

XAT 2016

Verbal Ability and Logical Reasoning

1. Which of the following options best captures the relationship similar to INSPECT : VIVISECT?

- A Enquire : Observe
- B Inquire : Explore
- C Investigate : Interrogate
- D Query : Survey
- E Question : Respond

2. Read the following poem and answer the question that follows:

I sought a soul in the sea
And found a coral there
Beneath the foam for me
An ocean was all laid bare.
Into my heart's night
Along a narrow way
I groped; and lo! The light,
An infinite land of day.

Which of the following would best capture the ESSENCE of the poem above?

- A What lies 'outside' is always deceptive.
- B Pursue the narrow path and avoid the broadways.
- C External search is futile; explore the inner space for answers.
- D Heart's pathways are broad and clear to find the destination.
- E Light offers sight and insight.

3. "Assumptions are analogous to the basic ingredients in a gourmet recipe. Only the final product of the recipe dictates whether the ingredients suffice....."

Which of the following is ANALOGOUS to the statement above?

- A Good wine needs no advertisement!
- B The apple never falls far from the tree!
- C All is well that ends well!
- D As you sow, so shall you reap!
- E The proof of the pudding is in the eating!

4. The FIRST and the LAST sentences of the paragraph are numbered 1 & 6. The others, labelled as P, Q, R and S are given below:
1. Suppose I know someone, Smith.
 - P. One day you come to me and say: "Smith is in Cambridge."
 - Q. I inquire, and find you stood at Guildhall and saw at the other end a man and said: "That was Smith."
 - R. I'd say: "Listen. This isn't sufficient evidence."
 - S. I've heard that he has been killed in a battle in this war.
 6. If we had a fair amount of evidence he was killed I would try to make you say that you're being credulous.

Which of the following combinations is the MOST LOGICALLY ORDERED?

- A 1SPQR6
- B 1RSPQ6
- C 1PRSQ6
- D 1QSRP6
- E 1RQPS6

5. The FIRST and the LAST sentences of the paragraph are numbered 1 & 6. The others, labelled as P, Q, R and S are given below:
1. The word "symmetry" is used here with a special meaning, and therefore needs to be defined.
 - P. For instance, if we look at a vase that is left-and-right symmetrical, then turn it 180° around the vertical axis, it looks the same.
 - Q. When we have a picture symmetrical, one side is somehow the same as the other side.
 - R. When is a thing symmetrical - how can we define it?
 - S. Professor Hermann Weyl has given this definition of symmetry: a thing is symmetrical if one can subject it to a certain operation and it appears exactly the same after operation.
 6. We shall adopt the definition of symmetry in Weyl's more general form, and in that form we shall discuss symmetry of physical laws.

Which of the following combinations is the MOST LOGICALLY ORDERED?

- A 1PQRS6
- B 1QRSP6
- C 1RQPS6
- D 1RQSP6
- E 1SPQR6

6. In recent past, Indian football team has lost most of the matches in international football tournaments. The most successful coaches in Indian club football tournaments are from Latin American countries. In most of the Latin American countries, football is more popular sport than cricket.

From the passage above, choose the correct option:

- A It can be DEFINITELY concluded that "In India, cricket is more popular than football".
- B It can be DEFINITELY concluded that "Most Latin American countries are successful at football".

- C It can be DEFINITELY concluded that "In recent past, coaches of Indian football teams are not from Latin America".
- D It can be DEFEINITELY concluded that "European football coaches are less successful than their Latin American counterparts for Indian national team".
- E It cannot be DEFINITELY concluded that "The more popular a sport the better the chance of producing a successful coach in that sport".

7. Choose the best pronunciation of the word, Sobriquet, from the following options:

- A soh-bruh-key
- B suub-rry-ka
- C sob-bee-ri-kwet
- D soub-rick-kaat
- E Sobb-rik-kwet

8. Consider the two related statements below:

Statement I: Offices and positions for the marginalized sections should be open to those with greater savings among them.

Statement II: Offices and positions must be open to everyone based on the principle of fair opportunity

Which of the following is true?

- A Statement I assumes that the marginalized sections are incapable of saving.
 - B Statement II assumes that all citizens are equally exposed to all opportunities.
 - C Statement II contradicts meritocracy.
 - D Statement II assumes that all citizens are equally intelligent.
 - E Statement I assumes that the marginalized sections always depend on subsidies.
9. This season will pass. The Prime Minister may not win Lok Sabha elections, or she may; she may not continue as Prime Minister, or she may. The country will survive whatever the texture of politics in this decade or the next.

Which of the following, IF TRUE, will BEST reinforce the author's view?

- A The survival of any Prime Minister is dependent on the country's economics growth.
- B The country has a vibrant young working population.
- C The survival of the country depends on a dynamic, growth-oriented Prime Minister, not on the texture of politics.
- D The previous season had also witnessed similar political uncertainty.
- E The survival of the Prime Minister is dependent on the political texture of the country.

10. The subject of this book is knavery, skullduggery, cheating, betrayal, unfairness, crime, sneakiness, malingering, cutting corner, immorality, dishonesty, betrayal, graft, wickedness, and sin.

Which of the following options best captures ALL the italicized words above?

- A Aggressive behaviours
- B Illegal behaviours
- C Deviant behaviours
- D Banned behaviours
- E Vetoed behaviours

11. Read the following conversation:

OINOS: I can comprehend you thus far-that certain operations of what we term Nature, or the natural laws, will, under certain conditions, give rise to that which has all the appearance of creation. Shortly before the final overthrow of the earth, there were, I well remember, many very successful experiments in what some philosophers were weak enough to denominate the creation of animaculæ.

AGATHOS: The cases of which you speak were, in fact, instances of the secondary creation - and of the only species of creation which has ever been, since the first word spoke into existence the first law.

Which of the following options CANNOT be DEFINITELY inferred based on the above conversation?

- A Agathos was explaining something related to creation to Oinos.
- B At the time of conversation there was nothing called Earth.
- C The creation of animalculæ is a natural law.
- D Natural laws are creations of philosophers.
- E Law is a spoken word.

12. ... there is a degree of convergence in the definition of trust which can be summarized as follows: Trust is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action. When we say we trust someone or that someone is trustworthy, we implicitly mean that the probability that he will perform an action that is beneficial to us...

Which of the following statement BEST COMPLETES the passage above?

- A is high enough for us to find out if he will cheat us.
- B is high enough for us to consider engaging in some form of cooperation with him
- C is low enough for him not to engage in negative behavior against us.
- D is high enough for us not to build defences against his possible aggression.
- E is low enough for us to attack him.

Instructions [13 - 16]

Analyse the following passage and provide appropriate answers for the questions that follow:

An effective way of describing what interpersonal communication is or is not, is perhaps to capture the

underlying beliefs using specific game analogies.

Communication as Bowling: The bowling model of message delivery is probably the most widely held view of communication. I think that's unfortunate. This model sees the bowler as the sender, who delivers the ball, which is the message. As it rolls down the lane (the channel), clutter on the boards (noise) may deflect the ball (the message). Yet if it is aimed well, the ball strikes the passive pins (the target audience) with a predictable effect. In this one - way model of communication, the speaker (bowler) must take care to select a precisely crafted message (ball) and practice diligently to deliver it the same way every time. Of course, that makes sense only if target listeners are interchangeable, static pins waiting to be bowled over by our words - which they aren't.

This has led some observers to propose an interactive model of interpersonal communication.

Communication as Ping - Pong: Unlike bowling, Ping - Pong is not a solo game. This fact alone makes it a better analogy for interpersonal communication. One party puts the conversational ball in play, and the other gets into position to receive. It takes more concentration and skill to receive than to serve because while the speaker (server) knows where the message is going, the listener (receiver) doesn't. Like a verbal or nonverbal message, the ball may appear straightforward yet have a deceptive spin. Ping - Pong is a back - and - forth game; players switch roles continuously. One moment the person holding the paddle is an initiator; the next second the same player is a responder, gauging the effectiveness of his or her shot by the way the ball comes back. The repeated adjustment essential for good play closely parallels the feedback process described in a number of interpersonal communication theories.

Communication as Dumb Charades The game of charades best captures the simultaneous and collaborative nature of interpersonal communication. A charade is neither an action, like bowling a strike, nor an interaction, like a rally in Ping - Pong. It's a transaction. Charades is a mutual game; the actual play is cooperative. One member draws a title or slogan from a batch of possibilities and then tries to act it out visually for teammates in a silent mini drama. The goal is to get at least one partner to say the exact words that are on the slip of paper. Of course, the actor is prohibited from talking out loud. Suppose you drew the saying "God helps those who help themselves." For God you might try folding your hands and gazing upward. For helps you could act out offering a helping hand or giving a leg - up boost over a fence. By pointing at a number of real or imaginary people you may elicit a response of them, and by this point a partner may shout out, "God helps those who help themselves." Success.

Like charades, interpersonal communication is a mutual, on - going process of sending, receiving, and adapting verbal and nonverbal messages with another person to create and alter images in both of our minds.

Communication between us begins when there is some overlap between two images, and is effective to the extent that overlap increases. But even if our mental pictures are congruent, communication will be partial as long as we interpret them differently. The idea that "God helps those who help themselves" could strike one person as a hollow promise, while the other might regard it as a divine stamp of approval for hard work. Dumb Charade goes beyond the simplistic analogy of bowling and ping pong. It views interpersonal communications as a complex transaction in which overlapping messages simultaneously affect and are affected by the other person and multiple other factors.

13. The meaning CLOSEST to 'interchangeable' in the 'Communication as Bowling' paragraph is:

- A Complementary
- B Contiguous
- C Conforming
- D Compatible
- E Comparable

14. Which of the following options is the CLOSEST to the necessary condition of communication:

- A Threshold overlap of shared images
- B Simultaneous exchange
- C Ability to stimulate affect
- D Ability to enact a drama
- E Ability to elicit a response

15. The two inherent LIMITATIONS of Ping - Pong as a metaphor for communication are:

- A It is governed by conventions with possibility for appeal; it has clear rules.
- B The operating model is win - lose because only one individual or team can win; the receiver can always predict the spin.
- C The number of players is limited as very few can be meaningfully engaged at a time; the rules of the game are fixed by the regulators.
- D It demands more skills of the receiver than of the speaker; it is as passive as bowling.
- E Real life communication is like Dumb Charade with multiple players; there are multiple balls used in Dumb Charade.

16. Action, interaction and transaction is CLOSEST to:

- A Advertising, Buyer negotiating with a seller, Bidding for a player in Indian Premier League.
- B Preparing an election manifesto, Addressing a public gathering, Engaging in door to door canvassing.
- C Preparing for MBA entrance exam, Writing the MBA entrance exam, Facing an interview for business school.
- D Applying for learner licence, Negotiating with a driving school, Driving a Car.
- E Negotiating overseas posting, Applying for visa, Undertaking a journey.

Instructions [17 - 19]

Analyse the following passage and provide appropriate answers for the questions that follow:

Advances in economic theory in the 1970s and 1980s illuminated the limits of markets; they showed that unfettered markets do not lead to economic efficiency whenever information is imperfect or markets are missing (for instance, good insurance markets to cover the key risks confronting individuals). And information is always imperfect and markets are always incomplete. Nor do markets, by themselves, necessarily lead to economic efficiency when the task of a country is to absorb new technology, to close the "knowledge gap": a central feature of development. Today, most academic economists agree that markets, by themselves, do not lead to efficiency; the question is whether government can improve matters.

While it is difficult for economics to perform experiments to test their theories, as a chemist or a physicist might, the world provides a vast array of natural experiments as dozens of countries try different strategies. Unfortunately, because each country differs in its history and circumstances and in the myriad of details of its policies - and details do matter - it is often difficult to get a clear interpretation. What is clear, however, is that

there have been marked differences in performance, that the most successful countries have been those in Asia, and that in most of the Asian countries, government played a very active role. As we look more carefully at the effects of particular policies, these conclusions are reinforced: there is a remarkable congruence between what economic theory says government should do and what the East Asian governments actually did. By the same token, the economic theories based on imperfect information and incomplete risk markets that predicted that the free flow of short-term capital - a key feature of market fundamentalist policies - would produce not growth but instability have also been borne out.

17. "... whether government can improve matters". Here 'matters' indicates

- A Economic efficiency
- B Information imperfectness
- C Knowledge gaps
- D Good insurance markets
- E Incomplete risk markets

18. Which of the following options CANNOT be inferred from the above passage?

- A Free flow of short - term capital might fail to ensure economic growth.
- B Insurance market is a proof that 'markets, by themselves, do not lead to efficiency'.
- C It is difficult to interpret the success of economic policies of Asian countries.
- D Technology can impede market efficiency.
- E State intervention and imperfect information can never go hand - in - hand.

19. Which of the following statements BEST captures the ESSENCE of the two paragraphs in the above passage?

- A Paragraph I and paragraph II are parallel arguments that are unrelated.
- B Paragraph I describes markets in general whereas Paragraph II describes market failures in Asian economics in particular.
- C Paragraph I explains why markets fail. Paragraph II spells out why market based economic theories fail to explain success of Asian economics.
- D Paragraph I raises question and paragraph II answers it.
- E Paragraph I states an economic theory and Paragraph II cites a natural experiment to disprove it.

Instructions [20 - 23]

Analyse the following passage and provide appropriate answers for the questions that follow:

The base of Objectivism according to Ayan Rand is explicit: "Existence exists – and the act of grasping that statement implies two corollary axioms: that something exists which one perceives and that one exists processing consciousness, consciousness being the faculty of perceiving that which exists."

Existence and consciousness are facts implicit in every perception. They are the base of all knowledge (and the precondition of proof): knowledge presupposes something to know and someone to know it. They are

absolutes which cannot be questioned or escaped: every human utterance, including the denial of these axioms, implies their use and acceptance. The third axiom at the base of knowledge – an axioms true, in Aristotle's words, of "being qua being" – is the Law of Identity. This law defines the essence of existence: to be is to be something, a thing is what it is; and leads to the fundamental principle of all action, the law of causality. The law of causality states that a thing's actions are determined not by chance, but by its nature, i.e. by what it is. It is important to observe the interrelation of these three axioms. Existence is the first axiom. The universe exists independent of consciousness. Man is able to adapt his background to his own requirements, but "Nature, to be commanded, must be obeyed" (Francis Bacon). There is no mental process that can change the laws of nature or erase facts. The function of consciousness is not to create reality, but to apprehend it. "Existence is Identity, Consciousness is Identification."

20. Which of the following is DEFINITELY CORRECT according to the passage:

- A Only what can be perceived exists.
- B What exists is perceived.
- C All that exists does not have consciousness.
- D Consciousness makes perception of being possible.
- E Something to be known and someone to know are the *conditio sine qua non* for Existence.

21. Which of the following is the ESSENCE of 'The law of Causality'?

- A To be is to be something; 'being qua being'.
- B Wishing to become something else denies the nature of that being.
- C The law of identity is the same as the law of causality.
- D Essence of existence.
- E Actions of a being are determined by its nature.

22. Which of the following can be best captured as 'Identity' and 'Identification,?

- A College as identity; perception of cultural events as identification.
- B Twitter as identity; perception of Twitter as identification.
- C Government as identity; perception of taxation of citizens as identification.
- D Marriage as identity; perception of children as identification.
- E MBA as identity; perception of campus placement as identification.

23. The author would interpret Francis Bacon's "Nature, to be commanded, must be obeyed" as:

- A Reality should not to be modified or escaped but faced.
- B Man's existence depends on nature's whims.
- C Essentially and objectively nature is superior to humans.

- D Obstacles are better circumvented than confronted.
- E Before channeling nature one must first comply with it.

Instructions [24 - 26]

Analyse the following passage and provide appropriate answers for the questions that follow:

Each piece, or part, of the whole of nature is always merely an approximation to the complete truth, or the complete truth so far as we know it. In fact, everything we know is only some kind of approximation, because we know that we do not know all the laws as yet. Therefore, things must be learned only to be unlearned again or, more likely, to be corrected. The principal of science, the definition, almost, is the following: The test of all knowledge is experiment. Experiment is the sole judge of scientific "truth." But what is the source of knowledge? Where do the laws that are to be tested come from? Experiment, itself, helps to produce these laws, in the sense that it gives us hints. But also needed is imagination to create from these laws, in the sense that it gives us hints. But also needed is imagination to create from these hints the great generalizations – to guess at the wonderful, simple, but very strange patterns beneath them all, and then to experiment to check again whether we have made the right guess. This imagining process is so difficult that there is a division of labour in physics: there are theoretical physicists who imagine, deduce, and guess at new laws, but do not experiment; and then there are experimental physicists who experiment, imagine, deduce, and guess.

We said that the laws of nature are approximate: that we first find the "wrong" ones, and then we find the "right" ones. Now, how can an experiment be "wrong"? First, in a trivial way: the apparatus can be faulty and you did not notice. But these things are easily fixed and checked back and forth. So without snatching at such minor things, how can the results of an experiment be wrong? Only by being inaccurate. For example, the mass of an object never seems to change; a spinning top has the same weight as a still one. So a "law" was invented: mass is constant, independent of speed. That "law" is now found to be incorrect. Mass is found to increase with velocity, but appreciable increase requires velocities near that of light. A true law is: if an object moves with a speed of less than one hundred miles a second the mass is constant to within one part in a million. In some such approximate form this is a correct law. So in practice one might think that the new law makes no significant difference. Well, yes and no. For ordinary speeds we can certainly forget it and use the simple constant mass law as a good approximation. But for high speeds we are wrong, and the higher the speed, the wrong we are. Finally, and most interesting, philosophically we are completely wrong with the approximate law. Our entire picture of the world has to be altered even though the mass changes only by a little bit. This is a very peculiar thing about the philosophy, or the ideas, behind the laws. Even a very small effect sometimes requires profound changes to our ideas.

24. Which of the following options is DEFINITELY NOT an approximation to the complete truth?

- A I know that I know.
- B I know that I do not know.
- C I know what I know.
- D I know what I do not know.
- E I know that others do not know.

25. Consider the two statements from the passage:

Statement I: The mass of an object never seems to change.

Statement II: Mass is found to increase with velocity.

Which of the following options CANNOT be concluded from the above passage?

- A Both statements I and II are approximation to the complete truth.
- B Both statements I and II are complete truth so far as we know.
- C Statement I is an approximation to the complete truth but Statement II is complete truth.
- D Statement I reveals that experimental physicists who imagine, deduce, and guess are philosophically wrong.
- E Statement II shows that theoretical physicists can pinpoint the shortcomings of experimental physicists.

26. 'Big Bang' is a popular theory related to the origin of the universe. It states that the universe was the outcome of a big bang that released enormous energy.

Which of the following is the MOST PROBABLE inference about the big bang theory?

- A Big Bang Theory was first proposed by experimental physicists.
- B Big Bang Theory was first proposed by theoretical physicists.
- C Big Bang Theory was first proposed by experimental physicists and then deduced by theoretical physicists.
- D Philosophers got the Big Bang theory wrong.
- E Big Bang theory is not an approximation of the complete truth.

Decision Making

Instructions [27 - 29]

Analyse the following caselet and answer the questions that follow:

Indian Institute of Research is a Government-established body to promote research. In addition to helping in policy making, it also provides free online access to all the articles to the public. It has a mission of publishing high quality research articles. Till 2010, the publication of articles was very slow because there was no incentive for researchers to publish. Researchers stuck to the mandatory one article a year. Most of the researchers engaged in offering consultancy and earned extra income. Since its inception, the institute was considered the best place for cutting edge research. The new director of the institute was not happy with the work done by researchers in silo and came out with a new research policy in 2013 to increase research output and improve collaboration among researchers. It was decided that extra benefits would be offered to researchers with new publications. As a result, the number of research articles increased fourfold in 2014. At the 2015 annual audit, an objection was raised against increased expenses towards remuneration for researchers. Further, the Government opined that the publication was itself a reward and hence researchers need be paid nothing extra. The director tried to defend his policy but the response from the government was not encouraging.

I. Note: Auditors role is to verify accounts.

27. The following facts were observed by an analytics team hired by the government to study the extant situation.

1. There was a four-fold increase in the number of researchers leaving the organization in 2014.

2. A researcher died while on duty.
3. The quality of articles published declined substantially.
4. The average number of people accessing an article decreased by 2%.

Which of the following options would justify the government's intention to DISCONTINUE the scheme?

- A 1 and 2
- B 2 and 3
- C 3 only
- D 4 only
- E 3 and 4

28. The director still wanted to persuade the government to review its stand. He had framed the following arguments:

1. Most famous researchers in the world are also the highest paid.
2. American institute of research gives extra benefits to its scientists.
3. This year's highest paid researcher had won the Noble Prize last year.

Considering the Government to be reasonable which of the following options is UNLIKELY to convince the Government?

- A 1 and 2
- B 2 only
- C 2 and 3
- D 1 and 3
- E 1, 2 and 3

29. The director wanted to promote good decision making at Indian Institute of Research. A few trusted colleagues offered the following suggestions:

1. Auditors need not be allowed to object to extra benefits schemes.
2. Auditors need not pin-point sudden increase in expenditure.
3. Auditors need not be consulted before taking any policy level decision.

Which of the following combination of options should the director agree THE MOST with?

- A 1 and 2
- B 2 only
- C 2 and 3
- D 1 and 3
- E 1, 2 and 3

Instructions [30 - 31]

Analyse the following caselet and answer the questions that follow:

Kamal Chinnappa, Vimal Rao, Ganesh Krishnan and Dinesh Kumar own a saloon each on the Barbil street. They are the only hairdressers on that street. Each of them offered three services viz. haircut, shaving and hair-dye.

One evening, all four of them met in a nearby tea-stall and agreed to charge Rs. 100 for any of the three services (haircut, shave and hair-dye) on weekdays. They also agreed to increase this rate to Rs. 115 on weekends and holidays. All verbally decided to implement the agreement.

30. The following day Kamal, being the most competent hairdresser on the street, was contemplating charging higher than agreed upon price.

Which of the following would enable him to charge more with minimal violation of the agreement?

- A He should introduce a new and specialized service at Rs. 130.
- B He should open another shop on the same street and charge Rs. 150.
- C He should charge Rs. 130 for those wanting to jump the queue.
- D He should charge Rs. 115 for a service to a particular customer and give the next service free.
- E He should open his shop two hours before others and close it two hours after.

31. Vimal relies heavily on a bunch of loyal customers. He is concerned about retaining them.

Which of the following options should he choose if he does not want to violate the agreement?

- A He should charge differential rates for loyal customers.
- B He should charge the loyal customers lower.
- C He should make every third visit free for his loyal customers.
- D He should charge all the agreed upon price
- E He should allow his loyal customers to jump the queue.

Instructions [32 - 33]

Analyse the following caselet and answer the questions that follow:

The City of Yashmund is served by licensed taxis operating on officially sanctioned metered rates and driven by licensed drivers who do not own the taxis but pay a monthly rent to the taxi-owners. Shailesh Nair, the mayor of Yashmund, perceived that most of these taxis do not offer sufficient comfort and safety to passengers.

32. The Mayor wants the owners and drivers to care about comfort.

Which of the following decisions, IF TAKEN, is MOST LIKELY to increase the comfort levels of passengers?

- A The mayor issues a guideline that taxis will be randomly inspected by the police for the comfort level.
- B The mayor ensures banks grant drivers loans to own cars. Owner driven cars generally offer greater comfort.
- C The mayor introduces licensing of air-conditioned taxis which can charge increased rates to the rich customers.
- D The mayor introduces a feedback system that records passenger satisfaction with comfort levels; this will affect renewal of annual taxi license
- E The mayor permits doubling metered rates which will ensure enhanced income for owners to invest in greater comfort.

33. The mayor wants to involve the car owners in finding a solution to the problem of comfort and safety. He is concerned that the customers may not be willing to pay more for safety.

Which of the options below is MOST LIKELY to convince the owners?

- A The taxi owners who clear comfort-inspection can charge higher rentals from the drivers and drivers with impeccable safety record can charge the same from customers
- B The taxis that clear comfort-inspection can charge 25% above the metered rates; studies have shown that customers are willing to pay around 18% extra for comfort.
- C If a taxi owner has a consistent record of comfort and safety the government will subsidize a second loan.
- D Taxis can charge 25% more if they clear comfort-inspection. However, owners of the taxis found compromising on safety will be jailed.
- E Taxis that pass comfort-inspection test can charge 25% more. Should they violate any traffic rule this privilege would be withdrawn.

Instructions [34 - 35]

Analyse the following caselet and answer the question that follow:

Chatterjee, the MLA of Trikathapur, owes his election success to his close friend and businessman Ghosh. The victory had appeared unlikely for Chatterjee after the arrival of Bhowmick, a budding politician with hordes of money. However, his clean image along with Ghosh's money ensured Chatterjee's resounding victory.

34. After the elections, Ghosh requested Chatterjee to sanction the land adjoining his factory, for expansion. However, the requested government land was a green belt reducing harmful pollution from the factory.

Which of the following is the BEST option for Chatterjee in these circumstances?

- A Chatterjee should approve the sale only after Ghosh plants a large number of trees around the factory and the city.
- B Chatterjee should oblige Ghosh provided he recruits 20 locals as his employees on condition that they plant and maintain a tree each in their locality.
- C As Ghosh is paying market rates Chatterjee should approve the sale with no rides.
- D Chatterjee should approve the sale and ensure that the green belt is shifted to a different tract of land outside the city, purchased from the proceeds of the sale.
- E Chatterjee should unconditionally approve the transfer of the land to Ghosh as a token of gratitude.

35. Inspired by Bhowmick's manifesto, Chatterjee is contemplating a green policy which can adversely affect Ghosh's business interest.

Which of the following actions from Ghosh is likely to convince Chatterjee NOT to pursue this policy?

- A Request Chatterjee to defer implementation of the green policy by 3 years, the time needed to make his factory green.

- B** Remind Chatterjee that it is for his clean image that people voted him and not for Bhowmick's green policy.
- C** Warn Chatterjee that all industrialists will turn against him and despite his clean image he may be hated by the industry.
- D** Appeal to Chatterjee's sympathy citing the potential loss his business will suffer if the policy were to be implemented.
- E** Threaten Chatterjee that he should not take his loyalty for granted as Bhowmick has invited him to join his party.

Instructions [36 - 38]

Analyse the following caselet and answer the question that follow:

Nicky, Manoj and Benita are graduates from a top ranked B-school. They joined ABC corporation a year ago. ABC is known for its performance oriented culture. This is the first time the organization recruited from a top ranked B-school. They are part of a five member team with two others from lower ranked B-schools. Nicky, Manoj and Benita draw 40 percent higher salaries than other team members. This team reports to Amelia Ganeshmurthi, a senior Executive.

36. Amelia is disappointed with the performance of Nicky, Manoj and Benita. She came to know that ABC was not their first choice and they had spent the first ten months applying to other organizations. However, they have now started liking ABC and promised to do their best henceforth. Amelia has to rate their annual performance and decide about their future. She has the following choices:

1. Fire them from ABC for insincerity and save the organization's time and money.
2. Given them average ratings with a year to prove their worth and fire them from ABC if they fail to show significant progress.
3. Impose a pay-cut of 15% since they have not delivered on the promise, but give them relatively high ratings.
4. Given them relatively poor ratings with one year time to improve and fire them from ABC if they fail to show significant progress.
5. Give them high ratings and give them a second chance to prove their worth.

Which of the following options rank the above choices in the order of MOST APPROPRIATE to LEAST APPROPRIATE?

- A** 1, 2, 4
- B** 2, 1, 4
- C** 4, 2, 5
- D** 4, 3, 1
- E** 5, 2, 3

37. Recruiting Nicky, Manoj and Benita was part of a larger initiative to make the organization attractive to prospective employees. Recently Amelia's boss informally told her that the trio's perception of the organization might influence future recruitment from top B-schools. However, the trio had already expressed their unhappiness about the organization to Amelia. She suspected that her promotion due next year might depend on the trio!

Which of the following is the BEST way for Amelia to deal with this situation?

- A Henceforth, she should be lenient with the trio.
- B She should promise the trio an early promotion if they can help her recruit good talent from top B-schools.
- C Henceforth, she should occasionally invite the trio for dinner and informal outings.
- D She should tell her boss that it is unfair to link her promotion to the trio's behaviour.
- E She should convey the trio's unhappiness to her boss.

38. Nicky's performance on the job is disappointing though she is considered a very helpful person outside the workplace helping her teammates and others in the organization with their personal needs e.g. finding a place to rent, a good place to get homely food etc. On the other hand, Manoj and Benita are performing well in their respective jobs and are perceived by their teammates as important to the team. But they are not interested in helping outside the workplace. Amelia has to decide the future of the trio. She has the following options:

1. Inform the higher authorities about Nicky's poor performance and ask them to take a call.
2. Send Nicky for a one month training earmarked for top performing employees.
3. Serve Nicky an ultimatum to improve within the next six months or get fired.
4. Even though they performed well, give Manoj and Benita average ratings because of their disinterest in helping outside workplace.
5. Give Manoj and Benita high ratings based on their performance.

Which of the following combination of above options will be the MOST APPROPRIATE?

- A 1 and 5
- B 2 and 4
- C 2 and 5
- D 3 and 4
- E 3 and 5

Instructions [39 - 41]

Analyse the following caselet and answer the questions that follow:

Recently a private food testing agency reported the presence of a harmful chemical in Crunchy Chips, a product of a fast moving consumer goods giant. The report sparked a nationwide Outcry.

39. Rajan Shekhawat, the CEO of the company, feared this incident might affect the company's image among consumers. Rajan had the following options:

1. Apologizing publicly for this inconvenience and immediately withdrawing the products from all stores.
2. Communicate 'the correct findings' to the public.
3. Hire a reputed independent testing agency to verify the claims of the report.
4. Establish internal mechanisms to prevent repetition of such incidences in future.
5. Give higher incentives to distributors and retailers for selling the company brands.

Which of the following would be the MOST APPROPRIATE ORDER of options for Rajan, starting from the immediate?

- A 3, 1, 5
- B 3, 2, 4

- C 1, 3, 5
- D 1, 2, 5
- E 5, 3, 2

40. Mukesh Routray, a shopkeeper in a remote village was surprised to read in the newspaper, his only source of information, about harmful chemicals in Crunchy Chips. He had stocked a large quantity of Crunchy Chips for the forthcoming festive season. He also realized that people in his village are completely unaware of this controversy. He had the following options:
1. Sell the entire stock at a discount before the news spreads.
 2. Destroy the entire stock and advise customers not to buy this product from other shops as well.
 3. Donate the entire stock of Crunchy Chips to a local orphanage.
 4. Inform customers about the controversy but understate its seriousness.
 5. Ignore the news and sell the stock at the forthcoming festive season as planned.
 6. Explore the veracity of the report and then take decision

If arranged from ethical to unethical which of the following is DEFINITELY the WRONG order?

- A 6, 5, 1
- B 6, 1, 4
- C 4, 5, 1
- D 2, 4, 3
- E 2, 4, 1

41. An independent and trustworthy confidante of Rajan Shekhawat, the CEO of the company, informed him that one of their main competitors had bribed the food testing agency to manipulate the report.

Which of the following actions will BEST help Crunchy Chips to bounce back?

- A Proclaim over the media that their product is completely safe.
- B Secretly hire a food testing agency to ascertain the quality of the competitor's product.
- C Hire another food testing agency to test and communicate the outcome to the consumers.
- D File a defamation case against the competitor for their alleged involvement in the conspiracy
- E File a defamation case against the food testing agency.

Instructions [42 - 44]

Analyse the following caselet and answer the question that follow:

Purushottam Bhatnagar own and operates a sweetshop Puru and Sons. He is about 60 years old is eager to hand over the business to his sons Ratan and Pramod. He however, fears that his sons, fresh from college may not understand the tricks of the trade.

42. Purushottam sends a batch of sweets to the police station across the street every day. Ratan construed it as a bribe and wanted to stop this practice.

Which of the following arguments, IF TRUE, would BEST convince Ratan NOT to given up this practice?

- A In the last three years, three attempts to burgle Puru and Sons were effectively foiled by the police.
- B Each policeman receives only two piece of sweet, too small to be considered a bribe.
- C The police in return send two policemen in mufti to mingle with the customers during rush hours to prevent pickpockets.
- D Every day, Purushottam also sends a batch of sweets to the school next to the station, an orphanage nearby and the temple at the end of the street.
- E Purushottam's competitor Uttampurush who runs a sweetshop in the same street and his neighbour Mahapurush who runs a samosa stall, both do similar things every day.

43. Purushottam's eldest son discovered that the shop repackaged sweets that were close to expiry and sold them at a discount under different names. These sweets usually get sold very fast. But his son was concerned about the possible consequences of this practice. Purushottam was thinking of the following arguments to convince his son.

1. These sweets are consumed the same day and therefore there is no cause for worry.
2. Reduced prices give enough indication about the sweets to the customers.
3. These products are preferred by those who cannot afford full price and in a way, this is a service done to them.
4. In the past 30 years not a single person has reported ill because of consumption of these sweets.
5. Repacking and selling sweets is a common practice.

Which combination of arguments below is MOST LIKELY to convince Ratan?

- A 1 and 3
- B 1 and 4
- C 2 and 3
- D 2 and 5
- E 4 and 5

44. Purushottam's younger son Pramod discovered that 10% of their customers whom Purushottam called privileged customers purchased sweets at prices fixed 10 years ago (which is significantly lower than the current prices). Purushottam told him, "This 10% are my core and loyal customers with whom I have personal connect and therefore they deserve this privilege". Pramod refuted his father's argument citing the following Information.

1. These customers are from the top 20% of the income bracket of the city.
2. These customers frequently purchase from other sweetshops at market prices.
3. None of them recognises and greets Purushottam at the shop or at anywhere else.
4. None of them was present at Pramod's marriage.
5. These customers actually buy sweets at Puru and sons for others not part of the core and loyal customer group.

Which of the following combination of the above will MOST LIKELY convince Purushottam to charge market price to all?

- A 1 and 2
- B 2 and 4
- C 2 and 5
- D 3 and 4
- E 4 and 5

Instructions [45 - 47]

Analyse the following caselet and answer the questions that follow:

Six people working at the Bengaluru office of Simsys are planning to buy flats at a real estate project at Whitefield. Their preferences are listed below:

Person	Designation	First Preference	Second Preference	Third Preference
Bhatia	Vice President	Ground floor flat	Price < Rs 50 lacs.	Shopping mall within 5 km.
Patel	Client Relationship Manager	Distance to office < 10 km.	Recreation Club	
Khan	Project Manager	Recreation Club	Place for morning walk	Car parking
Singh	Senior Software Engineer	Shopping mall within 15 km.	Price < Rs 30 lacs.	Place for morning walk
Yadav	Assistant Software Engineer	Price < Rs 50 lacs.	Distance to office < 10 km.	
Lingdo	Assistant Software Engineer	Recreation club		

They have identified 7 real estate projects with following facilities available (marked with √):

Real Estate Project	M	N	O	P	Q	R	S
Price	Rs 60-80 lacs.	Rs 45-50 lacs.	Rs 20-25 lacs.	Rs 65-80 lacs.	Rs 35-45 lacs.	Rs 25-40 lacs.	Rs 20-30 lacs.
Distance to office	< 5 km.	< 10 km	> 20 km.	> 15 km	< 2 km.	< 10 km	< 5 km.
Place for morning walk	√	√	√	√	√	√	
Recreation Club	√				√		√
Distance to shopping mall	Inside	> 25 km.	< 2 km.	Inside	< 5 km.	> 10 km.	> 20 km.
Car parking facility	√		√			√	√
Availability of ground floor flat		√				√	

A person is 'satisfied' if a project meets all three preferences.

45. Identify the project(s) where NONE of the 6 persons will be 'satisfied'.

- A M only

- B N only
- C P only
- D N and P only
- E In all projects at least one person will be 'satisfied'.

46. Identify the project(s), where AT LEAST 3 of the persons will be 'satisfied'.

- A M only
- B S only
- C Q and R only
- D M, Q and S only
- E M, Q and R only

47. The marketing managers of all the six projects have agreed to add a recreation club and a car parking facility to the projects. In this changed scenario identify projects where AT MOST 2 of the 6 persons will NOT be 'satisfied'.

- A N, Q and R only
- B P only
- C M and P only
- D N and P only
- E M, N and P only

Instructions [48 - 49]

Analyse the following caselet and answer the questions that follow:

Geetha Gawde can cultivate up to 6 crops a year. Crop A and B are ready for harvest in 2 months; crop C and D in 3 months, and crop E and F in 4 months. Crop A can be cultivated from January to June; crop B can be cultivated from April to September; crop C can be cultivated from May to December; crops D as well as E can be cultivated from August to December, and crop F from November to May. If Geetha plans a change of crop the soil should be left fallow for one month; however, if the same crop is sown no fallow time is needed. Sowing takes place only at the beginning of a month. Geetha can only harvest a maximum of 1000 units of any crop at any point in time. The production cost per unit (incurred at the time of sowing) and price per unit of crop are as follows:

Crop	Production cost per unit crop (in USD)	Price per unit crop (in USD)
A	20	60
B	5	55
C	25	70
D	15	75
E	5	65
F	35	75

For Geetha soil preparation does not incur any cost. If a crop is abandoned before the scheduled harvesting, she gets no money. Geetha is preparing a cropping schedule to maximize her annual profits (i.e. price – cost). She plans to replicate the schedule in the coming years.

48. Which of the following would DEFINITELY be a part of the ideal schedule?

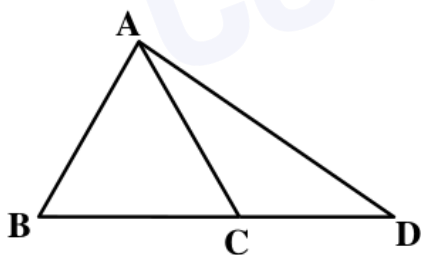
- A Cultivate crop B in August or September.
- B Cultivate crop B from April to September.
- C Do not cultivate any crop in August but cultivate crop D in September.
- D Cultivate crop D or crop E in August or September.
- E Do not cultivate any crop in August; but cultivate crop D or crop E in September.

49. Which of the following schedules would maximize her annual profit while minimizing the costs, if Geetha decides NOT to repeat a crop in a calendar year?

- A Crops A, B and E
- B Crops B, D and F
- C Crops B, D, E and F
- D Crops C, D and F
- E Crops A, B, D or E

Quantitative Ability

50. In the figure below, $AB = AC = CD$. If $\angle ADB = 20^\circ$, what is the value of $\angle BAD$?



- A 40°
- B 60°
- C 70°
- D 120°
- E 140°

51. In an amusement park, a visitor gets to ride on three different rides (A, B and C) for free. On a particular day 77 opted for ride A, 55 opted for B and 50 opted for C; 25 visitors opted for both A and C, 22 opted for both A and B, while no visitor opted for both B and C. 40 visitors did not opt for ride A and B, or both. How many visited the amusement park on that day?

- A 102
- B 115
- C 130
- D 135
- E 150

52. $\triangle ABC$ and $\triangle XYZ$ are equilateral triangles of 54 cm sides. All smaller triangles like $\triangle ANM$, $\triangle OCP$, $\triangle QPX$ etc. are also equilateral triangles. Find the area of the shape MNO PQRM.



- A $243\sqrt{3}$ sq. cm.
- B $486\sqrt{3}$ sq. cm.
- C $729\sqrt{3}$ sq. cm.
- D $4374\sqrt{3}$ sq. cm.
- E None of the above

53. Akhtar plans to cover a rectangular floor of dimensions 9.5 meters and 11.5 meters using tiles. Two types of square shaped tiles are available in the market. A tile with side 1 meter costs Rs. 100 and a tile with side 0.5 meters costs Rs. 30. The tiles can be cut if required. What will be the minimum cost of covering the entire floor with tiles?

- A 10930

- B 10900
- C 11000
- D 10950
- E 10430

54. Anita, Biplove, Cheryl, Danish, Emily and Feroze compared their marks among themselves. Anita scored the highest marks, Biplove scored more than Danish. Cheryl scored more than at least two others and Emily had not scored the lowest.

Statement I: Exactly two members scored less than Cheryl.

Statement II: Emily and Feroze scored the same marks.

Which of the following statements would be sufficient to identify the one with the lowest marks?

- A Statement I only.
- B Statement II only.
- C Both Statement I and Statement II are required together.
- D Neither Statement I nor Statement II is sufficient.
- E Either Statement I or Statement II is sufficient.

55. Rani bought more apples than oranges. She sells apples at Rs. 23 apiece and makes 15% profit. She sells oranges at Rs. 10 apiece and marks 25% profit. If she gets Rs. 653 after selling all the apples and oranges, find her profit percentage.

- A 16.8%
- B 17.4%
- C 17.9%
- D 18.5%
- E 19.1%

56. Consider the set of numbers $\{1, 3, 3^2, 3^3, \dots, 3^{100}\}$. The ratio of the last number and the sum of the remaining numbers is closest to:

- A 1
- B 2
- C 3
- D 50
- E 99

57. f is a function for which $f(1) = 1$ and $f(x) = 2x + f(x - 1)$ for each natural number $x \geq 2$. Find $f(31)$

- A 869
- B 929
- C 951
- D 991



E None of the above

58. Two numbers in the base system B are 2061_B and 601_B . The sum of these two numbers in decimal system is 432. Find the value of 1010_B in decimal system.

A 110

B 120

C 130

D 140

E 150

59. A water tank has M inlet pipes and N outlet pipes. An inlet pipe can fill the tank in 8 hours while an outlet pipe can empty the full tank in 12 hours. If all pipes are left open simultaneously, it takes 6 hours to fill the empty tank. What is the relationship between M and N?

A $M : N = 1 : 1$

B $M : N = 2 : 1$

C $M : N = 2 : 3$

D $M : N = 3 : 2$

E Cannot be determined.

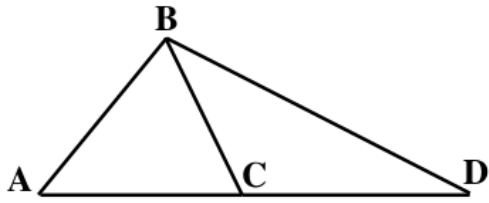
60. Company ABC starts an educational program in collaboration with Institute XYZ. As per the agreement, ABC and XYZ will share profit in 60 : 40 ratio. The initial investment of Rs.100,000 on infrastructure is borne entirely by ABC whereas the running cost of Rs. 400 per student is borne by XYZ. If each student pays Rs. 2000 for the program find the minimum number of students required to make the program profitable, assuming ABC wants to recover its investment in the very first year and the program has no seat limits.

A 63

B 84

- C 105
- D 157
- E 167

61. Study the figure below and answer the question:



Four persons walk from Point A to Point D following different routes. The one following ABCD takes 70 minutes. Another person takes 45 minutes following ABD. The third person takes 30 minutes following route ACD. The last person takes 65 minutes following route ACBD. IF all were to walk at the same speed, how long will it take to go from point B to point C?

- A 10 min.
- B 20 min.
- C 30 min.
- D 40 min.
- E Cannot be answered as the angles are unknown.

62. Each day on Planet M is 10 hours, each hour 60 minutes and each minute 40 seconds. The inhabitants of Planet M use 10 hour analog clock with an hour hand, a minute hand and a second hand. If one such clock shows 3 hours 42 minutes and 20 seconds in a mirror what will be the time in Planet M exactly after 5 minutes?

- A 6 hours 18 minutes 20 seconds
- B 6 hours 22 minutes 20 seconds
- C 6 hours 23 minutes 20 seconds
- D 7 hours 17 minutes 20 seconds

E 7 hours 23 minutes 20 seconds

63. a, b, c are integers, $|a| \neq |b| \neq |c|$ and $-10 \leq a, b, c \leq 10$. What will be the maximum possible value of $[abc - (a + b + c)]$?

- A 524
- B 693
- C 731
- D 970
- E None of the above

64. A square piece of paper is folded three times along its diagonal to get an isosceles triangle whose equal sides are 10 cm. What is the area of the unfolded original piece of paper?

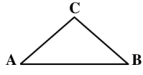
- A 400 sq. cm.
- B 800 sq. cm.
- C $800\sqrt{2}$ sq. cm.
- D 1600 sq. cm.
- E Insufficient data to answer

65. The difference between the area of the circumscribed circle and the area of the inscribed circle of an equilateral triangle is 2156 sq. cm. What is the area of the equilateral triangle?

- A $686\sqrt{3}$
- B 1000
- C $961\sqrt{2}$
- D $650\sqrt{3}$

E None of the above

66. A person standing on the ground at point A saw an object at point B on the ground at a distance of 600 meters. The object started flying towards him at an angle of 30° with the ground. The person saw the object for the second time at point C flying at 30° angle with him. At point C, the object changed direction and continued flying upwards. The person saw the object for the third time when the object was directly above him. The object was flying at a constant speed of 10 kmph.



Find the angle at which the object was flying after the person saw it for the second time. You may use additional statement(s) if required.

Statement I: After changing direction the object took 3 more minutes than it had taken before.

Statement II: After changing direction the object travelled an additional $200\sqrt{3}$ meters.

Which of the following is the correct option?

- A Statement I alone is sufficient to find the angle but statement II is not.
- B Statement II alone is sufficient to find the angle but statement I is not.
- C Statement I and Statement II are consistent with each other.
- D Statement I and Statement II are inconsistent with each other.
- E Neither Statement I nor Statement II is sufficient to find the angle.
67. For two positive integers a and b , if $(a + b)^{(a+b)}$ is divisible by 500, then the least possible value of $a \times b$ is:
- A 8
- B 9
- C 10
- D 12
- E None of the above
68. Pradeep could either walk or drive to office. The time taken to walk to the office is 8 times the driving time. One day, his wife took the car making him walk to office. After walking 1km, he reached a temple when his wife called to say that he can now take the car. Pradeep figure that continuing to walk to the office will take as long as walking back home and then driving to the office. Calculate the distance between the temple and the office.
- A 1
- B $7/3$
- C $9/7$
- D $16/7$

E 16/9

69. If a, b and c are 3 consecutive integers between -10 to +10 (both inclusive), how many integer values are possible for the expression?

$$\frac{a^3+b^3+c^3+3abc}{(a+b+c)^2}=?$$

A 0

B 1

C 2

D 3

E 4

70. In the figure below, two circular curves y and x create 60° and 90° angles with their respective centres. If the length of the bottom curve Y is 10π , find the length of the other curve.



A $15\pi/\sqrt{2}$

B $20\pi\sqrt{2}/3$

C $60\pi/\sqrt{2}$

D $20\pi/3$

E 15π

71. ABCD is a quadrilateral such that AD = 9 cm, BC = 13 cm and $\angle DAB = \angle BCD = 90^\circ$. P and Q are two points on AB and CD respectively, such that DQ : BP = 1 : 2 and DQ is an integer. How many values can DQ take, for which the maximum possible area of the quadrilateral PBQD is 150 sq.cm?

A 14

B 12

- C 10
- D 9
- E 8

Instructions [72 - 74]

Study the data given in the table below and answer the question that follow:

Region \ Shop Type	North	East	West	South	All India
Grocers	34.7	32	32.2	30.2	32.4
Pan Bidi	7.1	21.2	13.1	19.1	14.6
Food Shops	11.8	7.9	14.8	12	11.6
General stores	12.4	9.1	12	6.6	10.1
Electrical Hardware	8.3	5.6	7.7	5.7	6.7
Chemists	6	5.8	5	5.7	5.7
Cosmetic Stores	3.8	3.6	3.3	3.9	3.7
Others	15.8	14.8	12	16.8	15.2
Total	100	100	100	100	100

All figures are in percentage

Based on survey of 'shop types' Kamath categorized Indian states into four geographical regions as shown in the table above. His boss felt that the categorization was inadequate since important labels were missing. Kamath argued that no further labels are required to interpret the data.

72. A consultant observing the data made the following two inferences:

Inference I: The number of Grocers per-thousand-population is the highest in North India.

Inference II: The number of Cosmetic per-thousand-population is the highest in South India.

Which of following options is DEFINITELY correct?

- A Inference I alone is correct.
- B Inference II alone is correct.
- C Either of the inferences is correct.
- D Neither of the inference is correct.
- E Inference I will be correct only if inference II is correct.

73. The average size of Food Shops in East India was twice that of Food Shops in West India. Which of the following cannot be inferred from the above data?

- A As far as 'Food Shops' are concerned, customers in East India prefer spatial surroundings compared to customers in the West India.
- B As far as 'Food Shops' are concerned, Rentals are very high in West India compared to East India.
- C The ratio of customers buying from 'Food Shops' in East India to customers buying from 'Food Shops' in West India is 15.8 : 11.8.
- D There are 740 'Food Shops' in West India.
- E There are 240 'Food Shops' in South India.

74. Bala collected the same data five years after Kamath, using the same categorization.

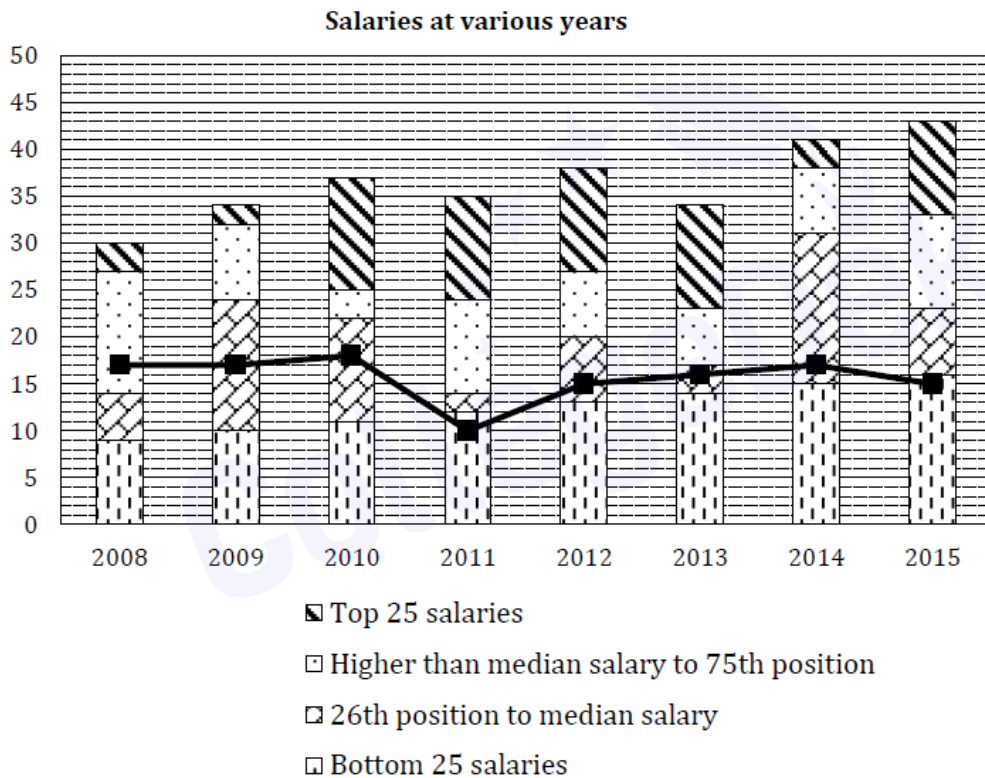
Which of the following statements can DEFINITELY be concluded?

- A In the last four years the number of Electrical hardware shop types has increased in North India.
- B In the last four years the number of Grocers shop types has increased in South India.
- C For the last four years in All India the number of Chemists shop types has remained constant.
- D In the four years in East India the number of 'other' shop type has decreased.
- E As per the new survey conducted Pan Bidi shops in East India are next only to Grocers.

Instructions [75 - 78]

Study the graph below and answer the questions that follow:

This graph depicts the last eight years' annual salaries (in Rs. lacs.) offered to student during campus placement. Every year 100 students go through placement process. However, at least one of them fails to get placed. The salaries of all unplaced students are marked zero and represented in the graph.



The bold line in the graph presents Mean salaries at various years.

- 75.** In which year were a maximum number of students offered salaries between Rs. 20 to Rs.30 lacs(both inclusive)?
- A 2008
 - B 2009
 - C 2010
 - D 2012

E Cannot be determined

76. Identify the years in which the annual median salary is higher by at least 60% than the average salary of the preceding year?

A 2009, 2010

B 2012, 2014

C 2009, 2010, 2012

D 2009, 2012, 2014

E 2009, 2010, 2012, 2014

77. Identify the number of years in which the difference between the average salaries of the top 25% and the bottom 25% is more than Rs. 20 lacs:

A 0

B 1

C 2

D 3

E None of the above options

78. If the average salary is computed excluding students with no offers, in how many years will the new average salary be greater than the existing median salary? Refer the table below for number of students without offers.

Years	2008	2009	2010	2011	2012	2013	2014	2015
Number without job offers	9	5	20	2	2	4	15	2

A 3

B 4

C 5

D 6

E Cannot be solved without additional information.

General Knowledge

79. Elon Musk is closely associated with:

A Google

- B GM
- C GD
- D Tesla
- E Apple

80. Raspberry PI is a:

- A computer sized credit card
- B former name of iMac
- C credit card sized dessert
- D credit card swiping machine
- E credit card sized computer

81. Which of the following films is not associated with Christopher Nolan:

- A Interstellar
- B Matrix
- C Memento
- D Inception
- E Prestige

82. Timbuktu is:

- A A city in China
- B A fictional city
- C A form of expression
- D A city in Mongolia
- E A city in Mali

83. RuPay is related to:

- A Rural Payment of wages office of India
- B National association for facilitation of Rural Payments
- C National Payments Corporation of India

- D Russia Pay, a Russian competitor of Paypal
- E Rustic Poetry, an Annual Festival held in Jaipur, India

84. Which Sea lies to the west of Yemen and Saudi Arabia?

- A The Gulf of Aden
- B Gulf of Oman
- C Red Sea
- D Black Sea
- E Persian Gulf

85. In the budget Estimates of 2015-2016:

- A Non-planned expenditure was more than revenue receipts
- B Revenue receipts were higher than non-planned expenditure
- C Planned expenditure was higher than Non-planned Expenditure
- D Fiscal Deficit was lower than Revenue deficit
- E Total expenditure was 20% higher than total Receipts

86. Consider the following statements:

1. Sinai is a part of Egypt.
2. Sinai is in Asia.
3. Sinai is in Africa.
4. Russian plane was downed in Sinai in November 2015.

Which of the above statements are true?

- A 1 and 3 only
- B 1, 2 and 4 only
- C 1, 3 and 4 only
- D 2 and 4 only
- E 3 and 4 only

87. In 2015, which country was ranked number one as "as best place to do business in"?

- A U.S.A
- B New Zealand
- C Singapore
- D Hong Kong

E India

88. Perumal Murugan is a(n):

A Writer

B Painter

C Journalist

D Actor

E Director

89. In percentages terms, which Indian state has the highest forest cover?

A Madhya Pradesh

B Harit Pradesh

C Nagaland

D Arunachal Pradesh

E Jammu and Kashmir

90. Meghnad Saha was a famous:

A Historian

B Economist

C Painter

D Novelist

E Physicist

91. Read the following statements:

1. Russia supports President Assad of Syria.
2. Saudi Arabia opposes President Assad of Syria.
3. Iran supports President Assad.
4. The United President Assad.

Which of the above statements are true:

A 1 and 2 only

B 1, 2 and 3 only

C 1, 2, 3, and 4

D 2 and 3 only

E 2, 3 and 4 only

92. Angus Deaton is a famous:

- A Economist
- B Physicist
- C Writer
- D Historian
- E Painter

93. Which of the following is not a conglomerate?

- A Reliance
- B ITC
- C TCS
- D Adani
- E Murugappa

94. Plasmodium Vivax causes:

- A Typhoid
- B Malaria
- C AIDS
- D Syphilis
- E Bird Flu

95. Pilatus PC-7 is a(n):

- A frigate
- B aircraft carrier
- C ship
- D submarine
- E aircraft

96. Which of the following commodity is not rightly matched with its country, if 'right match' is considered as one of the top five producers of that commodity?

- A Oat : Russia
- B Wheat : United States

- C Apple : China
- D Carrot : India
- E Rice : Indonesia

97. Which of the following countries has the lowest External Debt?

- A United Kingdom
- B France
- C USA
- D India
- E China

98. Which of the following city is not related to the automobile industry?

- A Dharwad
- B Lucknow
- C Jamshedpur
- D Pithampur
- E Itanagar

99. Which of the following is the closest country to Antarctica?

- A Argentina
- B Brazil
- C South Africa
- D Australia
- E New Zealand

100. The "New Horizon" was in news in 2015. It refers to:

- A Award winning book
- B Business Consulting Company
- C Mission to Pluto
- D Business Magazine
- E Award winning Oscar film

101. The Island that are under dispute of ownership between Japan and China are:

- A Osaka Islands
- B Muntheetu Islands
- C South China Islands
- D Senkaku Islands
- E None of the above

102. The Inuit Paradox:

- A is a place in the article circle near Greenland.
- B is that the Inuits eat a lot of fat and hardly any fruits and are still very healthy.
- C is that the Inuits eat anything that moves but spare the reindeer.
- D is that the inuits have very little exposure to the Sun but suffer no deficiency from Vitamin D.
- E is a Glacier that looks like a circle from a distance but is actually a rectangle.

103. Takata Corporation was in the news recently because it:

- A was involved in airbag recalls.
- B was the chief aide to Shinzo Abe who promised to revive the economy.
- C was the Commander in Chief of the Japanese army accused by critics of mongering.
- D was the second largest seller of phones in China.
- E was the name of a band that fuses Japanese and American music.

Answers

Verbal Ability and Logical Reasoning

1.C	2.C	3.E	4.A	5.D	6.E	7.A	8.D
9.D	10.C	11.D	12.B	13.E	14.A	15.C	16.A
17.A	18.E	19.C	20.D	21.E	22.B	23.E	24.D
25.E	26.B						

Decision Making

27.C	28.E	29.D	30.A	31.E	32.D	33.D	34.A
35.B	36.C	37.E	38.E	39.B	40.B	41.C	42.D
43.B	44.C	45.C	46.D	47.A	48.C	49.A	

Quantitative Ability

50.D	51.E	52.B	53.A	54.B	55.B	56.B	57.D
58.C	59.E	60.C	61.C	62.B	63.C	64.A	65.A
66.D	67.B	68.C	69.C	70.A	71.D	72.D	73.C
74.E	75.E	76.B	77.E	78.A			

General Knowledge

79.D	80.E	81.B	82.E	83.C	84.C	85.B	86.B
87.C	88.A	89.A	90.E	91.B	92.A	93.C	94.B
95.E	96.D	97.D	98.E	99.A	100.C	101.D	102.B
103.A							

Collegedekho

Explanations

Verbal Ability and Logical Reasoning

1. C

Inspect means looking carefully or closely, and vivisection means detailed observation and analysis. In the given options, the nearest is option C.

Answer is option C.

2. C

The author wants to convey that if we search our inner self, we can find the truth and reality. Using the analogy of oceans and his own heart, he has reiterated this point. Option C concurs with this.

Option A is extreme.

Other options are out of scope.

Hence, option C is the correct answer.

3. E

It can be inferred from the given line that assumptions are analogous to ingredients in a recipe. Only the taste of the final food can tell whether the ingredients were appropriate or not. Option E is the most relevant.

Hence, option E is the correct answer.

4. A

Statement S is connected to statement 1 in which the author provides information about Smith and his knowledge about him.

'Inquire' in statement Q refers to the fact mentioned in statement P. So, statement Q should follow P. 'Evidence' mentioned in statement R refers to the argument mentioned in statement Q. So, statement R should follow statement Q. Thus, the correct order is 1 - S - P - Q - R - 6.

Hence, option A is the correct answer.

5. D

Statement R will come first as it asks a question. Statement Q answers the question asked in statement R.

Statement S provides one definition of 'symmetry' and statement P further elaborates the definition. Thus, the correct order is 1 - R - Q - S - P - 6.

Hence, option D is the correct answer.

6. E

There is no mention of popularity of cricket in India. Option A cannot be concluded.

It is given that football is popular in Latin America. But, we cannot conclude that football is also successful there. Option B cannot be inferred.

The paragraph gives information about coaches of Indian club football teams. We cannot infer option C.

Option D is out of the scope of the passage.

Option E is true that the relation between expertise of a coach and the popularity of that sport in his country cannot be established based on the information provided in the passage.

hence, option E is the correct answer.

7. A

The correct pronunciation of "sobriquet" is "soh-bruh-key".

Hence, option A is the correct answer.

8. D

Supporting equal opportunity does not necessarily contradicts meritocracy. Option C is wrong.

Statement I does not assume that marginalized sections of society are incapable of saving or depend on subsidies. Options A and E are irrelevant.

Statement II mentions fair opportunity as a principle but it never suggest that everyone is exposed to it. Hence B is incorrect.

Statement II assumes that everyone is equally capable and intelligent. So, it is justified to open offices and positions to everyone.

Hence, option D is the correct answer.

9. **D**

Option A and B are irrelevant.

Option C is contradictory to what author states, because then if prime minister falls country will not be able to survive.

The main point of the passage is country will survive as it is independent of any other factors.

The author is presenting several alternative futures and stating that the country would thrive in every future and this fact will not depend on any of the current factors responsible. If this thing would have happened earlier also and the country is still thriving, this will most strongly support the author's argument.

Hence, option D is the correct answer.

10. **C**

Some of the behaviours mentioned above are aggressive, some are illegal, some are banned. So, the common umbrella under which all these behaviours would come is "deviant behaviours".

Hence, option C is the correct answer.

11. **D**

Option A is inferred from the context since Oinos admits to Agathos that Agathos was talking about 'creation'. 'Shortly before the final overthrow of the earth', from this statement option B can be inferred.

Option C can be inferred from the last part of Oinos's statement.

Option E can be inferred from the last part of Agathos's statement.

In the given passage, no point is mentioned inferring natural laws are creations of philosophers.

The answer is option D.

12. **B**

*"Trust is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a **particular action**."*

Options A, C, and E can be eliminated as they are irrelevant to the current discussion of trust to 'perform a particular action'.

Option D can be eliminated because of the inclusion of 'possible aggression'.

Option B: If we trust someone, that means that we can engage in some co-operation with them. Thus, this is the correct option.

The correct option is B.

13. **E**

The word interchangeable means "equivalent/similar". Among the options, only E has the given meaning and hence, is the answer.

Complementary means something that enhances the effect.

Contiguous means sharing a border/touching.

Conforming means complying with rules, standards, or laws.

Compatible means existing without causing a conflict.

Hence, the answer is option E.

14. **A**

In the last paragraph, the author says, "*Communication between us begins when there is some overlap between two images*".

Hence, the answer is option A.

15. **C**

Option A: "possibility for appeal" is not mentioned in the passage; hence, this option is rejected.

Option B: the author says that the spin is deceptive, which means that it is not always predictable. Hence, this option is rejected.

Option D: The author does not say that ping-pong is as passive as bowling. Thus, this option is rejected.

Option E: This option is not about ping-pong and is hence, rejected.

Option C: This option is the best comparison between ping-pong and communication and is hence, the answer.

16. **A**

"Action" refers to one-way contact, "Interaction" to a two-way, and "Transaction" refers to a two-way interaction with cooperation from both sides.

Taking these points into account, among the options, A is the answer.

Advertising: the advertiser displays his content without expecting a direct response.

Buyer negotiating with a seller: It is a two-way contact as both parties have to communicate with each other.

Bidding for a player in the Indian Premier League: This involves a transaction as there are multiple bidders and players involved who interact with each other.

Hence, the answer is option A.

17. **A**

The author talks about the given question while talking about economic efficiency. Hence, the answer is option A.

18. **E**

Option A: It can be inferred from the last statement: "*free flow of short-term capital - a key feature of market fundamentalist policies - would produce not growth but instability have also been borne out.*"

Option B: It can be inferred from the first line of the paragraph where the example is given.

Option C: It can be inferred from the last paragraph where the author says that the economic progress of Asian countries is difficult to understand as they did not follow the principles of the economic theory mentioned in the passage.

Option D: It can be inferred from the first paragraph: "*Nor do markets, by themselves, necessarily lead to economic efficiency when the task of a country is to absorb new technology*"

Option E: It cannot be inferred from the passage as the example of Asia in the last paragraph contradicts it.

Hence, the answer is option E.

19. **C**

Paragraph (I) talks about the various factors that could lead to the failure of a market.

Paragraph (II) states how the market theories fail to explain the success of some Asian economies where the governments play a significant role in regulating the market.

Hence, option C is the best choice for the answer.

20. **D**

The last line of the first paragraph says, "*consciousness being the faculty of perceiving that which exists.*"

Hence, the answer is option D.

21. **E**

In the second paragraph, the author says, "*The law of causality states that a thing's actions are determined not by chance, but by its nature, i.e. by what it is*"

Hence, the answer is option E.

22. **B**

In the last line of the passage, the author says, "*Existence is Identity, Consciousness is Identification.*"

Thus, the existence of something is identity, and the knowledge of the existence of that thing is identification.

Hence, among the options, B is the correct answer.

23. **E**

The author says that "*There is no mental process that can change the laws of nature or erase facts*" and that man should adapt to it and not try to change it.

Thus, among the options, E is the best choice for the answer.

24. **D**

Among the options, A, B, C, and E are approximations of the complete truth. Option D, on the other hand, is not. It presents an impossible scenario of "knowing what we don't know".

Hence, the answer is option D.

25. **E**

The author never mentions that theoretical physicists can pinpoint the shortcomings of experimental physicists. Thus, option E is the answer.

Options A, B, C and D can be concluded from the passage.

26. **B**

Options A and C can be rejected as experimental physicists could not have been able to perform an experiment like the Big Bang.

Option D is rejected as it talks about philosophers.

Option E is invalidated by the first line of the passage.

Option C is the answer as the Big Bang as a theory could have been presented by theoretical physicists.

Decision Making

27. **C**

Statement 1 and statement 2 have no relevance to the scheme. Statement 4 cannot be an effect of the mentioned scheme. Statement 3 can be a valid reason for discontinuing the scheme. Government can claim that people, being highly motivated by incentives, are concentrating more on quantity than quality.

Hence, option C is the correct answer.

28. **E**

Most famous researchers are also highly paid does not mean that they are famous because they are highly paid. Statement 1 cannot convince the Government.

Statement 2 does not imply that extra benefits result in high quality research papers. Statement 2 is also ineffective.

Statement 3 is irrelevant because the time of winning Nobel prize and the year of being the highest paid are different. Statement 3 is also unlikely to convince the Government.

Hence, option E is the correct answer.

29. **D**

Auditor's role is to verify accounts only. So, statement 1 and statement 3 are out of the scope of auditors' role. Therefore, the director would agree with statement 1 and statement 3.

Hence, option D is the correct answer.

30. A

All the four hair dressers agreed upon the prices of haircut, shaving and hair-dye. If Kamal introduces a new service for which there is no agreement as such, he would be able to charge extra and also he would not be violating the agreement.

Hence, option A is the correct answer.

31. E

The hairdressers have agreed on the prices. So, changing the price in any manner would be violation of the agreement. Thus, options A, B, C incorrect. Note that option C is making the price 0 which is also in violation of agreement.

In decision making questions, it is important to focus on the premise of the question. The central purpose of the shopkeeper is to avoid any violation of agreement while retaining his loyal customers. The option that fits both is the best fit.

In option D, he does not violate the agreement but he is not doing anything to retain the loyal customers.

Hence option E is the best fit among the given options where loyal customers are benefited while not violating the agreement.

It is entirely true that jumping queue is a moral quandary in itself but as per the central purpose of the author, option E is the lesser of the evils and logically coherent.

Hence, option E is the correct answer.

32. D

Random inspection will not be effective. Also, there is no provision of punishment mentioned. Option A is incorrect.

Options B and C are focused on new taxis and do not resolve current problem.

It has not been mentioned that safety is not offered due to less income generated. Option E is irrelevant.

Option D best serves the purpose. As every taxi needs renewal, affecting it and the taking feedback from passengers would not allow the taxi drivers and owners to overlook safety and comfort.

Hence, option D is the correct answer.

33. D

Option B only talks about comfort and not safety. Hence, it is rejected.

Option C talks about a second loan which does not concern the given situation and hence, is rejected.

It is given that the customers will not pay more for safety. Thus, option A is rejected.

Among options D and E, only D will make sure that the taxis are both comfortable and safe with adding a strict punishment clause.

Hence, the answer is option D.

34. A

Options C and E are extremes and hence, cannot be the answer.

Shifting the green belt outside the city will not help in mitigating pollution inside the city. Option D is incorrect.

Recruiting 20 people who plant a tree each will not be able to compensate for the effect that a loss of green belt would have. Option B is incorrect.

Option A will easily fill the gap left after loss of green belt.

Hence, option A is the correct answer.

35. B

Options C and E are extreme. Option D would imply that Chatterjee has to forego his plan regarding implementation of the green policy because of his friend which is not ethical. Option A implies that Chatterjee would have to delay the implementation in favour of his friend which is unethical. Option B will appeal the most

to him as it will affect his future interests.
Hence, option B is the correct answer.

36. C

Since all three of them have started liking ABC and have also promised to do their best, they deserve a second chance. So, the statements, in which giving them a second chance is not mentioned, are incorrect. We are left with three choices. As they have not done a good job, they also deserve a poor rating. So, the most appropriate option would be to give them poor rating, then average rating and at last, high ratings. Thus, 4-2-5 is the correct order.

Hence, option C is the correct answer.

37. E

Options A, B and C would be unethical on the part of Amelia as a manager and hence, are rejected.

Option D is rejected as Amelia is responsible for the trio's behaviour as their reporting manager.

Since the organisation wants to attract more people from the top B-Schools, ensuring their current employees are happy and satisfied with the organisation is a must. Thus, the organisation should know about the trio's disappointment so that they can make the necessary changes.

Hence, option E would be the most suitable choice for the answer.

38. E

The situation is not so complex as to involve senior management. Statement 1 is unsuitable.

Nicky is not a top performing employee. Statement 2 is not valid.

Statement 4 is not appropriate because they are doing their primary work well.

Statements 3 and 5 are best in the interest of the company.

Hence, option E is the correct answer.

39. B

Statement 1 would mean the acceptance of the allegation which will tarnish the company's image.

Statement 5 would neither be effective in increasing sales nor be able to sway allegations.

The authenticity and accuracy of the report is not known. Hence, the statements 3,2, and 4 are the correct way to approach the crisis at hand.

Hence, option B is the correct answer.

40. B

Mukesh has just read the news in the newspaper and he is not sure about its truthfulness. So, the most appropriate step for him would be to explore the reality behind the news. Therefore, 6 is an ethical option.

Option 2 is ethical too. 1,3,5 are unethical options. Option 4 can be considered as unethical too but to a lesser degree than 1,3,5.

So 6,1,4 is definitely the wrong order because 1 is more unethical option than 4. Hence, option B is the correct answer.

41. C

Proclaiming something without any evidence is futile. Option A is wrong.

Without being sure of the involvement of competitors in any conspiracy, blaming is not correct. Options D and E are incorrect.

Option B would not help Shekhawat prove that his product is healthy which is the main allegation.

Option C is the best alternative for Shekhawat. He can prove both that his product is healthy and the allegations are false.

Hence, option C is the correct answer.

42. D

Options A, C and E are rejected as they point toward bribery. The police should not require any gifts for doing their jobs of stopping crime.

Option B is rejected as the size of the bribe does not matter.

Option E is the correct choice because if similar boxes are being sent to those other places, then it means that it is not meant to be a bribe.

43. B

Statement 5 can be rejected as it is not a valid argument. Just because it is a common practice does not make it right. Hence, it will not convince his son.

Option 2 can also be rejected as this still does not change the problem.

Option 3 is rejected as it is unethical to sell bad products to poor customers.

Options 1 and 4 together will convince his son as to explain why the practice is not a problem and also provide evidence for the same.

Hence, the answer is option B.

44. C

Purushottam was giving a discount for the loyalty of those customers. Thus, the statements which show that they are not loyal to the shop should convince him.

Statement 1 can be rejected as the financial status of the customers does not matter in this case.

Statements 3 and 4 can also be rejected as it still does not cast a doubt on their loyalty to the shop.

Statements 2 and 5 together show that the customers are not very loyal to the shop.

Hence, the answer is option C.

45. C

From the information given in the question, we can make the following table about the project and the person satisfied with it.

	M	N	O	P	Q	R	S
Bhatia							
Patel	✓				✓		✓
Khan	✓						
Singh			✓			✓	
Yadav		✓			✓	✓	✓
Lingdo	✓				✓		✓

We can infer from the table that P cannot satisfy any of the following persons.

46. D

From the information given in the question, we can make the following table about the project and the person satisfied with it.

	M	N	O	P	Q	R	S
Bhatia							
Patel	✓				✓		✓
Khan	✓						
Singh			✓			✓	
Yadav		✓			✓	✓	✓
Lingdo	✓				✓		✓

We can infer from the table that M, Q and S can satisfy at least three persons.

47. **A**

We can create the following table from the above information.

	M	N	O	P	Q	R	S
Bhatia							
Patel	✓	✓			✓	✓	✓
Khan	✓	✓	✓	✓	✓	✓	
Singh			✓			✓	
Yadav		✓			✓	✓	✓
Lingdo	✓	✓	✓	✓	✓	✓	✓

From the table, we can infer that N, Q and R will satisfy the given condition.

48. **C**

As per the given conditions the following details have been mentioned .

CROP	Time Requirement in months	Cultivated Time	Profit earned per unit in USD
A	2	Jan to June	40
B	2	April to Sept	50
C	3	May to December	45
D	3	Aug to December	60
E	4	Aug to December	60
F	4	May to November	40

Now Since for the months of January , February and March we have crop A for use .

So We select crop A for the months of January and February and earns a profit of USD 40000 . (1)

The author wants to replicate the same schedule for the upcoming years.

So If he wants to use Use crop A for the upcoming years in the month of January we must make sure that the month pf December must be left empty because we cannot use crop A in the month of November .

Considering crop A and crop B only they could be used from January to September . A period of 9 months . The reason for considering B is that it requires low time frame and relatively higher profits .

If we plan to use only A and B for the period of 9 months we are left with a period of 3 months and since we cannot sow a crop in the month of December and we are left with October and November .No crop can be completely harvested in the period of 2 months . Hence we must stop using A and B even before the month of September is reached.

While considering a set of crops the choice must be made on the basis of low time period and High Returns

After February is complete we can extend the crop A once more or twice more which gives us returns of USD 80000 for the period of Jan to April or USD 120000 from Jan to June .

The other case leaves us with taking a gap of 1 month in the month of March and sowing B in April .

If B is sowed in April and May it would provide a return of $USD(40000+ 50000) =USD 90000$. (2)

If B is sowed in 2 consecutive sessions of April, May and June, July we earn $USD (40000 +100000) = USD 140000$. (3) .

Until the month of August the best choice is sowing A from Jan to Feb , Leaving the land empty for March and sowing crop B from April to July .

After July taking a gap of 1 more month to sow a different crop and make sure the crop is harvested in 3 months since

December cannot be used.

The best choice is to sow crop D which is harvested in three months September , October and November and generate a profit of USD 60000 .

The final result is as follows :

Jan to Feb	March	April - May	June-July	August	Sept to Nov	December
A	Fallow	B	B	Fallow	D	Fallow

49. A

As per the given conditions the following details have been mentioned .

CROP	Time Requirement in months	Cultivated Time	Profit earned per unit in USD
A	2	Jan to June	40
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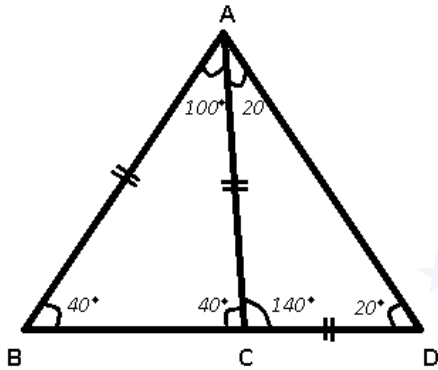
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The final result is as follows :

Jan to Feb	March	April - May	June-July	August	Sept to Nov	December
A	Fallow	B	B	Fallow	D	Fallow

Quantitative Ability

50. D



$AB = AC = CD, \Rightarrow \angle CAD = \angle CDA = 20^\circ$

and $\angle ABC = \angle ACB$

In $\triangle ACD$

$$\Rightarrow \angle ACD + \angle CAD + \angle CDA = 180^\circ$$

$$\Rightarrow \angle ACD = 180^\circ - 20^\circ - 20^\circ = 140^\circ$$

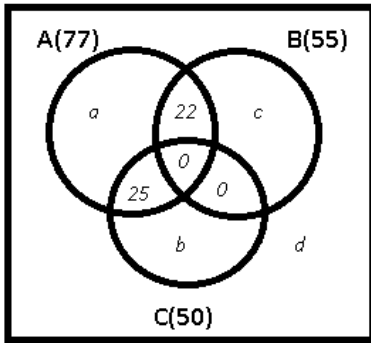
$$\Rightarrow \angle ACB = 180^\circ - 140^\circ = 40^\circ = \angle ABC$$

Similarly, In $\triangle ABC$

$$\Rightarrow \angle BAC = 180^\circ - 40^\circ - 40^\circ = 100^\circ$$

$$\therefore \angle BAD = 100^\circ + 20^\circ = 120^\circ$$

51. E



From the figure, $a + 22 + 25 = 77$

$$\Rightarrow a = 77 - 47 = 30$$

Similarly, $c = 55 - 22 = 33$

$$\text{and } b = 50 - 25 = 25$$

It is given that 40 visitors did not opt for ride A and B, or both

$$\Rightarrow b + d = 40$$

$$\Rightarrow d = 40 - 25 = 15$$

\therefore Total number of people who visited with the entry pass on that day

$$= a + b + c + d + 22 + 25$$

$$= 30 + 25 + 33 + 15 + 47 = 150$$

52. **B**

AB = 54 cm and $\triangle ANM$, $\triangle OCP$, $\triangle OPX$ are equilateral triangles.

$$\Rightarrow MN = MR = NO = OP = PQ = QR = \frac{54}{3} = 18 \text{ cm}$$

Thus, MNOPQRM is a regular hexagon with side 18 cm

$$\therefore \text{Area of MNOPQRM} = \frac{3\sqrt{3}}{2}(\text{side})^2$$

$$= \frac{3\sqrt{3}}{2} \times 18^2 = 486\sqrt{3} \text{ cm}^2$$

53. **A**

Area of rectangular floor = 9.5×11.5

$$= 109.25 \text{ m}^2$$

Now, cost of covering 109 m^2 (with 1x1 tiles) = $109 \times 100 = \text{Rs. } 10,900$

Cost of covering 0.25 m^2 (with 0.5 m square tile) = Rs. 30

$$\therefore \text{Total cost} = 10,900 + 30 = \text{Rs. } 10,930$$

54. **B**

Let A,B,C,D,E,F represents Anita, Biplove, Cheryl, Danish, Emily and Feroze respectively.

Statement I : It is not sufficient as nothing is mentioned about D and F.

Statement II : $E = F$, thus E and F cannot score the lowest.

Also, C scored higher than at least 2 and B scored more than D while A scored the highest.

The only person left with the lowest marks can be D.

Thus, statement II alone is sufficient.

55. B

Let number of apples = x and oranges = y

$$\Rightarrow 23x + 10y = 653 \quad (x > y)$$

Since, 653 has last digit 3, which is possible when 23 is multiplied by 1, 11, 21, 31 and so on.

$$\text{Also, } x > y \Rightarrow x = 21 \text{ and } y = 17$$

$$\Rightarrow \text{C.P. of 1 apple} = \frac{100}{115} \times 23 = 20$$

$$\text{C.P. of 1 orange} = \frac{100}{125} \times 10 = 8$$

$$\Rightarrow \text{Total C.P.} = (21 \times 20) + (17 \times 8) = 420 + 136 = 556$$

$$\therefore \text{Profit \%} = \frac{653-556}{556} \times 100 = 17.4\%$$

56. B

$$\text{Set : } \{1, 3, 3^2, 3^3, \dots, 3^{100}\}$$

Clearly, this set is a G.P. with common ratio, $r = 3$

$$\text{Sum of G.P.} = \frac{a(r^n - 1)}{r - 1}$$

$$\text{Number of terms} = 101$$

$$\text{Last term} = 3^{100}$$

$$\text{Sum of remaining terms} = \frac{1(3^{100} - 1)}{3 - 1}$$

$$= \frac{3^{100} - 1}{2}$$

$$\therefore \text{Required ratio} = \frac{3^{100}}{\frac{3^{100} - 1}{2}}$$

$$= \frac{3^{100} \times 2}{3^{100} - 1}$$

$$\approx \frac{3^{100} \times 2}{3^{100}} = 2$$

57. D

$$\text{Expression : } f(x) = 2x + f(x - 1) \text{ and } f(1) = 1$$

Putting, $x = 2$

$$\Rightarrow f(2) = 2 \times 2 + f(1) = 4 + 1 = 5$$

$$\text{and } f(3) = 2 \times 3 + f(2) = 6 + 5 = 11$$

$$\text{Similarly, } f(4) = 2 \times 4 + f(3) = 8 + 11 = 19$$

$$\text{The pattern followed is : } f(n) = n^2 + (n - 1)$$

$$\text{Now, } n = 31$$

$$\therefore f(31) = 31^2 + (31 - 1) = 961 + 30 = 991$$

58. C

Converting numbers in decimal system

$$\Rightarrow 2061_B = 2B^3 + 6B + 1$$

$$\text{and } 601_B = 6B^2 + 1$$

$$\text{Acc. to ques, } \Rightarrow 2B^3 + 6B + 1 + 6B^2 + 1 = 432$$

Solving above equation, we get : $B = 5$

$$\therefore 1010_5 \text{ in decimal system} = 1(5)^3 + 1(5) = 130$$

Note :- This question is technically wrong as we cannot have digit 6 in Base 5.

59. E

M inlet pipe can fill $(\frac{M}{8})^{th}$ part of the tank in 1 hour.

Similarly, N outlet pipes can empty $(\frac{N}{12})^{th}$ part of the tank in 1 hour.

$$\Rightarrow \frac{M}{8} - \frac{N}{12} = \frac{1}{6}$$

$$\Rightarrow 6M - 4N = 8$$

$$\Rightarrow M = \frac{4+2N}{3}$$

$$\text{If, } N = 1, \Rightarrow M = 2 \Rightarrow M : N = 2 : 1$$

$$\text{If, } N = 4, \Rightarrow M = 4 \Rightarrow M : N = 1 : 1$$

Thus, Ans - (E)

60. C

XYZ running cost = Rs 400/student

Each student pays Rs 2000

$$\text{Profit} = 2000 - 400 = 1600$$

ABC receives 60% of profit, i.e. $1600 \times 0.6 = \text{Rs } 960$

XYZ begins to make profit from first student itself.

For ABC to recover its investment, number of students should be $100000/960 = 104.16$

Therefore, partnership needs at least 105 students to reach break even point.

The answer is option C.

61. C

$$AB + BC + CD = 70 \text{ -----(i)}$$

$$AB + BD = 45 \text{ -----(ii)}$$

$$AC + CD = 30 \text{ -----(iii)}$$

$$AC + CB + BD = 65 \text{ -----(iv)}$$

Adding (i) & (iv)

$$\Rightarrow AB + BC + CD + AC + CB + BD = 70 + 65$$

$$(AB + BD) + 2BC + (AC + CD) = 135$$

From (ii) & (iii)

$$\Rightarrow 45 + 2BC + 30 = 135$$

$$\Rightarrow 2BC = 135 - 75 = 60$$

$$\Rightarrow BC = \frac{60}{2} = 30 \text{ min}$$

62. B

10 hour analog clock is used.

Time in mirror = 3 hours 42 minutes and 20 seconds

$$\Rightarrow \text{Actual time} = 10 - (3 \text{ hrs } 42 \text{ min } 20 \text{ sec})$$

$$= 6 \text{ hrs } 17 \text{ min } 20 \text{ sec}$$

$$\therefore \text{Time after 5 minutes} = 6 \text{ hrs } 22 \text{ min } 20 \text{ sec}$$

63. C

$$|a| \neq |b| \neq |c| \text{ and } -10 \leq a, b, c \leq 10$$

$$\text{Expression : } [abc - (a + b + c)]$$

For maximum value, two of a,b and c should be negative, as all three negative will make abc negative.

$$\text{Thus, max value will occur if } a = -10, b = -9, c = 8$$

$$\Rightarrow \text{Max value} = [(-10 \times -9 \times 8) - (-10 - 9 + 8)]$$

$$= 720 + 11 = 731$$

64. A

When a square sheet is folded in half, its area is also halved. Now, an isosceles right triangle is formed after folded. For 2nd & 3rd folds, again areas halved each time and isosceles right triangle is formed

Equal sides = 10 cm

$$\text{Area of last such triangle} = \frac{1}{2} \times 10 \times 10 = 50 \text{ cm}^2$$

$$\therefore \text{Area of original square} = 50 \times 2 \times 2 \times 2$$

$$= 400 \text{ cm}^2$$

65. A

Let radius of incircle = r , \Rightarrow Radius of circumcircle = $2r$

$$\text{Difference in area} = \pi[(2r)^2 - (r)^2] = 2156$$

$$\Rightarrow 3 \times \frac{22}{7} \times r^2 = 2156$$

$$\Rightarrow r^2 = \frac{2156 \times 7}{66}$$

$$\Rightarrow r = \sqrt{\frac{686}{3}}$$

Now, height of equilateral triangle = $3r = \frac{\sqrt{3}}{2}a$ (where a is side of triangle)

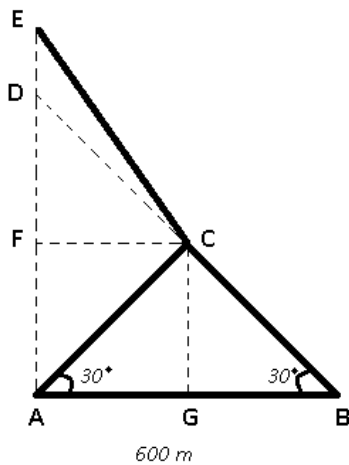
$$\Rightarrow 3 \times \sqrt{\frac{686}{3}} = \frac{\sqrt{3}}{2}a$$

$$\Rightarrow a = 2\sqrt{686}$$

$$\therefore \text{Area of triangle} = \frac{\sqrt{3}}{4}a^2$$

$$= \frac{\sqrt{3}}{4} \times 4 \times 686 = 686\sqrt{3} \text{ cm}^2$$

66. D



If the object does not change direction at point C then it will be at D above the person. But since it is given that object changed direction and continued flying upwards, thus object would reach point E.

$\triangle ABC$ is isosceles triangle ($\because \angle CAG = \angle ABC$)

$\Rightarrow CG$ is perpendicular bisector to $AB \Rightarrow BG = 300$ m

In $\triangle BCG$

$$\Rightarrow \cos 30 = \frac{BG}{BC}$$

$$\Rightarrow \frac{\sqrt{3}}{2} = \frac{300}{BC}$$

$$\Rightarrow BC = \frac{600}{\sqrt{3}} = 200\sqrt{3}$$

Now, according to statement I, time can increase only when the angle with ground level will increase.

But, according to statement II, if $CD = 200\sqrt{3}$ ($= BC$), then at constant speed, it will not take any additional time and thus there should not be any increase in angle.

But in first statement direction has been changed whereas in second statement direction has not been changed.

So both the statements are inconsistent with each other.

67. B

If $(a + b)^{(a+b)}$ is divisible by 500,

$$500 = 2^2 \times 5^3$$

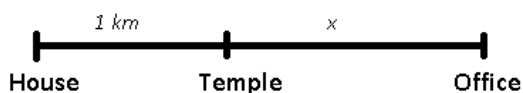
\Rightarrow Least value of $a + b = 2 \times 5 = 10$

For least a and b , let $a = 1$

$$\Rightarrow b = 10 - 1 = 9$$

$$\therefore \text{Min}(a \times b) = 1 \times 9 = 9$$

68. C



Let walking speed = a

\Rightarrow Driving speed = $8a$

Let the distance between temple and office = x

Acc. to ques,

$$\Rightarrow \frac{x}{a} = \frac{1}{a} + \frac{x+1}{8a}$$

$$\Rightarrow 8x = 8 + x + 1$$

$$\Rightarrow x = \frac{9}{7}$$

69. C

Since a,b,c are consecutive integers

$$\Rightarrow a = b - 1 \text{ and } c = b + 1$$

$$\text{Expression : } \frac{a^3 + b^3 + c^3 + 3abc}{(a+b+c)^2}$$

$$= \frac{(b-1)^3 + b^3 + (b+1)^3 + 3(b-1)b(b+1)}{(b-1+b+b+1)^2}$$

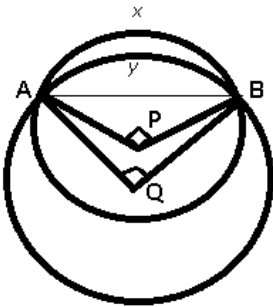
$$= \frac{b^3 + 3b + b^3 + b^3 + 3b + 3b^3 - 3b}{9b^2}$$

$$= \frac{6b^3 + 3b}{9b^2} = \frac{2b^2 + 1}{3b}$$

Putting different values of b from - 10 to 10, we can verify that only - 1 and 1 satisfies to get integer values for the expression.

Ans - (C)

70. A



Let P and Q be the centres of the circles with arcs x and y respectively.

Thus, $\angle APB = 90$ and $\angle AQB = 60$

Also, length of arc $y = 10\pi$ cm

$$\Rightarrow \frac{\theta}{360} \times 2\pi r = 10\pi$$

$$\Rightarrow \frac{1}{6} \times 2 \times r = 10$$

$$\Rightarrow r = AQ = 10 \times 3 = 30 \text{ cm}$$

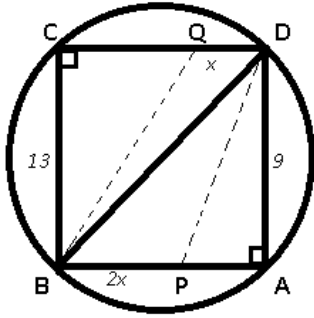
$$\Rightarrow AB = 30 \text{ (} \because \triangle AQB \text{ is equilateral triangle)}$$

$$\text{Also, } \triangle APB \text{ is right isosceles triangle, } \Rightarrow AP = \frac{30}{\sqrt{2}}$$

$$\therefore \text{Arc length} = x = \frac{90}{360} \times 2\pi \times \frac{30}{\sqrt{2}}$$

$$= \frac{15\pi}{\sqrt{2}}$$

71. D



Let $DQ = x, \Rightarrow BP = 2x$

Acc. to ques,

$$\Rightarrow ar(\triangle BPD) + ar(\triangle BQD) \leq ar(PBQD)$$

$$\Rightarrow \left(\frac{1}{2} \times AD \times BP\right) + \left(\frac{1}{2} \times BC \times QD\right) \leq 150$$

$$\Rightarrow \left(\frac{1}{2} \times 9 \times 2x\right) + \left(\frac{1}{2} \times 13 \times x\right) \leq 150$$

$$\Rightarrow 31x \leq 300 \Rightarrow x \leq \frac{300}{31}$$

$$\Rightarrow x \leq 9.68$$

Thus, for x to be an integer and positive, 9 different values (1 to 9) are possible.

72. **D**

Since the population of the different areas is unknown, None of the two statements can be inferred. Hence D is the correct answer.

73. **C**

Since there is no data available about the population of the different areas, all the other options except C can be inferred. Option C cannot be inferred as it talks about the ratio of the customers. Hence C is the correct answer.

74. **E**

Option A,B ,C,D talk about the increase or decrease in the number of shops with respect to each other. Since the total number of shops can be different in two different years, hence they cannot be definitely concluded.

Option E compares the numbers of shops of two types in the same year. Since the percentage is given and total number of shops is same, hence E can be concluded. Hence E is the correct answer.

75. **E**

Let's tabulate the information given in the graph,

Salary range/ Year	2008	2009	2010	2011	2012	2013	2014	2015
0-25	1-9	1-10	1-11	1-12	1-13	1-14	1-15	1-16
26-50	9-14	10-24	11-22	12-14	13-20	14-16	15-31	16-23
51-75	14-27	24-32	22-25	14-24	20-27	16-23	31-38	23-33
76-100	27-30	32-35	25-37	24-37	27-34	23-33	38-41	33-43

For a salary range we can get the highest and the lowest value of the range but cannot get the distribution of individual student.

In the year 2008 we have a complete salary range(76-100) inside it and some students of the range 51-75.

In the year 2009 some students of the range 51-75 and some students of the range 75-100.

In the year 2010 some students of the range 51-75 and some students of the range 75-100.

In the year 2012 we have a complete salary range 51-75 inside it and some students of the range (76-100) .

Since we cannot determine the exact students and cannot infer a particular year, Hence answer is E i.e cannot be determined.

76. B

Let's tabulate the information given in the graph,

Salary range/ Year	2008	2009	2010	2011	2012	2013	2014	2015
0-25	1-9	1-10	1-11	1-12	1-13	1-14	1-15	1-16
26-50	9-14	10-24	11-22	12-14	13-20	14-16	15-31	16-23
51-75	14-27	24-32	22-25	14-24	20-27	16-23	31-38	23-33
76-100	27-30	32-35	25-37	24-37	27-34	23-33	38-41	33-43

In all the options since 2009 is given

Lets check if 2009 is satisfying the given criteria

Median salary of 2009 = 24 |

Avg salary of 2008 = 16 |

So Median salary of 2009 is between 40 to 50% higher than 2008 avg salary.

Hence options 1,3,4,5 can be negated .

Option B is the correct answer

77. E

Let's tabulate the information given in the graph,

Salary range/ Year	2008	2009	2010	2011	2012	2013	2014	2015
0-25	1-9	1-10	1-11	1-12	1-13	1-14	1-15	1-16
26-50	9-14	10-24	11-22	12-14	13-20	14-16	15-31	16-23
51-75	14-27	24-32	22-25	14-24	20-27	16-23	31-38	23-33
76-100	27-30	32-35	25-37	24-37	27-34	23-33	38-41	33-43

The number of years cannot be calculated with precision as the distribution pattern is unknown .

Hence E is the correct answer

78. A

Let's tabulate the information given in the graph,

Year	No of students without job offers	Median salary	Mean salary	Mean salary of job offered students
2008	9	14	16	18
2009	5	24	16	17
2010	20	22	19	23.75
2011	2	14	10	10.2
2012	2	20	15	15.3
2013	4	16	16	16.66
2014	15	31	17	20
2015	2	22	15	15.3

It is clear from the table that the mean salary after discarding the unemployed students is greater than the mean salary for the years 2008,2010,2013

Hence A is the correct answer.