22

76. Six playing cards are lying face down on a table, two of them are kings. Two cards are drawn at random. Let a denote the probability that at least one of the cards drawn is a king, and b denote the probability of not drawing a king. The ratio a/b is

- (1) ≥ 0.25 and ≤ 0.5 (2) ≥ 0.5 and ≤ 0.75
 (3) ≥ 0.75 and ≤ 1.0 (4) ≥ 1.0 and ≤ 1.25
 (5) ≥ 1.25

77. Consider the expression: $(xxx)_b x^3$, where b is the base, and x is any digit of base b . Find the value of b .

- (1) 5 (2) 6 (3) 7
 (4) 8 (5) None of the above

78. Consider a function $f(x) = x^4 + x^3 + x^2 + x + 1$, where x is a positive integer greater than 1. What will be the remainder if (x^5) is divided by $f(x)$?

- (1) 1 (2) 4 (3) 5
 (4) a monomial in x (5) a polynomial in x

79. In the country of Four, there are four cities. A , B , C and D . B is to the East of A , C is to the south of B , D is to the West of C , and A is to the North of D . The Government of Four is planning to connect these four cities by road such that it is possible for a person to go from a city to any of the other three cities. At the same time, the Government wants to ensure that the total road length is minimum. The distances between A to B , B to C , C to D and D to A are all equal to 10 km. What should be the total length of the road?

- (1) 26.64 km (2) 27.32 km
 (3) 28.30 km (4) 30 km
 (5) 36 km

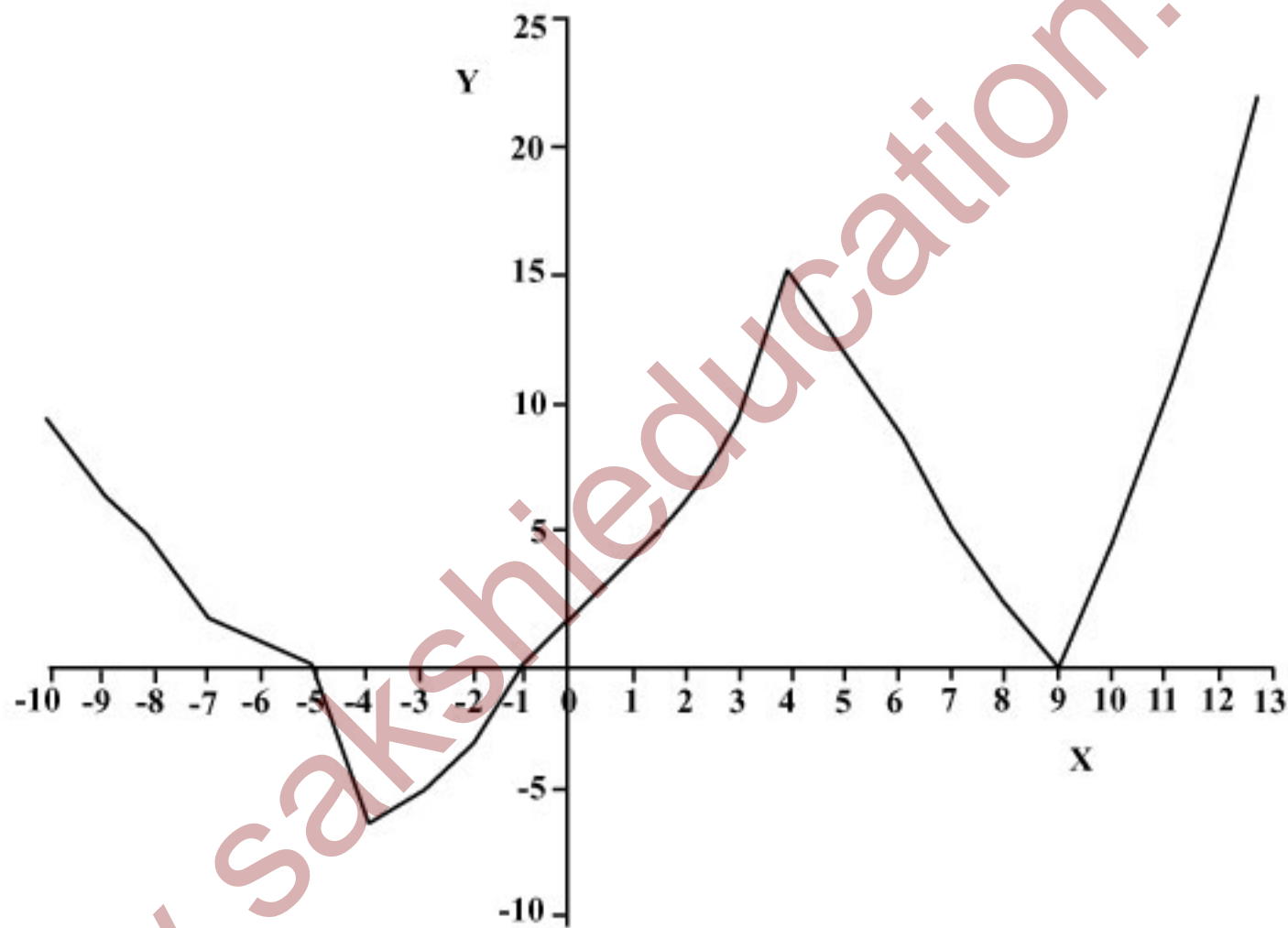
80. Please read the following sentences carefully.

1. 103 and 7 are they only prime factors of 1000027
2. $\sqrt[4]{6!} > \sqrt[3]{7!}$
3. If I travel one half of my journey at an average speed of x km/h, it will be impossible for me to attain an average speed of $2x$ km/h for the entire journey.

- (1) All the statement are correct
 (2) Only Statement II is correct
 (3) Only statement III is correct
 (4) Both statements I and II are correct
 (5) Both statement I and III are correct

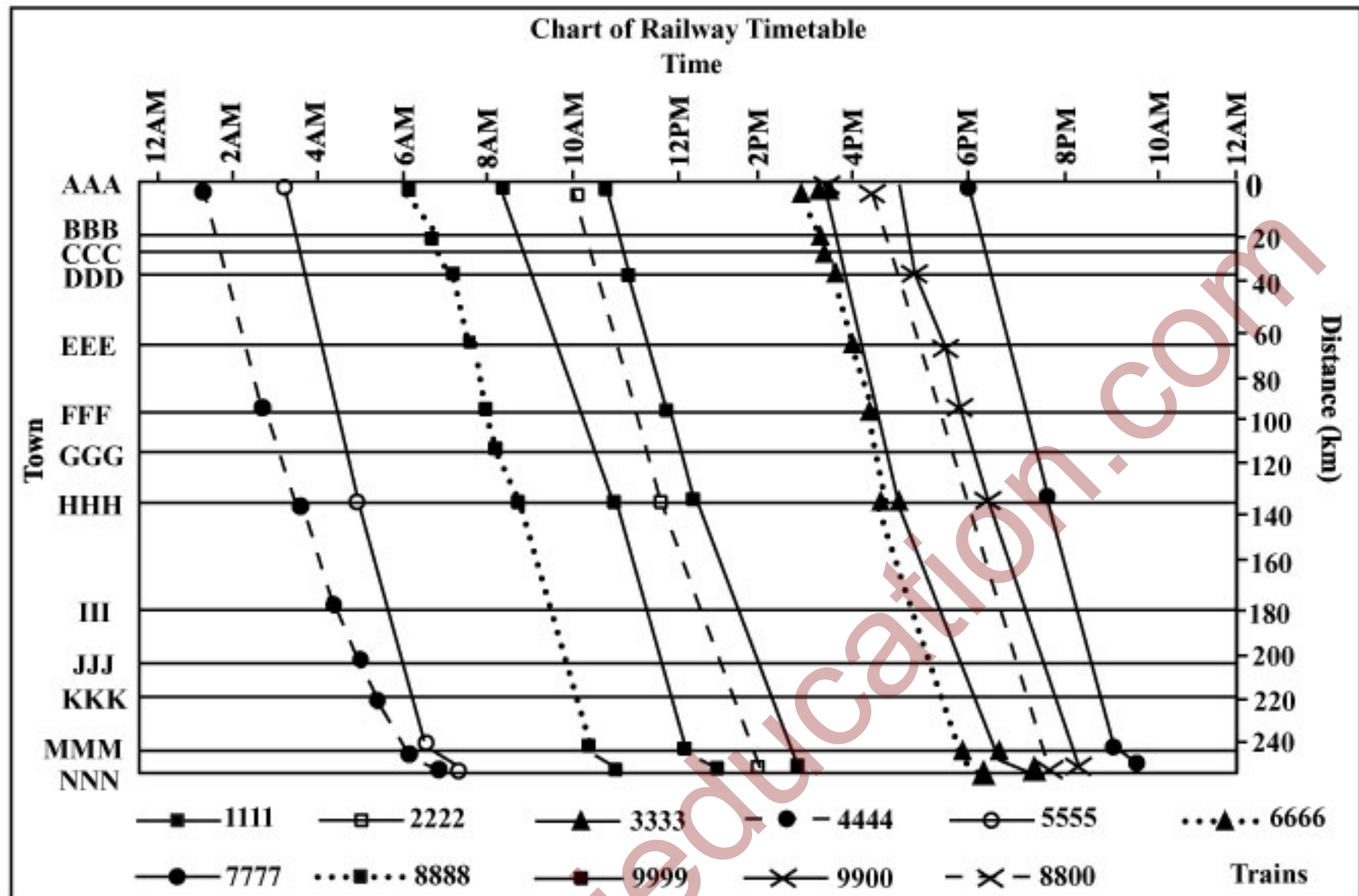
81. The figure below shows the graph of a function $f(x)$. How many solutions does the equation $f(f(x)) = 15$ have?

- (1) 5
 (2) 6
 (3) 7
 (4) 8
 (5) Cannot be determined from the given graph



Answer question nos. 82 - 84 based on the following information:

Analyse the railway train chart below:



82. Which is the fastest train between HHH and NNN?

- (1) 1111 (2) 2222 (3) 4444 (4) 7777 (5) 9999

83. Which is the fastest train between AAA and NNN?

- (1) 8800 (2) 8888 (3) 6666 (4) 4444 (5) 3333

84. If you have to travel from AAA and reach HHH around 9.00 AM and then further travel to NNN at around 6.00PM, which is the best combination of trains for you?

- (1) 1111 and 8800 (2) 1111 and 9900 (3) 8888 and 7777
 (4) 8888 and 8800 (5) 8888 and 9900

Answer question nos. 85 - 88 based on the following information:

Data on an ongoing football league of a country is given below. 20 teams are playing in the league. The rules of the league are as follows:

1. Each Team plays all the other teams twice, once in home ground and once in the opponent's home ground. These matches are known as the "Home" Match and the "Away" Matches respectively
2. A win results in 3 points, a draw in 1 point, and a loss in 0 point for the team.
3. The number of goals a team scores is termed as "Goals For" and the number of goals it concedes is termed as "Goals Against". We get the "Goals Difference" by subtracting "Goals Against" from "Goals for"

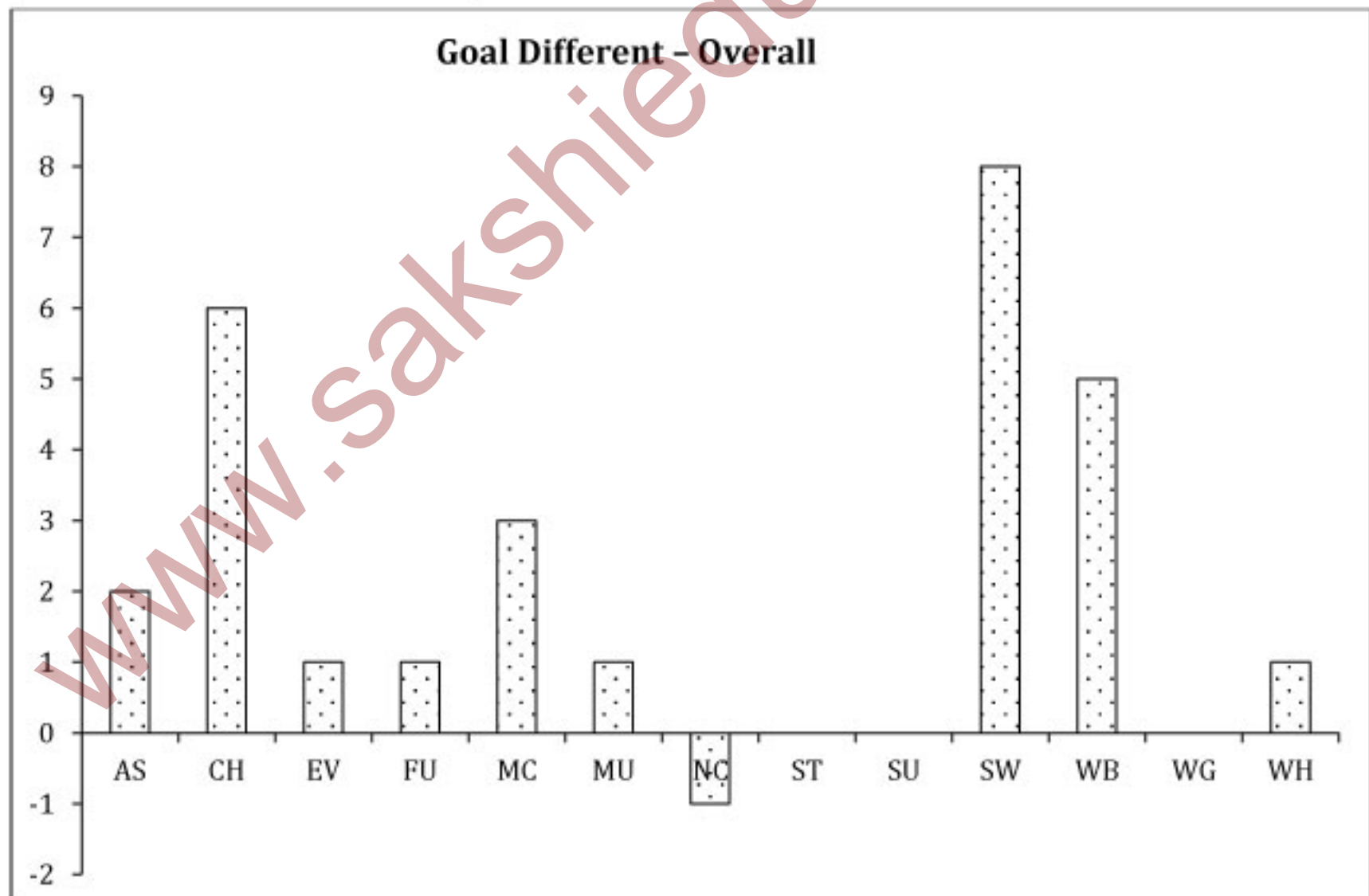
The ranking of the team is decided on the total points. If two teams are tied on their total points the teams which has the higher Goal Difference gets the higher rank. If the tie cannot be resolved on Goal Difference, Goals For is checked followed by Goals Against. If the tie persists, the teams are ranked in the ascending order of their names Table 1 provides data on the current top 13 teams bases on the overall situation, i.e. by taking into account both home matches and away matches of each team

Table 2 provides data on the current top 13 teams based on home matches only

Chart 1 provides a plot of the goal difference of each of the 13 teams based on the overall situation

Overall				
Team	M	W	D	GF
CH	3	3	0	8
SW	3	2	1	10
WB	3	2	1	6
MC	3	2	1	8
MU	3	2	0	6
WH	3	2	0	4
EV	3	2	0	4
AS	3	1	2	2
WG	3	1	1	4
NC	3	1	1	3
FU	3	1	0	7
ST	3	0	3	3
SU		0	2	2

Home					
Team	M	W	D	GF	GA
WB	2	2	0	5	0
WH	2	2	0	4	0
CH	2	2	0	6	2
MC	2	2	0	6	3
SW	2	1	1	5	2
NC	2	1	1	3	2
FU	1	1	0	5	0
EV	1	1	0	1	0
MU	1	1	0	3	2
TOT	2	0	2	2	2
NW	1	0	1	1	1
AS	1	0	1	0	0
ST	1	0	1	0	0



85. Considering the away matches only, which of the following teams is the second ranking team?

- (1) AS (2) CH (3) WG (4) SW (5) WB

86. Considering away matches only, the least number of teams with either 0 or 1 points is

- (1) 2 (2) 3 (3) 4 (4) 5 (5) 6

87. Let us define a term *pos* as the difference between "home rank" and "away rank". Which of the following has the maximum value of *pos*?

- (1) AS (2) WB (3) WH (4) MC (5) SW

Answer question nos. 85 – 88 based on the following information:

Given below are data points on the India economy from 2005 – 2010:

Indicator	Unit	2005	2006	2007	2008	2009	2010
GDP, current price	Rs. Billions	35662.2	41159.73	47675.86	54470.27	60712.76	73555.34
GDP per capita, current prices	Rs.	32128.1	36553.93	41747.69	47038.23	51714.45	61784
Gross national savings Percent of GDP	%	32.88	34.28	36.65	32.17	35.08	32.14
Inflation, average consumer prices index	Index	115.67	122.92	130.75	141.67	157.08	175.92
Volume of imports of goods and services	%change	17.99	9.438	16.3	10.84	8.321	16.49
Volume of exports of goods and services	%change	18.88	13.83	17.13	10.63	0.813	21.86
Unemployment Rate	%	9.2	8.9	7.8	7.2	6.8	7.32
Current account balance percent of GDP	%	-1.272	-1.024	-0.701	-2.475	-2.066	-3.268

*Per capita GDP is arrived by dividing GDP by population.

88. How many unique values of goal difference are there for away matches

- (1) 5 (2) 6 (3) ≥ 6 (4) ≥ 6 and ≤ 13 (5) ≥ 6 and ≤ 14

89. What is the ratio of the current account balance in 2010 to current account balance

- (1) 0.35 (2) 4.56 (3) 5.01 (4) 2.57 (5) 5.30

90. Read the statements given below:

- Exports were more than imports in 2006
- Imports were more than exports in 2009
- Export increased at faster rate than imports during period 2005 to 2010

Which of the statements is necessarily true?

- (1) 1 and 2 (2) 1, 2 and 3 (3) 3 only (4) 2 only (5) 1 only

91. What was the approximate number of unemployed persons in 2006

- (1) 100 million (2) 102 million (3) 98 million (4) 105 million (5) 104 million

Section D – General Awareness

92. Which of the following Indian companies feature in Fortune Five hundred list for 2012
- (1) Reliance Industries, Tata Motors, Tata Steel, IOC
 - (2) Tata Motors, SBI, CTS, Wipro, IOC
 - (3) Tata Steel, IOC, Reliance Industries, Ranbaxy
 - (4) IOC, Reliance Industries, SBI, GAIL
 - (5) IOC, Reliance Industries, ACC, BPCL
93. Which of the bodies decide the monetary policy in India
- (1) Reserve Bank of India
 - (2) Ministry of Finance
 - (3) Ministry of Commerce
 - (4) Ministry of Finance and Commerce
 - (5) Planning Commission
94. CPI and WPI as acronyms refer to
- (1) Political Parties
 - (2) Purchasing capacity indices
 - (3) Price Indices
 - (4) Poverty indices
 - (5) Unemployment indices
95. What is Davos famous for?
- (1) It is best known tourist place of Switzerland
 - (2) G8 members meet here, every year
 - (3) EU financial headquarters
 - (4) World Economic Forum
 - (5) Best Ski resorts in the world
96. Which of the following are millennium development goals?
- (1) Poverty eradication, reducing child mortality, reducing trade barriers, combating AIDS
 - (2) Poverty Reduction, environment sustainability, universal primary education, equal employment
 - (3) Reduce unemployment, promote diversity, combating malaria, improving maternal health
 - (4) Globalization, reduction in poverty, combating AIDS, universal primary education
 - (5) Poverty eradication, improving maternal health, universal primary education, combating AIDS
97. Which of the countries in Europe were most hit by sovereign debt crisis?
- (1) Greece, Germany, Spain, Iceland
 - (2) Portugal, Spain, Italy, Czech Republic
 - (3) Greece, Spain, France, Switzerland
 - (4) Spain, Greece, Iceland, Portugal
 - (5) Germany, U.K., France, Greece
98. Which of the following countries would account for maximum petroleum production of the world?
- (1) Saudi Arabia, Iran, Kazakhstan, U.S., Nigeria
 - (2) Russia, U.S., Iran, China, Saudi Arab
 - (3) Saudi Arabia, U.S., Venezuela, Iran, Iraq
 - (4) Iran, Russia, Saudi Arabia, Nigeria, Libya
 - (5) Iran, Iraq, Saudi Arabia, Libya, Venezuela
99. Which of the following was not the reason for the recent slide of Indian Rupee
- (1) Huge trade Deficit
 - (2) Low Growth and High Inflation
 - (3) Low Capital Inflow
 - (4) Burgeoning current account deficit
 - (5) High employment rate
100. Which of the following combinations belongs to Bretton Woods Institute
- (1) IMF, World Bank
 - (2) IMF, WTO, Doha Round
 - (3) World, WTO, IBRD
 - (4) IMF, World Bank, UNESCO
 - (5) None of above
101. Read the statements carefully and answer the questions that follow
1. Earth Summit is held every year
 2. Last earth Summit took place in Rio Di Janeiro
 3. Another name for earth summit is United Nation Conference on Environment and Development

Which of the above is the right combination?

- (1) 1 and 2 (2) 2 and 3
 (3) 1 and 3 (4) 1, 2 and 3
 (5) 2 only

102. Which of following countries meet more than one fourth of their energy requirement from nuclear power

- (1) France, U.S., Russia, Germany
 (2) France, Ukraine, Sweden, Korea
 (3) France, India, Ukraine, Germany
 (4) Germany, Russia, Canada, Japan
 (5) Japan, Germany, Korea, England

103. Pick the right match from the following combinations

- (1) Shenzhen - China, NSE - India, SGX - Singapore, DAX - Germany
 (2) NASDAQ - U.S., MCX - India, SGX - Korea, FTSE - France
 (3) NYSE - U.S., BSE - India, FTSE - England, DAX - Denmark
 (4) NASDAQ - Canada, BSE - India, FTSE - France, DAX - Germany
 (5) Shenzhen - Singapore, Shanghai - China, FTSE - France, BSE - India

104. Harish Hande who won the Magsaysay Award in 2011 is famous for

- (1) RTE (2) RTI (3) Lokpal
 (4) MRTPC (5) SELCO

105. Indian Government is planning to introduce GAAR. What is the purpose of GAAR?

- (1) Increase rural Income
 (2) Increase agriculture income
 (3) Regulatory authority for managing agriculture resources
 (4) Regulate foreign investment in agriculture
 (5) Curtail tax avoidance

106. Who is the chairman of Indian planning commission?

- (1) Dr. M.S. Ahluwalia
 (2) Dr. C. Rangarajan
 (3) Dr. Manmohan Singh

- (4) Raminder Singh Gujral
 (5) Dr. Subba Rao

107. Given below are some well-known awards and their respective fields. Choose the correct combination:

- (1) Palme d'Or - Television, Pulitzer - Advertising, Grammy - Music, Booker - Literature
 (2) Pulitzer - Advertising, Grammy - Music, Cannes Lions - Advertising, Booker - Literature
 (3) Grammy - Music, Books - Journalism, Emmy - Television, Palme d'Or - Movies
 (4) Cannes Lions - Movies, Grammy - Music, Pulitzer - Journalism, Emmy - Television
 (5) Palme d'Or - Movies, Pulitzer - Journalism, Cannes Lions - Advertising, Booker - Literature

108. A few combination names of companies and their products are given below. Choose the right option:

- (1) Amazon - Kindle, Roxio - Angry Birds, Google - Ad Sense, Zynga - Nook
 (2) Amazon - Kindle, Nintendo -Wii, Rovio - Angry Birds, Zynga - Castle Ville
 (3) Zynga - Angry Birds, Nintendo -Wii, Google - Ad Sense, Rovio - Castle Ville
 (4) Amazon - Nook, Sony - Wii, Zynga - Castle Ville, Google - Ad sense
 (5) Amazon - Nook, Nintendo - Wii, Rovio - Castle, Roxio - Kindle

109. Read the following

- I. Excise duty is a tax on manufacture or production of goods and services
 II. Not all kinds of excise duty is collected by the Central Government of India
 III. Excise duty is an indirect tax

Which of the statements given above are correct?

- (1) Statements I and II
 (2) Statements II and III
 (3) Statements I and III
 (4) All of the above
 (5) None of the above

- 110.** From which of the following items India export the most?
- (1) Textile goods (2) Jute
(3) IT services (4) Gems and Jewellery
(5) Leather
- 111.** Which of the following acids helps in Human Digestion
- (1) Lactic (2) Tartaric
(3) Hydrochloric (4) Sulphuric
(5) Acetic
- 112.** Which of the following is the right match for the Olympics medal winners from India?
- (1) Sushil Kumar – Haryana, Mary Kom – Assam, Saina Nehwal – Andhra Pradesh, Vijay Kumar – Madhya Pradesh
(2) Sushil Kumar – Rajasthan, Mary Kom – Manipur, Vijay Kumar – Himachal Pradesh, Yogeshwar Dutt – Haryana
(3) Yogeshwar Dutt – Haryana, Mary Kom – Manipur, Vijay Kumar – Himachal Pradesh, Gaurav Narang – Andhra Pradesh
(4) Yogeshwar Dutt – Delhi, Saina Nehwal – Uttaranchal, Sushil Kumar – Haryana, Mary Kom – Manipur
(5) Saina Nehwal – Uttaranchal, Gaurav Narang – Punjab, Sushil Kumar – Haryana, Mary Kom – Manipur
- 113.** Which of the following African Countries underwent political turmoil in the last two years?
- (1) Tunisia, Egypt, Libya, Algeria, Morocco, Sudan
(2) Tunisia, Yemen, Algeria, Libya, Morocco, Kenya
(3) Egypt, Libya, Sudan, Mauritania, Nigeria, Malta
(4) Mauritania, Egypt, Libya, Algeria, Sudan, Maldives
(5) Egypt, Libya, Lebanon, Algeria, Sudan, Kenya
- 114.** Which of the following education institutes was Mr. Rajat Gupta, the former Mckinsey chief associated with
- (1) XLRI Jamshedpur
(2) Indian Institute of Management Calcutta
(3) Indian Institute of Management Bangalore
(4) Indian Institute of Management Lucknow
(5) Indian Institute of Business Hyderabad
- 115.** Which of country was the highest producer of cars in the world in 2011
- (1) U.S.A. (2) Germany (3) Korea
(4) Japan (5) China
- 116.** What is the approximate share of manufacturing sector in India GDP in 2011 -12
- (1) 22 % (2) 24 % (3) 31 %
(4) 15 % (5) 10 %
- 117.** Which of the following combination of scholars have won the Nobel Prize in Economics
- (1) Amartya Sen, Joseph Stiglitz, Oliver Williamson
(2) Mehboob Haque, Amartya Sen, Robert McNamara
(3) Amartya Sen, Mohammad Yunus, Ronald Coase
(4) Mohammad Yunus, Paul Krugman, Oliver Williamson
(5) Amartya Sen, Elvin Roth, Mohammed Yunus
- 118.** For which of the following reasons was Maruti in the news in July, 2012?
- (1) Producing most fuel efficient cars
(2) Transfer its production to Gujarat
(3) Industrial violence
(4) Disrupting daily movement of vehicles in New Delhi
(5) In July, it became the highest producer of cars in the country
- 119.** What is meaning of one unit carbon permit?
- (1) One cubic meter of carbon dioxide
(2) One quintal carbon dioxide
(3) One metric ton of carbon dioxide
(4) One thousand metric tons of carbon dioxide
(5) One million ounce of carbon dioxide

120. Who is the author of "Imagining India"

- (1) Khushwant Singh
- (2) Nandan Nilekani
- (3) Gurucharan Das
- (4) Chetan Bhagat
- (5) APJ Abdul Kalam Azad

121. V Kurien was associated with

- (1) Operation Flood
- (2) Operation Milk
- (3) Operation Blue Star
- (4) Operation X
- (5) White Operation

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Detailed Solutions:

1. In pure logic, inductive reasoning follows from an observed piece of data which is generalized over larger data points. The generalization may or may not be true. In deductive reasoning, the statement that follows the main data has to be necessarily true. From the given statements, deduction is eliminated. The best answer choice is where statement 2 is induced from the observed data provided in statement 1.
Hence, the correct answer is **option 1**.
2. Statement 1 speaks of fruits to be freely available where public finance is introduced. Statement 2 of impediment to free distribution. Statement 3 of knowledge transfer becoming cheaper with public money. Essentially statement 2 contradicts the premise of 1 and 3. Eliminate options 1 and 4. Statement 3 lays the premise for fruits being made available to a wider audience.
Hence, the correct answer is **option 2**.
3. Statement 1 talks about B schools not providing data on costs borne by society for individual benefit. Statement 2 is about special interests of people. Statement 3 about particular institutions being favored over others. Hence there is a logical connect between data in statements 2 and 3.
Hence, the correct answer is **option 3**.
4. 'A' is used to refer to 'any or some' whereas 'the' is used to specify 'this or that'. In the context, the first two blanks require an indefinite article. 'From the fold' is the accepted phrase. For the next two blanks, the action of justification is specifically meant for the wolf and the lamb. Hence, these blanks will take the definite article 'the'.
Hence, the correct answer is **option 1**.
5. The first blank needs the article 'A' as we are introduced to the subject and don't have any prior knowledge about the same. Option 3 and 5 are ruled out. In option 2, for the fifth blank, 'a' before 'enemy' is incorrect. For the penultimate blank, the article 'a' is required. Between option 1 and 4, the latter is grammatically correct.
Hence, the correct answer is **option 4**.
6. For the second blank, 'as' is required before 'usual'. 'As usual' is a phrase meaning 'commonly encountered, experienced, or observed'. Options 1, 4 and 5 are ruled out. Between option 2 and 3; 'through' in option 3 is inappropriate.
Hence, the correct answer is **option 2**.
7. "Crept back to the bank again" in statement 2 connects with "I was scarcely in that position" in statement 1. "Seven or eight of them" in statement 1 connects with "three men ran together...middle man...blind beggar" in statement 3 which connects with "his voice showed to me" in statement 4. The correct sequence is 2134.
Hence, the correct answer is **option 2**.
8. The passage starts with statement 2 "...another sound..." which connects with "almost at the same time a pistol shot..." in statement 5. Statement 3 logically follows with "...and that was plainly the last sign of danger...". "...Pew..." in statement 3 connects with "Him they had deserted..." in 4. "Finally he took a wrong turn..." in 1 is the concluding statement. The correct sequence is 25341.
Hence, the correct answer is **option 3**.
9. Questions asked in statement 1 have been answered in statement 3 "...they are simply the wrong sort of questions to ask..." "Simultaneously the same historians..." in 2 follows. The correct sequence is 4132.
Hence, the correct answer is **option 5**.
10. In option 1 and 3, the word 'demands' is awkwardly placed and is not required in option 4, 'requiring' does not fit in. In option 5, 'but with' is awkward. Option 2 is grammatically correct and forms a coherent sentence.
Hence, the correct answer is **option 2**.
11. In this sentence, the part '....does not appear to be the same' must be followed by the person with whom the action is taking place i.e. the subject. Options 1 and 4 are thus ruled out. Option C is unnecessarily lengthy. Option 5 is incorrect with 'travels'. Option 2 is well constructed.
Hence, the correct answer is **option 2**.
12. 'Savings' takes the plural verb 'have'. Rule out options 1 and 2. Option 3 is erroneously constructed and is incomplete. Option 5 has a tense error with 'have been'.
Hence, the correct answer is **option 4**.
13. "...in those very bodies and embodiments (in future existences)" eliminates statement 1 with 5 years. The word "any" in statement is far fetched and cannot be accommodated with the given definition. "next birth in human form" is in sync with the idea presented.
Hence, the correct answer is **option 4**.
14. The conclusion always follows the assertion in statement 1 is true. Statement 2 is accommodated in the universal statement provided in 1.
Hence, the correct answer is **option 2**.

15. The first premise is Lower expectation = greater satisfaction. If we have a statement that shows expectations have nothing to do with satisfaction, then it contradicts the given premise. Option 3 states that. Hence, the correct answer is **option 3**.
16. The second premise states that individuals with long term expectations will not be inclined to lower expectations to improve temporary feelings. This is stated as is in statement 2. An extension of the same premise is provided in statement 3- they are contradictory. Hence statement 1 is eliminated and statements 2 and 3 are accommodated. Hence, the correct answer is **option 4**.
17. The manager has found the food to be good and states it to be excellent. This does not help us understand his disconfirmation sensitivity from the definition provided in the passage. Hence, the correct answer is **option 3**.
18. Fermi used his method to calculate a "minimum" estimate for the yield from the blast. This is best found in Option 1. The use of "exact", and "average" eliminates option 4, and options 2 and 3 respectively. Hence, the correct answer is **option 1**.
19. The passage does not talk about existing values, eliminating option 1. The use of "exact" eliminates options 2 and 3, since that is contradictory with an estimate. What Fermi's technique does do is give us a range above which the value must lie. This makes option 4 correct. Hence, the correct answer is **option 4**.
20. The passage does not focus on estimating when the exact value is know, eliminating statement 1. Statements 3 and 4 may be inferred from the passage, but are not the central idea of the passage. The focus of the passage is how minimal information can be used for estimation. This makes statement 2 the only correct statement. Hence, the correct answer is **option 4**.
21. None of the statements can be inferred. There is no support for Statement 1 in the passage. The word "only" makes statement 3 incorrect. Statement 2 states that students not only respected him in general, but as a scientist, for which there is no data. Hence, the correct answer is **option 5**.
22. Deductive reasoning helps to achieve definite conclusions while inductive reasoning takes a specific example and generalizes it. The statement 'Scientific beliefs are universal in character' is stated as a fact. It goes on to say 'For the universality of a scientific belief implies that, no matter how many instances.....which may or may not also be positive'. Option 4 states this. Hence, the correct answer is **option 4**.
23. The word 'asymmetry' indicates 'imbalance'. Options 1, 2, 3 and 4 all state 'accepting scientific beliefs'. This is erroneous. Option 5 is right. Hence, the correct answer is **option 5**.
24. The last paragraph finds support for option 3. The last paragraph states, "Falsifications may not be conclusive" also "On the other hand, although verifications are also not conclusive" and "But verifying claims, even when accepted, give us no good and appropriate reason for accepting any scientific belief.." Hence, the correct answer is **option 3**.
25. The last paragraph states, "Falsifications may not be conclusive...But, nevertheless, it remains the case that, in falsification, if we accept falsifying claims then, to remain consistent, we must reject falsified claims". Hence, the correct answer is **option 1**.
26. Ambiguous as none of the answer choices can be attributed to the author's belief.
27. Option 4 is in sync with paragraph 4 "...economics discipline, finds the arid reductionism ...false to the facts, and rightly so". Hence, the correct answer is **option 4**.
28. "...and do nearly everything that a central planning board might - provided it does not settle into any one policy firmly, unbendingly." in paragraph 3 is in sync with option 3. Hence, the correct answer is **option 3**.
29. The passage states that ideas of "...critical rationalism may be undermined by the open society..." This eliminates options 2 and 3. Neo-classical economics in option 1 and Newtonian physics in option 4 are not connected with critical rationalism in the passage. Hence, the correct answer is **option 5**.
30. The word deterministic as used in the passage is connected with effects produced by causes. This eliminates option 3. "always" in option 4 and "economics does not follow cause effect relationship" in option 5 are contrary to the data. "Only caused by single event" in option 1 is eliminated as it is too restrictive. Hence, the correct answer is **option 2**.

31. Using Statement I alone:

The actual sales for the online store, super market and book store can be found as the total sales are known. Also, the proportion in which the red, yellow, green and violet costs are apportioned for each kind of store can be found i.e. the additional costs for each kind of store can be found. However, we do not know how the initial costs are distributed among the three stores. So, contribution cannot be found.

Profit/Loss = Contribution - Additional Cost

Since contribution is not known, the profit/loss cannot be found.

So, statement I alone is not sufficient to calculate the profit/loss.

Using Statement II alone:

It is known that the initial cost is allocated in the ratio of sales. Since the ratio of sales is not known, the ratio of initial cost cannot be found.

So, statement II is not sufficient to calculate the profit/loss.

Using both the statements together:

Now, the actual sales as well as the ratio of initial cost are known. Since all the parameters are now known, the actual profit/loss can be found.

Therefore, both the statements are required.

Hence, the correct answer is **option 3**.

32. Total cost for online store = Online^{Red} + Online^{Yellow} + Online^{Green} + Online^{Violet}.

Similarly, the cost for the book store and cost for the super market can be broken up into four parts each.

Total Red Cost = 5500.

Since the online store contributes 200 out of 275 costs in the red cost

$$\text{Online}_{\text{Red}} = \frac{200}{275} \times 5500 = 4000$$

Similarly, the colour-wise cost for each kind of store can be found as shown below:

	Online	Super Market	Book Store	Total
Red	4000	1300	200	5500
Yellow	1550	620	930	3100
Green	3000	1260	540	4800
Violet	1500	630	270	2400
Total	10050	3810	1940	

Now, sales of online store = 50% of 60000 = 30000

Super market sales : book store sales = 1 : 2

∴ Super market sales = 1/3rd of 30000 = 10000 and book store sales = 20000

The total initial cost of 39000 needs to be split up in this ratio.

So, the profit for each format can be calculated as shown below:

	Online	Super Market	Book Store
Sales	30000	10000	20000
Initial Costs	19500	6500	13000
Contribution = Sales - Initial Costs	10500	3500	7000
Additional Costs	10050	3810	1940
Profit = Contribution - Additional Cost	450	(310)	5060

Thus, the profit from "online" sales is 450.

Hence, the correct answer is **option 4**.

33. Consider the solution to the previous question. Note that loss is considered as a negative profit.

So, the super market format is the format that yields the least profit.

Hence, **option 2**.

34. Consider the solution to the second question of the set.

The book store format yields the highest profit.

Hence, the correct answer is **option 1**.

35. When multiple people have the same correct answers to multiple questions it doesn't necessarily have to imply that the people are cheating.

They maybe good or brilliant students who have indeed correctly marked the answers and as there is only one correct answer they may arrive at it honestly. On the other hand if many students sitting next to each other have the same incorrect answers it is more probable as there are 5 ways to incorrectly mark an answer wrongly & the fact they have same wrong answers to multiple questions doesn't seem to be a mere coincidence but points to a something fishy.

Again, option 4 can be a way but as the question asks for an opinion one can easily make out that given a small error in judgment, one can employ option 3 in a better way when compared to option 4 as having the same correct answer to multiple questions is more probable than having the same incorrect answers to multiple questions.

Option 1 and 2 become redundant due to the mention of "small error in judgment" and option 5 becomes redundant as same incorrectly answered questions are also highly improbable for brilliant/good students.

36. Probability of selecting a wrong answer cannot be calculated. We might take the probability of selecting a wrong answer as $1 - 0.2 = 0.8$ but it will be less than 0.8 as there is a possibility that the student does not attempt the question at all.

So we cannot find the probability to the question.

Hence, the correct answer is **option 5**.

37. To find the exact number of students from each section we need a statement which quantifies the number of students. Of all the statements given, statement V and VII are the only such statements. So the answer option has to have at least one of these two statements.

So, we can eliminate options 1, 2 and 4.

Let the number of students in section A, section B, section C and section D be a, b, c and d respectively.

Consider option 5

If we use all the statements given in the option and keeping in mind that the number of students who went for the field trip is less than 15, then we will get the number of students in each section as:

a	b	c	d	Product	Total number of students
4	2	3	1	24	10
8	2	3	1	48	14
6	2	4	1	48	13
6	3	4	1	72	14

Hence we observe that we cannot find a unique combination for the number of students in each section. So this option is incorrect

Now, consider option 3

If we use all the statements given in the option and keeping in mind that the number of students who went for the field trip is less than 14, then we will get the number of students in each section as:

Case I:

a	b	c	d	Product	Total number of students
5	4	3	1	60	13

Case II:

a	b	c	d	Product	Total number of students
5	4	3	2	120	14

Case II is eliminated because the number of students cannot be more than 13 as it is given in the question that on the scheduled day few students could not join

the field trip and the initial number of students were 15.

Hence, we get a unique combination for the number of students in each section (Case I). So this option is correct.

Hence, the correct answer is **option 3**.

38. Let us evaluate the answer options.

Let us indicate the students by their initials.

We assume option 1 to be true - that is Ankita got the third position

First student's assumption - A B C D E

Second student's assumption - D A E C B

We start with the order as _ A _ _

Now it is given that the second student had got two positions correct and two students in his ranking correctly followed their immediate predecessors.

In the guess of the second student D A E C B, we have 4 blocks - DA, AE, EC, CB; out of which 2 blocks will come in the actual rank order.

Case I: We take the 2 blocks as DA and AE.

_ D A E _ . Now the fifth position can be occupied by either B or C. In either case, it will violate the condition that the second student had got two positions correct. So this case is not possible.

Case II: We take the 2 blocks as DA and EC.

_ D A E C and the first position will be occupied by B to get the order as B D A E C. This order also violates the condition that the second student had got two positions correct. So this case is also not possible.

Case III: We take the 2 blocks as D A and C B.

_ D A C B and the first position will be occupied by E to get the order as E D A C B. This order satisfies all the conditions mentioned in the question.

So, Ankita got the third position.

Hence, the correct answer is **option 1**.

39. The first paragraph states different reasons why people did not react to corruption, which will support "people's latent anger against corruption" as a reason for Shambhu's initial success. The first line of the second paragraph states Shambhu had "high moral and ethical authority". Statements 3 and 4 are the most unlikely reasons.

Hence, the correct answer is **option 2**.

40. The passage repeatedly states that "people have benefited from the corruption indirectly and thus were involved in corruption". The last line of the second paragraph states that Shambhu wanted citizen's with unblemished character" for public offices. Both these reasons support statement 3 as the correct answer.

Other options do not put forth sufficient reasoning for the declining support.

Hence, the correct answer is **option 3**.

41. The minister's counter argument states "he followed the stated policies of the Government and it is very difficult to price a scarce resource". The information in the question does not link unethical practices with benefit to citizens, and notional losses. None of the options can be inferred from the information stated in the question.

Hence, the correct answer is **option 5**.

42. There is not information available to Mr. Swamy which will support that media ever accused the minister, or that the minister's accusations about media are correct.

This eliminates options 1, 3, and 4, but he can state that the minister's argument is factually incorrect.

Hence, the correct answer is **option 2**.

43. Although the top corporate managers and the minister are charged for wrong doings the head of the nation is not charged for corruption. The passage states he called upon his cabinet colleges and asked them about the allegations. So Mr. Swamy cannot pick him up to be guilty. As there is no option which puts both the top managers and the minister together, the correct answer will be none of the above.

Hence, the correct answer is **option 5**.

44. If the share prices have increased despite over 40 per cent drop in retail consumer accounts, then the bank must be doing something which is positive. Options 1 and 4 may hamper its share prices. Option 5 is too general, and option 2 does not strongly support the increase. Option 3 best illustrates why the bank is dropping its retail customers but still picking up its share prices.

Hence, the correct answer is **option 3**.

45. Despite the success of the treatment, if most doctors are not advocating the surgery then there must be some fatal consequences of the procedure. Options 2, 3 and 5 do not explain the lukewarm response to the surgery and between answer 4 and 1, 1 best explains the reason.

Hence, the correct answer is **option 1**.

46. Marathe should try and verify the facts from other sources, as it will help him make the right decision. He should transfer Kale to the Chennai office to see if working alone is the solution and he should tell kale to visit a counselor as employee's personal problems may

hamper his efficiency. Thus 2, 1, 5 is the correct sequence of action.

Hence, the correct answer is **option 1**.

47. If it is not company's responsibility to address personal problems of the employee then statement 5 from the previous question will be weakened.

Hence, the correct answer is **option 5**.

48. Kale has already worked for more than 7 years in the organization, and if the problems wither away after 10 years then the decision to sack him will be null and void.

Hence, the correct answer is **option 1**.

49. If Varadrajan was appropriated by his bosses for his achievement last year then he should have performed better. This is the most unlikely reason for the decline in his performance.

Hence, the correct answer is **option 5**.

50. If Varadrajan did not find his work challenging then giving him opportunities for more challenging work and training him to take up more responsibilities is the best solution.

Hence, the correct answer is **option 3**.

51. Since Varadrajan is not performing well now, promoting him will not be an ideal solution even according to Varadrajan's own opinion. But assessing the performances objectively and transparently will give good performers their due.

Hence, the correct answer is **option 2**.

52. Without proper investigation no decision should be taken by Vijaya. Statements C and D propose courses of action which are correct in addressing the issue.

Hence, the correct answer is **option 5**.

53. As a former student of the same college and HR manager for a much coveted campus recruiter, you will want to verify the bio-data that are sent to you as there may be some students who are well deserving for the placements.

Hence, the correct answer is **option 4**.

54. Contacting the college authorities to know the pay package after graduation, will be the correct decision.

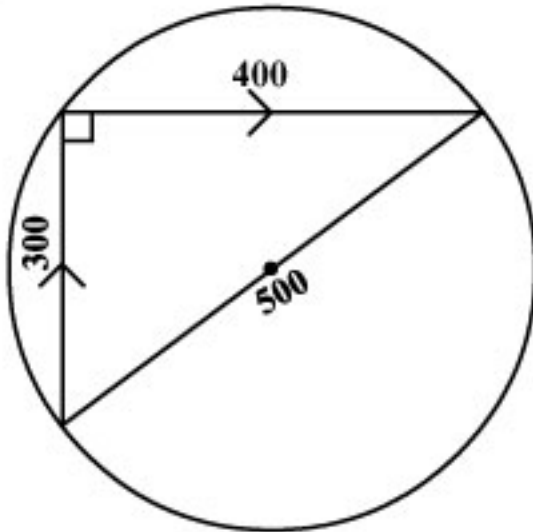
Hence, the correct answer is **option 2**.

55. As any information related to the matter needs to go through the director of the institution, Vijaya should report everything to him and ask for his opinion before going further.

Hence, the correct answer is **option 4**.

56. When Prof. Mandal takes an auto both ways, it takes him 30 minutes. It means that one way by auto would take 15 minutes.
So from the round trip of 90 minutes, we subtract 15 minutes corresponding to the auto. We get 75 minutes, which is the time taken to cover one way walking.
Hence, the time taken for round trip walking equals $75 \times 2 = 150$ minutes.
Hence, the correct answer is **option 4**.

57.



Applying Pythagoras Theorem, we get:
 $300^2 + 400^2 = 500^2$.

The path of the fish must be as shown in the figure where 500 is the diameter of the circular pool.

$$\therefore \text{Area of the pool} = \pi \times (250)^2 = 62500 \pi$$

Hence, the correct answer is **option 1**.

58. For the younger child, Rs 7.5 lakhs should become 21 lakhs in 9 years.

Hence,

$$7.5 \left(1 + 9 \left(\frac{x}{100} \right) \right) = 21$$

where x is the rate of interest for the younger child.

$$\therefore x = 20\%$$

Similarly, for the elder son, if y is the Rate of Interest,

$$7.5 \left(1 + 6 \left(\frac{y}{100} \right) \right) = 21$$

$$\therefore y = 30$$

Hence, the correct answer is **option 5**.

59. Let the speeds with which they read be $1/2$, $1/3$ and $1/4$ pages per minute respectively.

Let t be the total time taken by them to read 78 pages.

Then,

$$t \times \left(\frac{1}{2} + \frac{1}{3} + \frac{1}{4} \right) = 78$$

$$\therefore t = 72.$$

Hence, the number of pages that Bob should read

$$= t \times \frac{1}{3} = \frac{72}{3} = 24 \text{ pages.}$$

Hence, the correct answer is **option 1**.

60. The taxi fare for the first 14 km
 $= 20 + 5 \times 8 + 8 \times 4 = \text{Rs. } 92$
Since he spends a total of Rs.102, he must travel by the cart worth Rs. 10 ($102 - 92$), or a distance of $10/2$ km i.e. 5 km by the cart.

\therefore The distance of his home from the railway station
 $= 14 + 5 = 19$ km.

Hence, the correct answer is **option 3**.

61. $\frac{a^2 + a + 1}{3} \geq (a^2 \times a \times 1)^{\frac{1}{3}}$... By A. M – G. M. relation

$$\text{Hence, } \frac{a^2 + a + 1}{3} \geq a \text{ or } \frac{a^2 + a + 1}{a} \geq 3$$

Using a similar relation for b, c, d and e and then multiplying, we get

$$\frac{(a^2 + a + 1)(b^2 + b + 1)(c^2 + c + 1)(d^2 + d + 1)(e^2 + e + 1)}{abcde} \geq 3^5 = 243.$$

Hence, the correct answer is **option 5**.

62. We arrange the numbers in increasing order as $a b c d e f$

Now, their sum is $15 \times 6 = 90$. Hence to maximize the largest number we take the first two numbers i.e. a, b equal to 1.

$$1 1 c d e f$$

The sum of c and d is 36 since the median is 18. Now, in order to maximize f we have to minimize e , but e should be greater than both c and d . Also, all of c, d, e and f must be distinct since there is only one mode. Hence we minimize d by taking $c = 17$, which gives the value of $d = 19$. Hence, we can take the value of $e = 20$. For any other value of c , value of e will be more than 20. Hence $c = 17, d = 19, e = 20$ and $f = 32$.

This is the maximum value that f can take.

Hence, the correct answer is **option 4**.

63. Since one less orange was required to extract the same quantity of juice as extracted from the apples, the juice extracted from 3 apples should be equal to the juice extracted from 2 oranges.

So, let $2x$ be the quantity of juice extracted from one apple and $3x$ be the quantity of juice extracted from one orange.

∴ The percentage of apple juice in a juice with equal number of oranges and apples

$$= \frac{2x}{2x + 3x} \times 100\% = 40\%$$

Hence, the correct answer is **option 5**.

64. For Maximum invites:

Out of 25 of each of the 5 friends of Sarah, one is Sarah herself. That leaves 24 distinct friends for each of the 5 friends.

Hence, $24 \times 5 = 120$ friends have to be invited

Also Sarah's 5 friends are also to be invited.

Hence, $120 + 5 = 125$ friends have to be invited.

However, 2 of them know each other and so we have to reduce 2 people from the list as we have already included them in our earlier calculations.

Hence, a total of $125 - 2 = 123$ people have to be invited.

For Minimum:

Let us consider the case when each friend of Sarah is also friend with other friends of Sarah.

That leaves 20 friends for each of Sarah's friends. Let those 20 friends be common for all 5 of them.

So total number of people invited = $20 + 5 = 25$.

Only option 2 satisfies both the criteria.

Hence, the correct answer is **option 2**.

65. Students not playing

Football = 30%

Cricket = 25%

Basketball = 20%

Carrom = 15%

Hence, maximum number of students not playing at least one of the games = $30 + 25 + 20 + 15 = 90\%$

Minimum Percentage of students playing all four games = $100 - 90 = 10\%$

Hence, the correct answer is **option 2**.

66. $p^q = q^p$

$$(p^q)^{1/p} = (q^p)^{1/q}$$

$$\text{As, } \frac{q}{p} = 9$$

$$p^9 = q \dots (i)$$

$$\text{Also, } p = \frac{q}{9} \dots (ii)$$

Dividing (i) by (ii), we get $p^8 = 9$

$$\text{Hence, } p = \sqrt[8]{9}$$

Hence, the correct answer is **option 4**.

67. Let the distance travelled by Ram before Hari got off be $30d$.

For the same time, since the speed of Ram and Shyam is in the ratio 5:1, distance too would be in the same ratio i.e. 5:1.

∴ The distance travelled by Shyam when Hari got off = $6d$.

Now, out of the distance $24d$ (Distance between Ram and Shyam when Hari got off), Shyam will cover $4d$ and Ram will cover $20d$.

∴ Total time taken by Ram

$$= \frac{30d + 20d + 20d + 100 - 30d}{25}$$

$$= \frac{100 + 40d}{25}$$

$$\text{The total time taken by Hari} = \left(\frac{30d}{25}\right) + \left(\frac{100 - 30d}{5}\right)$$

$$= \frac{500 - 120d}{25}$$

As the time taken in both the cases is equal,

$$\frac{100 + 40d}{25} = \frac{500 - 120d}{25}$$

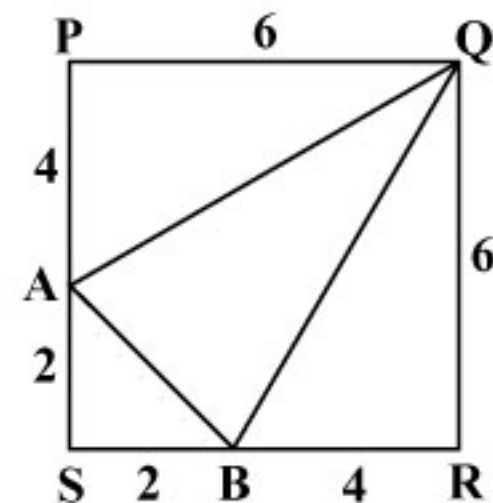
$$\therefore d = 2.5$$

$$\therefore \text{Total time taken} = \frac{100 + 40(2.5)}{25} = 8 \text{ hours.}$$

Hence, the correct answer is **option 1**.

68. The question is incorrect, since the diagonal of a rectangle cannot coincide with the diagonal of a square inside the rectangle.

69.



According to the figure, $A(\Delta QAB) = \text{Area of Square PQRS} - (A(\Delta PQA) + A(\Delta QRB) + A(\Delta ASB))$

$$= (6 \times 6) - \left(\left(\frac{1}{2} \times 6 \times 4 \right) + \left(\frac{1}{2} \times 6 \times 4 \right) + \left(\frac{1}{2} \times 2 \times 2 \right) \right) = 10 \text{ cm}^2$$

Hence, the correct answer is **option 3**.

70. Between 100 and 199, there will be 19 numbers which contain '2'. They are as follows:

102, 112, 120 – 129 (10 numbers), 132, 142, 152, 162, 172, 182, 192

Similar would be the case for 300 - 399, 400 - 499, 500 - 599 and 600 - 699.

For 200 – 299, all 100 numbers will have 2.

$$\therefore \text{Total number of numbers} = 19 \times 6 + 100 = 114 + 100 = 214$$

Hence, the correct answer is **option 2**.

71. As p, q, r are non-negative integers, the maximum will be achieved when the value of each variable is closest to each other i.e. p, q, r are 4, 3, 3 (not necessarily in the same order).

$$\text{Hence, the value of } pq + qr + pr + pqr = 33 + 36 = 69$$

Hence, the correct answer is **option 3**.

72. Let the numbers be of the form $10x + y$.

$$\therefore 10x + y = x + y + xy$$

$$\therefore 9x = xy$$

$$\therefore y = 9$$

The numbers are 19, 29, 39, 49, 59, 69, 79, 89 and 99 - total of 9 numbers.

$$\text{Now, the total number of numbers} = 100 - (10 - 1) = 91$$

$$\text{Hence, the required fraction} = \frac{9}{91} = 0.099$$

Hence, the correct answer is **option 5**.

73. We start with elimination:

Since, Arun's 1st priority is to complete as many tasks as possible, option 1 is ruled out since only 2 tasks are performed.

Option 4 is eliminated since the number of days required are > 10 , which is not permitted.

Options 2, 3, and 5: Number of days required are ≤ 10 , which meets requirements.

Since, 'higher priority task' is his 2nd priority after the number of tasks,

Priority completion for:

$$\text{Option 2 - T1, T2, T5} = 1 + 2 + 4 = 7$$

$$\text{Option 3 - T1, T4, T5} = 1 + 3 + 4 = 8$$

$$\text{Option 5 - T1, T3, T4} = 1 + 5 + 3 = 9$$

Since, in option 2, higher priority tasks are performed as compared to other options, Arun should try to complete those tasks i.e. T1, T2, T5

Hence, the correct answer is **option 2**.

74. Here, the basic requirement is that "number of days required" and "number of days required for Background Research" should be ≤ 10 .

"Number of days required":

$$\text{Option 1} = 3 + 5 + 3 = 11$$

$$\text{Option 3} = 3 + 5 + 4 = 12$$

Hence, these are ruled out.

"Number of days required for Background Research" in option 2 = $3 + 5 + 3 = 11$.

Priority completion for:

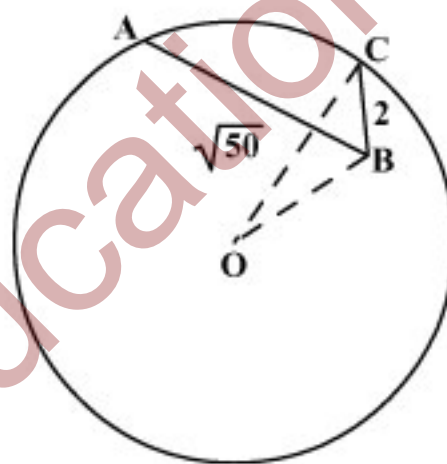
$$\text{Option 4} = 3 + 3 + 4 = 10$$

$$\text{Option 5} = 3 + 4 + 2 = 9$$

Since, in option 5, higher priority tasks are performed, Arun should try to complete those tasks i.e. T1, T4, T5.

Hence, the correct answer is **option 5**.

- 75.



In any triangle, the difference of any 2 sides $<$ 3rd side.

Consider ΔOBC :

$$\text{Side } OC = \sqrt{50} \approx 7.07$$

$$\text{Side } BC = 2$$

$$\therefore \text{Side } OB > 7.07 - 2$$

$$OB > 5.07$$

$$\therefore \text{Side } OB^2 > (5.07)^2$$

$$\text{i.e. } OB^2 > 25$$

Hence, the correct answer is **option 1**.

76. a = Probability of drawing at least 1 king out of 2 cards.

$$P(a) = \frac{{}^2C_1 \times {}^4C_1}{{}^6C_2} + \frac{{}^2C_2}{{}^6C_2} = \frac{9}{15}$$

b = Probability of not drawing a king.

$$P(b) = \frac{{}^4C_2}{{}^6C_2} = \frac{6}{15}$$

$$\therefore \frac{a}{b} = \frac{9}{6} = 1.5$$

Hence, the correct answer is **option 5**.

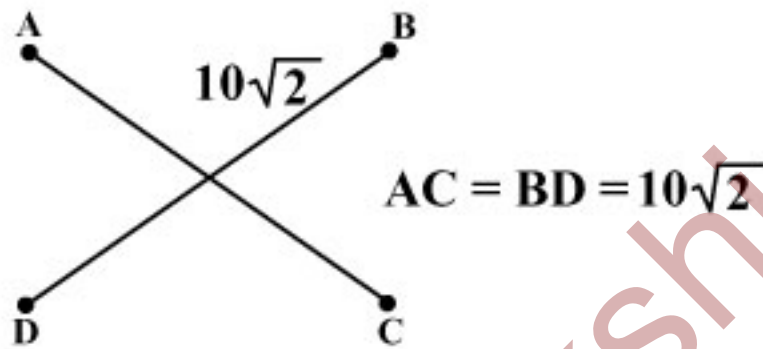
77. Since x is any digit in the base, let us consider $x = 1$.
 Substituting the value of b for any of the options i.e. 5, 6, 7, 8, we get
 $(111)_5 \neq 1^3$
 $(111)_6 \neq 1^3$
 $(111)_7 \neq 1^3$
 $(111)_8 \neq 1^3$
 Hence, none of the above is true.
 Hence, the correct answer is **option 5**.

78. $f(x) = x^4 + x^3 + x^2 + x + 1$

$$= \frac{x^5 - 1}{x - 1}$$

 $\therefore f(x)(x - 1) + 1 = x^5$
 $\therefore f(x^5) = f(f(x)(x - 1) + 1)$
 Now, each term in the expansion of $f(x^5)$ leaves a remainder of 1 when divided by $f(x)$.
 Hence, $f(x^5)$ will leave a remainder of $1 + 1 + 1 + 1 + 1 = 5$ when divided by $f(x)$.
 Hence, the correct answer is **option 3**.

79. The shortest length possible such that all the cities are connected is:



\therefore Total length = $10\sqrt{2} + 10\sqrt{2} = 20\sqrt{2} = 28.30$ km
 Hence, the correct answer is **option 3**.

80. Statement I - Prime factors of 1000027 are 7, 19, 73, 103. Hence, the statement is false.
 Statement III - It is true. Let us solve it taking an example.
 E.g. Let $s_1 = 30$ kmph.
 Average speed = 60 kmph
 Therefore, $60 = \frac{2 \times s_1 \times 30}{s_1 + 30}$
 $60s_1 + 1800 = 60s_1$. This is mathematically incorrect.
 Hence, the only option which satisfies the condition is 3
 Hence, the correct answer is **option 3**.

81. $f(f(x)) = 15$ will be true when $f(x) = 4$ or $f(x) = 12$.
 From the graph, $f(x) = 4$ four times, while $f(x) = 12$ three times.
 Hence, $f(f(x)) = 15$ has total of $4 + 3$ solutions.
 Hence, the correct answer is **option 3**.

82. We need to find the time taken only for the five trains mentioned in the answer options.
 The start time, end time and time taken for these five trains is shown below:

Train Number	Start Time	End Time	Time Taken
1111	10:15 a.m.	12:30 p.m.	2:15
2222	11:15 a.m.	1:30 p.m.	2:15
4444	3:30 a.m.	6:30 a.m.	3:00
7777	8:00 p.m.	10:00 p.m.	2:00
9999	12:00 p.m.	2:15 p.m.	2:15

Thus, train number 7777 is the fastest train between HHH and NNN.
 Hence, the correct answer is **option 4**.

83. Again, we check only the trains given in the answer options.
 The start time, end time and time taken for these five trains is shown below:

Train Number	Start Time	End Time	Time Taken
8800	4:00 p.m.	7:45 p.m.	3:45
8888	6:15 a.m.	10:15 a.m.	4:00
6666	2:30 p.m.	6:45 p.m.	4:15
4444	1:30 a.m.	6:30 a.m.	5:00
3333	3:00 p.m.	7:30 p.m.	4:30

Thus, train number 8800 is the fastest train between AAA and NNN.
 Hence, the correct answer is **option 1**.

84. The train that reaches HHH closest to 9:00 a.m. is 8888 and the train that leaves from HHH to NNN closest to 6 p.m. is 8800. However, it does not stop at HHH. The train that stops at HHH and leaves from there at around 6 p.m. is 9900. So, the best combination of trains is 8888 and 9900.
 Hence, the correct answer is **option 5**.

85. Considering that the away data is required for all the questions, we need to make a table of away matches for each team.

Consider WB:

It has played 3 matches in all and 2 matches at home. So, it has played 1 away match.

Similarly, it has won 2 matches in all and 2 at home. So, it has not won the only away match that it has played. However, it has one draw overall and no draw in its home matches. So, its only away match was a draw. Hence, it has 1 point in the away match.

Also, its overall "goals for" count is 6 and its overall goal difference is 5. So, its overall "goals against" count is 1. Since its "goals against" count in the home games is 0, the goal scored against it was in the away game. Since this game was a draw, this team also scored one goal in that match.

Using this logic, the table of away matches for each team can be made as shown below.

Note that incomplete data is available for four teams (WG, SU, TOT and NW). So, their away games data cannot be found. Thus, the table only has data for 11 teams.

Team	Matches	Wins	Draws	GF	GA	GD	Points	Rank
WB	1	0	1	1	1	0	1	8
WH	1	0	0	0	3	-3	0	10
CH	1	1	0	2	0	2	3	3
MC	1	0	1	2	2	0	1	7
SW	1	1	0	5	0	5	3	2
NC	1	0	0	0	2	-2	0	9
FU	2	0	0	2	6	-4	0	11
EV	2	1	0	3	3	0	3	4
MU	2	1	0	3	3	0	3	5
AS	2	1	1	2	0	2	4	1
ST	2	0	2	3	3	0	2	6

Thus, considering the away matches only, SW is the second ranking team.

Hence, the correct answer is **option 4**.

86. Consider the table in the previous solution. There are definitely five teams (WB, WH, MC, NC and FU) that have 0 or 1 point in away matches. Since data for 4 other teams is not known, they may or may not have 0 or 1 point. In any case, there are at least 5 teams that have 0 or 1 point in away matches. Hence, **option 4**.

87. The *pos* value for the teams mentioned are:

$$\text{AS: } 12 - 1 = 11$$

$$\text{WB: } 8 - 2 = 6$$

$$\text{WH: } 10 - 3 = 7$$

$$\text{MC: } 7 - 4 = 3$$

$$\text{SW: } 5 - 2 = 3$$

Thus, AS has the maximum value of *pos*.

Hence, the correct answer is **option 1**.

88. Consider the table in the solution for the first question of the set.

As can be seen, there are 6 unique values of goal difference.

Since there is no data on the other 4 teams, nothing can be said about their goal difference.

Hence, the correct answer is **option 2**.

89. Note that the current account balance is negative.
Current account balance in 2010 = -3.268% of 73555.34 = -2403.78 (in Rs. Billions)
Current account balance in 2005 = -1.272% of 35662.2 = -453.62 (in Rs. Billions)

$$\therefore \text{Ratio} = \frac{-2403.78}{-453.62} = 5.3 \text{ (approximate)}$$

Hence, the correct answer is **option 5**.

90. The base value for exports or imports is not known. Also, the relationship of exports/imports with other parameters is not known. So, the actual exports and imports for a particular year cannot be found. Therefore, statements 1 and 2 may or may not be true.

Hence, only option 3 can be true.

Explanation: Since the growth rate per year is known for both exports and imports, the exports (or imports) in 2010 can be found relative to 2005.

Let the exports in 2004 be x .

$$\therefore \text{Exports in 2010} = x \times 1.1888 \times 1.1383 \times 1.1713 \times 1.1063 \times 1.00813 \times 1.2186 = 2.154x$$

$$\text{Exports in 2005} = 1.1888x$$

$$\therefore \text{Exports grew by a factor of } \frac{2.154x}{1.1888x} = 1.8119$$

Let the imports in 2004 be y .

$$\therefore \text{Imports in 2010} = y \times 1.1799 \times 1.09438 \times 1.163 \times 1.1084 \times 1.08321 \times 1.1649 = 2.1003y$$

$$\text{Imports in 2005} = 1.1799y$$

$$\therefore \text{Imports grew by a factor of } \frac{2.1003y}{1.1799y} = 1.7801$$

Thus, exports increased at a faster rate compared to imports during the period 2005 to 2010.

Thus, statement 3 is necessarily true.

Hence, the correct answer is **option 3**.

91. The number of unemployed persons = Unemployment rate \times Population

$$= \text{Unemployment rate} \times \frac{\text{GDP}}{\text{GDP per capita}}$$

$$= \frac{8.9}{100} \times \frac{41159.73}{36553.93}$$

$$= 0.1002 \text{ billion} \approx 100 \text{ million}$$

Hence, the correct answer is **option 1**.