XAT 2010

Verbal Ability and Logical Reasoning

1. Read the sentences and choose the option that best arranges them in a logical order.
1. He might make the opposite mistake; when I want to assign a name to this group of nuts, he might understand it as a numeral,
2. Now, one can ostensively define a proper name, the name of a colour, the name of a material, a numeral, the name of a point of the compass and so on.
3. The definition of the number two. "That is called 'two' " pointing to two nuts is perfectly exact. But how can two be defined like that?
4. He may suppose this; but perhaps he does not.
5. The person one gives the definition to doesn't know what one wants to call "two"; he will suppose that "two" is the name given to this group of nuts!

A 1, 2, 3, 5, 4

B 2, 3, 5, 4, 1

C 3, 5, 4, 2, 1

D 5, 2, 3, 1, 4

E 2, 3, 4, 1, 5

Instructions [2 - 3]

Analyse the following transcript (from the movie Matrix) and provide an appropriate answer for the questions that follow:

Neo: Morpheus, what's happened to me? What is this place?
Morpheus: More important than what is when.
Neo: When?
Morpheus: You believe it's the year 1999 when in fact it's closer to 2199. I can't tell you exactly what year it is because we honestly don't know.There's nothing I can say that will explain it for you, Neo. Come with me. See for yourself. This is my ship, the Nebuchadnezzar. It's a hovercraft. This is the main deck. This is the core where we broadcast our pirate signal and hack into the Matrix. Most of my crew you already know.

(Next Scene: Construct)

Morpheus: This is the construct. It's our loading programme. We can load anything from clothing, to equipment, weapons, training simulations, anything we need.

Neo: Right now we're inside a computer programme?
Morpheus: Is it really so hard to believe? Your clothes are different. The plugs in your arms and head are gone. Your hair is changed. Your appearance now is what we call residual self image. It is the mental projection of your digital self.

Neo: This...this isn't real?

Morpheus: What is real? How do you define real? If you're talking about what you can feel, what you can smell, what you can taste and see, then real is simply electrical signals interpreted by your brain.
...This is the world that you know. The world as it was at the end of the twentieth century. It exists now only as

part of a neural-interactive simulation that we call the Matrix. You've been living in a dream world, Neo. .. .This is the world as it exists today. Welcome to the Desert of the Real. We have only bits and pieces of information but what we know for certain is that at some point in the early twenty-first century all of mankind was united in celebration. We marvelled at our own magnificence as we gave birth to AI.
Neo: AI? You mean artificial intelligence?

Morpheus: A singular consciousness that spawned an entire race of machines. We don't know who struck first, us or them. But we know that it was us that scorched the sky. At the time they were dependent on solar power and it was believed that they would be unable to survive without an energy source as abundant as the sun. Throughout human history, we have been dependent on machines to survive. Fate it seems is not without a sense of irony. The human body generates more bio-electricity than a 120-volt battery and over 25,000 BTU's of body heat. Combined with a form of fusion the machines have found all the energy they would ever need. There are fields, endless fields, where human beings are no longer born, we are grown. For the longest time I wouldn't believe it, and then I saw the fields with my own eyes. Watch them liquefy the dead so they could be fed intravenously to the living. And standing there, facing the pure horrifying precision, I came to realize the obviousness of the truth. What is the Matrix? Control. The Matrix is a computer generated dream world built to keep us under control in order to change a human being into this.
Neo: No. I don't believe it. It's not possible.
Morpheus: I didn't say it would be easy, Neo. I just said it would be the truth.
Neo: Stop. Let me out. Let me out. I want out.

2. The innate factor responsible for the status of human beings in later part of 22nd century is

- **A** Due to human beings living in a dream world and being happy about it.
- **B** The ability of human body to generate bio-electricity.
- **C** The decision to scorch the sky.
- **D** The development of artificial intelligence by human beings.
- **E** Due to human beings developing the ability to hack into the matrix.

3. Choose the option that cannot be inferred from the Idea discussed in the transcript:

- **A** Morpheus and his crew have developed an ability to hack into the matrix.
- **B** A war between human beings and machines is going on for some decades.
- **C** The sources of power for human beings and machines were different.
- **D** Machines require human beings for their survival now.

E Morpheus and his crew are not entirely controlled by the matrix.

4. Widespread use of lectures in class-rooms in business schools leads to severe negative consequences. The first consequence is theoretically knowledgeable graduates who cannot apply theory to solve real world problems. The more serious consequence is that lectures encourage a feeling of total omniscience among them which persists for quite some time after graduating. This feeling prevents "them from learning from their subordinates and colleagues.

Which of the following can best help to reduce these negative consequences among the students in a business school?

A Use illustrations of real life problems in classrooms.

B Send the students to find business problems so that it can be discussed in classrooms.

C Business education to be given to students, who have work experience.

D Modify the pedagogy to have knowledge of theory and application in parallel.

E Removing theoretical inputs from the curriculum altogether; only practical problems to be discussed in class rooms.

Instructions [5 - 6]

Analyse the following passage and provide an appropriate answer the questions that follow.

Silver is especially and repetitively savage about what he sees as the extravagant claims made for particle physics, arguing that once the proton, neutron, and electron were found and their properties experimentally confirmed, the very expensive searches for ever more exotic particles, such as the Higgs Boson, were increasingly harder to justify other than by their importance to particle physicists.
Most of the particles resemble ecstatic happiness: They are very short - lived and have nothing to do with everyday life. His repeated assault goes to the level of sarcasm: "Finding the Higgs Boson will be a magnificent technical and theoretical triumph. Like a great Bobby Fisher game". Of course, this is a tad unfair, even if some of the claims of its practitioners invite such assaults on their field.

5. Which of the following, if true, will weaken the argument described in the passage?

A All streams of new science need to undergo through a period of uncertainty and we should not criticize research in particle physics alone.

B Necessity is the mother of every invention.

C Knowledge has preceded application in all spheres of science.

D Funding agency supporting research on Higgs Boson do not mind wasting their money.

E Do not expect everyone to appreciate everything.

6. Identify the statement(s) that is(are) logically consistent with the content of the paragraph:
I. Silver is an ardent critic of Higgs Boson theory.
II. Everyday life has nothing to do with experimental confirmation of the properties of proton, neutron and electron.
III. Identifying more information about Higgs Boson is a significant contribution to particle physics.
IV. Research on exotic particles in particle physics is an expensive proposition.

A Only I

B Only II

C Only II and IV

D Only IV

E Only I and IV

Instructions [7 - 8]

Analyse the following passage and provide an appropriate answer for the questions that follow.

Fashion is different from custom, or rather is a particular species of it. That is not the fashion which everybody wears, but which those wear who are of a high rank, or character. The graceful, the easy, and the commanding manners of the great, joined to the usual richness and magnificence of their dress, give a grace to the very form which they happen to bestow upon it. As long as they continue to use this form, it is connected in our imaginations with the idea of something that is genteel and magnificent, and though in itself it should be indifferent, it seems, on account of this relation, to have something about it that is genteel and magnificent too. As soon as they drop it, it loses all the grace, which it had appeared to possess before, and being now used only by the inferior ranks of people, seems to have something of their meanness and awkwardness.

7. Which phrase would be the best title of the passage?

A Proletariat fashion models and fashion shows

B Scourge of fashion

C The clothes maketh the man

D The man maketh the cloth

E Predicting fashion-trends and character

8. Which is nearest to the central idea in the passage?

A Fashion improves grace of a person.

B Grace is indicated by the fashion adopted.

C Grace is a characteristic of imaginative persons.

D The contemporary nature of fashion portrays the society.

E Grace is a reflection of the person's rank or character.

9. Social roles may either conflict or cooperate within any given person, depending upon the circumstances. They conflict when the behaviour patterns demanded by one role cannot be performed while performing the second role. Thus, one cannot easily be a saintly rake or a feminine brute, but given an understanding husband, a woman can be both a loving wife and a loving mother with no conflict between the roles.
Which of the following methods is used by the author to make his or her point?

A Applying an individual attribute to a whole

B Implying contradictions without actually citing them

C Relying on common-sense notions of social roles

D Presenting specific examples to clarify a generality

E Using paradox to highlight an implicit contradiction

10. While no one made any_____the financial scandal while he was in the room, there was a feeling of awe to the _____ created by the broker that had snared many unsuspecting investors under the _____that everyone would end up rich and the fact that he had been celebrating his _____of the legal authorities by attending parties.

The option that best fills the blanks in the above paragraph would be:

A delusion, elusion, allusion, illusion

B elusion, illusion, allusion, delusion

C allusion, delusion, illusion, elusion

D illusion, allusion, delusion, elusion

E allusion, illusion, delusion, elusion

Instructions [11 - 12]

Analyse the following passage and provide an appropriate answer for the questions that follow.

One key element of Kantian ethics is the idea that the moral worth of any action relies entirely on the motivation of the agent: human behaviour cannot be said good or bad in light of the consequences it generates, but only with regard to
what moved the agent to act in that particular way. Kant introduces the key concept of duty to clarify the rationale underpinning of his moral theory, by analysing different types of motivation. First of all, individuals commit actions that arc really undertaken for the sake of duty itself, which is, done because the agent thinks they arc the right thing to do. No consideration of purpose of the action matters, but only whether the action respects a universal moral law. Another form of action (motivation) originates from immediate inclination: Everyone has some inclinations, such as to preserve one's life, or to preserve honour. These are also duties that have worth in their own sake.But acting according to the maxim that these inclinations might suggests - such as taking care of one's own health - lacks for Kant true moral worth. For example, a charitable person who donates some goods to poor people might do it following her inclination to help the others - that is. because she enjoys helping the others. Kant does not consider it as moral motivation, even if the action is in conformity

with duty. The person acting from duty would in fact donate to the other because she recognizes that helping the others is her moral obligation. Final type of motivation suggested by Kant include actions that can be done in conformity with duty, yet are not done from duty, but rather as a mean to some further end. In order to illustrate this type of motivation, Kant provides the following example. A shopkeeper who does not overcharge the inexperienced customer and treats all customers in the same way certainly is doing the right thing - that is, acts in conformity with duty - but we cannot say for sure that he is acting in this way because he is moved by the basic principles of honesty: "it is his advantage that requires it". Moreover, we cannot say that he is moved by an immediate inclination toward his customers since he gives no preference to one with respect to another. Therefore, concludes Kant, "his action was done neither from duty nor from immediate inclination but merely for purposes of self-interest".

11. Consider the following examples:

i) Red Cross volunteer who donates blood every year to thank an anonymous donor who saved the life of his mother some time back

ii) A voluntary organization which conducts regular blood donation camps to improve its legitimacy.

As per the passage, correct statement(s) related to the above examples would be:

I. The source of motivation for both examples is same

II. Individuals may commit actions for reasons beyond duty

III. Both examples illustrate the concept of moral worth

A Option I only

B Option II only

C Options I & II

D Option III only

E Options II & III

12. Which of the following inferences would be against the ideas in the passage?

I. Kantian ethics considers the moral worth of an inclination on the basis of its consequence.

II. Actions motivated by the inclination of an individual lacks moral worth.

III. Elements of moral obligation reduce the moral worth of a duty, which has some worth in itself.

A Option I only

B Options I & II

C Options II only

D Options III only

E Options II & III

13. “So you want me to proscribe Ceecee... ”. The most suitable inference about Ceecee can be:

A A book written by a senior politician who was expelled recently from the party, revealing the unpalatable secrets about the functioning of the government.

B A newly published book from the most respected management expert worldwide.

C A specific medicine requested by a patient; here the request is made to a family doctor, who is also a close friend of the patient.

D A leader who needs moral support from friends.

E A student who asks for a specific instruction from her teacher.

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

1. Well, it may mean various things; but one very likely thinks first of all that a picture of the object comes before the child's mind when it hears the word.
2. But what does this mean?
3. I will call it "ostensive teaching of words". I say that it will form an important part of the training, because it is so with human beings; not because it could not be imagined otherwise.
4. But now, if this does happen - is it the purpose of the word? Yes, it may be the purpose. I can imagine such a use of words (of series of sounds).
5. This ostensive teaching of words can be said to establish an association between the word and the thing.

A 2, 3, 4, 5, 1

B 2, 3, 5, 4, 1

C 3, 5, 4, 2, 1

D 5, 3, 2, 1, 4

E 3, 5, 2, 1, 4

15. The boss called to inform that he _____ be coming to office that day. However the employees did not take it easy as they know it was his _____ to give them a surprise by coming in and checking who was at work. Any employee, once caught not working, would then be required to _____ on the reasons for not working and if the boss was not satisfied the employee had to work on Sunday to _____ the wrong.
The option that best fills the blanks in the above paragraph would be:

A won't, wont, expatiate, expiate

B won't, wont, expiate, expatiate

C wont, won't, expatiate, expiate

D won't, wont, expatriate, expiate

E wont, won't, expatriate, expatiate

Instructions [16 - 18]

Analyse the following passage and provide an appropriate answer for the questions that follow.

When we speak of the "probability of death", the exact meaning of the experience can be defined in the following way only. We must not think of an individual, but of this expression can be defined in the following way only. We must not think of an individual, but of a certain class as a whole, e.g., "all insured men forty-one years old living in a given country and not engaged in certain dangerous occupations." A probability of death is attached to the class of men or to another class that can be defined in a similar way. We can say nothing about the probability of death of an individual even if we know this condition of life and health in detail. The phrase "probability of death", which it refers to a single person, has no meaning at all.

16. Which of the following conclusions can be drawn from the passage?

1. Singular, non replicable events can be assigned numerical probability value.
2. Probability calculation requires data of the class of people or of events.
3. The data about a class of events can be used to predict the future of any specific event.

A 1 only

B 2 only

C 1 and 2

D 2 and 3

E 1 and 3

17. Which of the following statements would the author(s) disagree to the most?
The outcome of a boxing match to be held in Los Angeles between two boxers, Joe and Mark, belonging to two different boxing clubs can be analysed and an outcome can be assigned a numerical value:

A if assignment of the boxers' current fitness levels and their strengths is done by experts.

B by analysis of outcomes of fights between the boxers belonging to the two clubs.

C by analysis of outcomes of fights between the two boxers at different venues.

D by comparing of outcomes of fights between the two boxers against same opponents.

E by analysis of outcomes of fights between the two boxers at the same venue in Los Angeles.

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E by analysis of outcomes of fights between the two boxers at the same venue in Los Angeles.

19. "The sum of behaviour is to retain a man's dignity without intruding upon the liberty of others", stated Sir Francis Bacon. If this is the case, then not intruding upon another's liberty is impossible.
The conclusion strongly implied by the author of the passage is:

A Retaining one's dignity is impossible without intruding upon other's liberty.

B Retaining dignity does not necessarily involve robbing other's liberty.

C Dignity and liberty are mutually exclusive.

D There is a ways the possibility of a 'dignified intrusion'.

E Retaining dignity never involves intrusion into other's liberty.

20. Gourmet is to gourmand as

A aquatic is to aqueduct

B foliage is to fodder

C ecclesiastic is to earthy

D election is to elector

E epitaph is to epilogue

21. In the song sung on Independence day, Ram's voice was _____. The option that best fills in the blank in the above sentence would be:

A high pitched

B pitched high

C possessing of high pitch

D characterised by pitch

E of higher pitch

22. In the election of 2009, the internet emerged as the new communication _____ to be used by political parties to inform the voters about their agenda.
The option that best fills in the blank in the above sentence would be:

A mode

B instrument

C medium

D media

E method

23. "Indigestion? Acidity? Unable to sleep?...Don't spend the time tossing and turning! Take Magix for a sound, restful sleep ... you'll soon fall asleep, and wake up refreshed and energized. Remember ... Magix when you are suffering from acidity and need that sleep!"
All of the following are claims of Magix except:

A A good night's sleep

B Added energy

C A cure to indigestion

D Quickly falling asleep

E A restful slumber

24. Filmmakers tend to highlight their emotional points with visuals, rather than dialogue. Words tend to be the tools of playwrights. Images are the stuff that films are made of. Nevertheless, many successful films have been made from stage plays and contain little else than one location or one stage set.
The option most opposite to the idea in the paragraph:

A Films are not necessarily a filmmaker's medium.

B Films are not limited to any one particular style.

C Films are solely built upon visual and eye-catching scenes.

D Films are better made by playwrights and novelists.

E Films perhaps are better understood by literary critics.

25. Classify following sentences into Fact (F), Judgment (J) and Inference (I) based on the definitions provided below, and choose the most suitable sequence among the given options.

Fact (F): If it is to a known matter of direct observation, or an existing reality or something known to be true.
Judgment (J): If it is an opinion or estimate or anticipation of common sense or intention.
Inference (I): If it is logical conclusion or deduction about something based on the knowledge of facts.
i) Proper allocation of resources is required for the overall development of our economy.
ii) Government has decided to allocate the gas from KG basin to power fertiliser sector.
iii) A court decision against the declared policy guidelines can result in government intervention in the form of an appeal.
iv) Some section of the society may consider this decision as a deliberate attempt to protect some private interest.

A IFIJ

B FFJJ

C JFJI

D JFFI

E FFII

Instructions [26 - 27]

Analyse the following passage and answer the questions.

Some words are highly inflammable. Fusion is one of them. You can get two sets of people into a war mode by just uttering the words "fusion music". One set will breathe fire and say it violates the purity of music: the other set will tell you earnestly that it opens the borders of music.

26. The statement "Some words are highly inflammable".

A captures the essence of the passage.

B is a linguistic embellishment to the passage.

C is an irrelevant exaggeration used in the passage.

D is an unsubstantiated dogmatic assertion.

E is a contradictory statement in the passage.

27. From the purists' perspective, the "war" between two sets of people can best be

A categorized as an ideological conflict between two ideas.

B termed as a conflict between two generations - the younger versus the older generation.

C an attempt to preserve the core principles.

D seen as an attempt of people at the margin to occupy centre-stage.

E seen as preserving the social identity of purists.

28. _____ children in rains run the risk of getting lost.
The option that best fills the blank in the above sentence would be:

A Lonely

B Solitary

C Single

D Unaccompanied

E Unguarded

29. The increase in the number of reality shows on television channels bolsters the contention that channels owners are more interested in boosting their revenues by pandering to voyeuristic tendencies of viewers.
The premise behind the above argument is that

A reality shows on television channels are a recent phenomenon.

B everything that channel broadcasts should be educational.

C reality shows on television appeal to the basic instincts of viewers.

D reality shows make more money than other types of programs.

E the channel owners can influence what is watched by the viewers.

30. An extract from a magazine's weekly forecast for different sun signs is given below. Analyse the extract and answer the following question.

Pisces (February 19 - March 20)

"...The efforts you make could set the stage for some new opportunities later on. Keep ahead of the opposition by using your imagination and by being original."

For a person possessing scientific temperament, the forecast for people belonging to the sun sign

A is quite relevant and will allow Pisceans to plan the week much better.

B points out the advantage of Pisceans of using imaginative approaches.

C is justified given the nature of competition typically faced by Pisceans.

D puts forth a generic principle which applies to all persons.

E can only be written by astrologers as such forecast are based on research.

31. Unlike other retail outlets, where items are purchased in any number of units the customer wants, in super - markets items are grouped in bulk packages. This bulk buying offers savings to the customer. The option to buy at wholesale prices by buying in bulk makes super - markets a practical choice for budget - conscious consumers.

Which of the following is an assumption necessary to the author's argument?

A Super - markets often have great buying power and lower overhead costs, so they can offer a greater variety of products than regular retail outlets.

B Super - markets are often more conveniently located and have better parking facilities.

C The emergence of super- markets has caused many small retail stores to close down and thus eliminate competition.

D It is economically wise to buy single items since bulk passages seldom offer significant savings.

E The financial savings from purchasing bulk packages may outweigh the inconvenience of being unable to purchase in any number of units that suits the customers' needs.

Decision Making

Instructions [32 - 34]

Questions are based on a set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. Choose the response that most accurately and completely answers each question.

In a local pet store, seven puppies wait to be introduced to their new owners. The puppies, named Ashlen, Blakely, Custard, Daffy, Earl, Fala and Gabino, are all kept in two available pens. Pen 1 holds three puppies, and pen 2 holds four puppies.

If Gabino is kept in pen 1, then Daffy is not kept in pen 2.
If Daffy is not kept in pen 2, then Gabino is kept in pen 1.
If Ashlen is kept in pen 2, then Blakely is not kept in pen 2.
If Blakely is kept in pen 1, then Ashlen is not kept in pen 1.

32. Which of the following groups of puppies could be in pen 2?

A Gabino, Daffy, Custard, Earl.

B Blakely, Gabino, Ashlen, Daffy.

C Ashlen, Gabino, Earl, Custard.

D Blakely, Custard, Earl, Fala.

E Gabino, Ashlen, Fala, Earl.

33. If Earl shares a pen with Fala, then which of the following MUST be true?

A Gabino is in pen 1 with Daffy.

B Custard is in pen 2.

C Blakely is in pen 2 and Fala is in pen 1.

D Earl is in pen 1.

E Gabino shares a pen with Blakely.

34. If Earl and Fala are in different pens, then which of the following must NOT be true?

A Fala shares a pen with Custard.

B Gabino shares a pen with Ashlen.

C Earl is in a higher-numbered pen than Blakely.

D Blakely shares pen 2 with Earl and Daffy.

E Custard is in a higher numbered pen than Fala.

Instructions [35 - 37]

Read the following passage and answer the questions that follow.

In calendar year 2008, there was turbulence in the air as Jet Airways' Chairman pondered what course of action the airline should take. Air India was also struggling with the same dilemma. Two of India's largest airlines, Air India and Jet Airways, had sounded caution on their fiscal health due to mounting operational costs. A daily operational loss of $2 million (Rs 8.6 crore) had in fact forced Jet Airways to put its employees on alert. Jet's senior General Manager had termed the situation as grave. Jet's current losses were $2 million a day (including Jet-Lite). The current rate of Jet Airways' domestic losses was $0.5 million (Rs 2.15 crore) and that of JetLite was another $0.5 million. International business was losing over $1 million (Rs 4.30 crore) a day.

The situation was equally grave for other national carriers. Driven by mounting losses of almost Rs 10 crore a day. Air India, in its merged avatar, was considering severe cost cutting measures like slashing employee allowances, reducing In flight catering expenses on short haul flights and restructuring functional arms. The airline also considered other options like cutting maintenance costs by stationing officers at hubs, instead of allowing them to travel at regular intervals.

Jet Airways, Air India and other domestic airlines had reasons to gel worried, as 24 airlines across the world had gone bankrupt in the year on account of rising fuel costs. In India, operating costs had gone up 30 - 40%. Fuel prices had doubled in the past one year to Rs 70,000 per kilolitre, forcing airlines to increase fares. Consequently, passenger load had fallen to an average 55-60% per flight from previous year's peak of 70-75%. Other airlines faced a similar situation; some were even looking for buyers. Domestic carriers had lost about Rs 4,000 crore in 2007-08 with Air India leading the pack. "As against 27% wage bill globally, our wage bill is 22% of total input costs. Even then we are at a loss," an Air India official said. Civil aviation ministry, however, had a different take. "Air India engineers go to Dubai every fortnight to work for 15 days and stay in five star hotels. If they are stationed there, the airline would save Rs 8 crore a year. This is just the tip of the iceberg. There are several things we can do to
reduce operational inefficiency. " According to analysts, Jet Airways could be looking at a combined annual loss of around Rs 3,000 crore, if there were no improvement in operational efficiencies and ATF prices. Against this backdrop, the airline had asked its employees to raise the service bar and arrest falling passenger load.

35. Which of the following are the reasons for Jet Airways not doing well?

1. Rising ATF prices
2. Reduced passenger load
3. Declining service quality
4. Staff travelling to Dubai

A 1 and 2

B 2 and 3

C 1, 2 and 3

D 1, 2 and 4

E 1, 2, 3 and 4

36. The total loss for the airline industry was likely to be Rs. 10,000 crore. Jet Airlines lost Rs. 3,000 crore, Air India lost Rs. "X" crore and "rest of the airlines" lost Rs. "Y" crore. What was the loss for the "rest of the airlines", in 2008?

A Cannot be determined

B Rs. 3,350 crore

C Rs. 3,690 crore

D Rs. 3,340 crore

E None of the above

37. Suppose fuel constitutes 30% of the revenues, do you think airlines would be in a better situation by reducing prices?

A Yes

B Data insufficient to reach decision

C No

D It would not matter

E None of the above

Instructions [38 - 39]

Read the following passage and answer the questions that follow.

An audit unearthed a financial scam in NWC Corporation. One or more among the 9 financial accountants of NWC Corporation are suspected to have fudged the accounts. Following are the statements made by the nine suspects.
Shrinivas: Nagraj fudged the accounts
Datta: Shrinivas did not fudge the accounts
Nagraj: Datta is lying and I did not fudge accounts
Jose: Shrinivas is telling the truth
Samuel: Exactly three of the suspects are telling the truth
Ejaz: Datta is lying and Shrinivas fudged the accounts
Chaudhary: Datta fudged the accounts
Ganeshan: Datta is lying and Shrinivas is telling the truth
Panda: Samuel is lying

38. If Samuel is telling the truth, which of the following statements is true?

A Chaudhury and Datta are telling the truth

B Nagraj fudged the accounts

C Chaudhury and Jose are telling the truth

D Shrinivas and Datta are telling the truth

E Nagraj fudged the account

39. If Panda is lying, which of the following statements cannot be true?

A Nagraj, Ganeshan and Ejaz are all lying

B Datta fudged the accounts

C Shrinivas did not fudge the accounts

D Jose and Shrinivas are telling the truth

E Nagraj did not fudge the accounts

Instructions [40 - 44]

Questions are based on a set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. Choose the response that most accurately and completely answers each question.

Five colleagues pooled their efforts during the office lunch-hour to solve the crossword in the daily paper.

Colleagues: Mr. Bineet, Mr. Easwar, Ms. Elsie, Ms. Sheela, Ms. Titli.
Answers: Burden, Barely, Baadshah, Rosebud, Silence.
Numbers: 4 down, 8 across, 15 across, 15 down, 21 across.
Order: First, second, third, fourth, fifth.

1. Titli produced the answer to 8 across, which had the same number of letters as the previous answer to be inserted, and one more than the subsequent answer which was produced by one of the men.
2. It was not Bineet who solved the clue to ‘Burden’, and Easwar did not solve 4 down.
3. The answers to 15 across and 15 down did not have the same number of letters.
4. 'Silence', which was not the third word to be inserted, was the answer to an across clue.
5. 'Barely' was the first word to be entered in the grid, but 'Baadshah' was not the second answer to be found.
6. Elsie's word was longer than Bineet's; Sheela was neither the first nor the last to come up with an answer.
7. Fifth one to be worked out was an answer to an across clue

40. What was Sheela’s word?

A Baadshah

B Silence

C Rosebud

D Barely

E Burden

41. What could be Titli's answer?

A Baadshah

B Silence

C Rosebud

D Barely

E Burden

42. What was Titli's order?

A First

B Second

C Third

D Fourth

E Fifth

43. What was Easwar's number?

A 4 down

B 21 across

C 8 across

D 15 down

E 15 across

44. What was Bineet's word?

A Barely

B Burden

C Silence

D Rosebud

E Baadshah

Instructions [45 - 47]

Questions are based on a set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. Choose the response that most accurately and completely answers each question.

Seven bands were scheduled to perform during the week long music festival at XLRI. The festival began on a Monday evening and ended on the Sunday evening. Each day only one band performed. Each band performed only once. The organizing committee had the task of scheduling the performances of the seven bands - Cactus, Axis, Enigma, Boom, Fish, Dhoom and Bodhi Tree. The festival schedule followed the following conditions: the performance of Bodhi Tree, the home band of XLRI, did not precede the performance of any other band. Among the visiting bands three were rock bands and the other three were fusion bands. All three bands of the same genre were not allowed to perform consecutively. Boom, which was a rock band, refused to perform immediately before or after Fish. Meet, who was a lead vocalist with a rock band, refused to perform after Angelina. Angelina, the only female lead vocalist in the music fest besides Bony, was with the band Enigma. Angelina refused to perform after Thursday citing personal reasons. Ali, who was the lead vocalist of a rock band, was not with the band Dhoom, and did not perform on Saturday. Sid, the lead vocalist of the rock band Cactus, could perform only on Monday. Rupam, the only male among the lead vocalists of the fusion bands, was with Fish and performed on Wednesday. None of the bands performed in absence of their lead vocalist.

45. All of the following statements can be true except:

A If Meet was the lead vocalist of Axis then Ali was the lead vocalist of Boom.

B If Meet was the lead vocalist of Dhoom then Bony was the lead vocalist of Axis.

C If Bony was the lead vocalist of Dhoom then Meet was the lead vocalist of Axis.

D If Ali was the lead vocalist of Boom then Meet was the lead vocalist of Dhoom.

E If Bony was the lead vocalist of Axis then Meet was the lead vocalist of Boom.

46. Which of the following must be true?

A Ali performed on Saturday and Enigma performed on Thursday.

B Dhoom performed on Thursday and Angelina performed on Tuesday.

C Boom performed on Friday and Meet performed on Tuesday.

D Ali performed on Friday and Enigma performed on Tuesday.

E Bony performed on Saturday and Axis performed on Thursday.

47. Which of the following is a plausible performance sequence?

A Cactus, Enigma, Fish, Dhoom, Boom, Axis

B Cactus, Dhoom, Fish, Boom, Enigma, Axis

C Cactus, Axis, Fish, Boom, Enigma, Dhoom

D Cactus, Axis, Fish, Enigma, Boom, Dhoom

E Cactus, Boom, Fish, Axis, Enigma, Dhoom

Instructions [48 - 52]

Questions are based on a set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. Choose the response that most accurately and completely answers each question.

A BPO has assigned duty to nine operators - Abdulla, Ballal, Chandan, Dogra, Eshita, Falguni, Ganguli, Henri and Indra - on Monday, January 05, 2009 from 00:00 hours. Each operator commences duty at any of the following hours: 00:00 hrs, 04:00 hrs, 08:00 hrs, 12:00 hrs, 16:00 hrs and 20:00 hrs. At any point in time, at least one operator is required, to take clients' calls. Each operator works continuously for eight hours. All operators located at any single location start work simultaneously. The operators took training in five different colleges - Abhiman College, Sutanama College, Gutakal College, Barala College and Khatanama College. These colleges are located in the cities Jamshedpur, Pune, Noida, Hyderabad and Mangalore, not necessarily in that order. The operators operate from the cities where their respective colleges are located.

Indra operates alone from a city other than Mangalore and Jamshedpur. Operator(s) trained in Abhiman College will start working at 12:00 hrs. Only Dogra and Falguni operate from Pune, but they are not trained in Gutakal College. Three of the operators took training from Sutanama College, and they operate from Noida. The operator(s) from Jamshedpur will start working at 0:00 hrs. Abdulla and Henri operate together as a two member team from a single location. They do not operate from Mangalore. No operator(s) will join at 20:00 hrs. Ballal, who alone operates from his location, was not trained in Barala College, and will commence his duty four hours after the operator(s) trained in Gutakal College. The operator(s) trained in Barala College operate from Hyderabad. The number of operator(s) trained in Khatanama College is same as the number of operator(s) trained in Barala College.

48. Which of the following statements must be true?

A Dogra and Henri took training from Khatanama College

B Indra took training from Barala College

C Dogra and Falguni took training from Barala College

D Indra took training from Ahiman College

E Ballal took training from Abhiman College

49. Which of the following can be true for the operators operating from 20:00 hrs (of January 05, 2009) to 00:00 hrs (of January 06, 2009)?

A Operators took training from Khatanama College and operate from Mangalore.

B Operators took training from Barala College and operate from Pune.

C Operators took training from Sutanama College and operate from Noida.

D Operators took training from Gutakal College and operate from Mangalore.

E Operators took training from Abhiman College and operate from Pune.

50. Which of the following statements must be true for the operator(s) trained in Gutakal College?

A They are Abdulla and Henri, and work from Jamshedpur.

B They are Dogra and Falguni, and work from Pune.

C She is Eshita, and works from Mangalore.

D She is Indra, and works from Pune.

E They are Chandan and Ganguli, and work from Jamshedpur.

51. Which of the following is not definitely true?

A At least three operators will be working between 04:00 hrs to 08:00 hrs.

B At most five operators will be working between 04:00 hrs to 08:00 hrs.

C At most five operators will be working between 12:00 hrs to 16:00 hrs.

D At most six operators will be working between 16:00 hrs to 20:00 hrs.

E At least three operators will be working between 16:00 hrs to 20:00 hrs.

52. If five operators are working between 16:00 hrs and 20:00 hrs, which of the following must be true?

A The only operator working between 8:00 hrs and 12:00 hrs is Ballal.

B The operators working between 12:00 hrs and 16:00 hrs are Ballal, Dogra and Falguni.

C The operators working between 12:00 hrs and 16:00 hrs are Dogra, Henri and Falguni.

D The operators working between 16:00 hrs and 0:00 hrs are Indra, Dogra, Falguni, Chandan and Ganguli.

E The operators working between 20:00 hrs and 0:00 hrs are Chandan Ganguli and Eshita.

53. Dr. Puneet worried about the test results of his patient, Ms. Benita. Ms. Benita was an old rich widow with no dependents. The results indicate that Ms. Benita has the potentially fatal Lymphanigioleiomyomatosis (LAM) disease. LAM is rare and difficult to diagnose. People with LAM often need oxygen and lung transplants as the disease continues its course. According to the test results, Ms. Benita might have got it.

Dr. Puneet explained the situation to Ms. Benita carefully. Without naming the disease, he explained that the

disease was progressive and would need treatment using drugs which were still at the experimental stage. Even then, the chance of success was not too bright. If the treatment was unsuccessful, then they would have to get ready for a lung transplant. The lung transplant itself was a risky course of treatment. Even if successful, she would require constant medical support and treatment.

Ms. Benita looked blank. She asks Dr. Puneet for his advice about the course of action. He nods gravely, "I'm afraid, Ms. Benita, I think there is only one course we can take."

What should be Dr. Puneet's advice?

A Tell Ms. Benita the details of the disease.

B Conduct another test to confirm the diagnosis.

C Leave the matter: anyway the outcome cannot be changed.

D Treat Ms. Benita without telling her about the disease.

E Propose that Ms. Benita go ahead with the experimental drugs.

Instructions [54 - 57]

Read the following case and choose the best alternative Guruji's guidance

Bhola, an avid nature lover, wanted to be an entrepreneur. He dreamt of establishing a chain of huts in Chatpur region to cater to tourists, who came attracted by the beauty and splendour of the Himalayas.

However, he was appalled by current degradation of the Himalayan environment. He remembered the early times when everything was so green, clean and peaceful. Now, greenery was replaced by buildings, peace was shattered by honking of vehicles and flocking of tourists, and cleanliness was replaced by heaps of plastics.

Bhola had a strong sense of right and wrong. On speaking to few locals about the issue, he realized that the locals were aware of these issues. However, they pointed out the benefits of development: pucca houses for locals, higher disposable income and with that, ability to send their children to better schools and colleges, better road connectivity, and access to latest technology in agriculture. Most locals wanted the development to continue.

Saddened by the lack of support from the locals, Bhola took up the issue with the government. He met the chief minister of the state to find out if government could regulate the developmental activities to prevent environmental degradation. However, the chief minister told Bhola that such an action would slow down the economic progress. That also meant loss of substantial tax revenues for the government.

Bhola needed to resolve the dilemma. Bhola always wanted to be an entrepreneur, who could contribute to the society and earn money as well. However, his business would also be responsible for destroying environment. If he did not set up His business, he would not be able to earn money and contribute to the society.

After mulling over the issues, he went to his mentor "Guruji". Guruji realized that it was really a difficult puzzle: if one saves the environment, there seems to be no development and if the people and the government sought development, the environment and hence future of this planet and human beings was at stake. After careful thought, he felt that the dilemma could be resolved. He fixed up a meeting with Bhola to answer Bhola's queries.

54. Should Bhola still think of doing business?

A Yes, where there is a will, there is a way.

B No, saving the Earth for our children is more important than earning money.

C Yes, Bhola should do business while ensuring no environmental damage is done.

D Yes, but only if the government puts strict environment regulations in place.

E Bhola should stop thinking about such a dilemma.

55. Bhola wanted to advise the government about the new tourism policy. Bhola had developed a few alternatives as given below. Choose the best alternative.

A Stop environmental degradation by stopping the developmental activities.

B Forget about the environment; think about the people as they are the vote banks for politician to come back to power.

C Suggest that the government should try to promote eco-tourism, which would be controlled and regulated by the government, as the government could think about the welfare of majority of stakeholders.

D Suggest that the government should promote eco-tourism with public private partnership with the involvement of NGO's, so that there are checks and balances for inefficiencies and promotion for synergetic efforts between government and private entrepreneurs.

E Involvement of impartial entities like NGO's who would provide a fair assessment of the policies.

56. Bhola wished he was heading the government. He had listed down five concrete measures he would take if he were to head the government. Choose the best alternative.

A Charge environmental cess from all businesses operating out of Himalayas.

B Charge cess from anyone who pollutes the environment, it be citizens or industries and reward those who have contributed to afforestation the most.

C All profit making organizations have to take responsibility of afforestation proportionate to their profitability.

D Think about maximising the revenues and forget about the environment.

E Institute a Green Valley Reward, which would be given to businesses highly active in afforestation efforts.

57. Visualising he was heading the state government, Bhola thought of a likely problematic situation. Five years have passed. In these five years, Bhola has initiated a lot of pro-environment steps, including making people aware of the fact that it was this pristine environment which brought in tourists in the first place. Now he faced state elections. The opposition accused him of stopping development and causing unemployment under the guise of environment protection. If Bhola were to consider this accusation as a short-term battle, which option would Guruji suggest to Bhola to score a quick win?

A Accuse the opposition of having vested interests as the opposition leaders were denied licences for opening new hotels.

B Point out the improvement in environment since the implementation of pro- environment policies.

C Compare the unemployment levels since the implementation of the pro- environment policies and if they are less, accuse the opposition of making baseless charges.

D Point out that this government had initiated a regular cleaning-up drive and the opposition did not consider the data regarding the people who were employed in that drive.

E Call the charges as baseless accusations being used to malign the good work he had done.

58. Some environmentalists tired of waiting for 'green economics' to catch up with the society at large, have adopted their own strategies for tipping the financial calculation in favour of the land. In the forest surrounding Vancouver, where trees are being felled for paper to print philosophy books (well, maybe one or two, but it's worth it), groups have used metal spikes hidden in trees to prevent the chainsaws from operating safely, pushing up the price of harvesting the trees. In Phoenix, Arizona, where mountain nature reserves have been encroached on by new houses, hooded vigilantes have burnt down the new residences .The arsonists, according to the local paper, pray before they burn down a house that no one will get hurt, thinking primarily of the fire-fighters - the new houses are burned while still empty. 'We don't pray for ourselves not to get caught - that's God's will.' one is quoted as saying.

As per the activists, all aforementioned activities seem clearly very principled. But is it ethical?

A Yes, arsonists are right.

B No, they have no justification for damaging other people's Property.

C No, as it is not taken up in a peaceful manner.

D No, as the activities are not carried out in a legal manner.

E Stop thinking about ethics altogether as ethical issues are difficult to resolve.

Instructions [59 - 61]

Read the following case and choose the best alternative.

Ranjan Tuglak, the youngest cabinet minister of the newly elected coalition, glanced through the notes prepared by his secretary regarding the recent controversies on racket, the most popular game of the country. While International Racket Association (IRC) has agreed to implement Drug Testing Code (DTC) promoted by World Athletic and Gamer Federation, Racket Club which controls the entire racket related activities (unlike any other sports and games of the country) had some reservations regarding the initiative. Majority of the citizens waited for the international competitions eagerly and were fanatical about their country's participation in them. As a result of the popularity of the game, 70% of the total revenue associated with the game originates from the country. Hence Racket Club has high bargaining power with IRC and can change any decision that is not aligned with its interests. Three most popular and senior players, including the captain, are against the application of DTC citing security reasons. A decision against the interests of these players may result in law and order problems throughout the country. Other players support the decision of their senior colleagues and if Racket Club refuses to agree, players may support Counter Racket Club, a new national level initiative. Counter Racket Club may threaten the monopoly of Racket Club, if it succeeds to attract some popular racket players.

Ranjan's father had been forced to resign from politics due to alleged corruption charges. Ranjan had completed his entire education from abroad before returning to join politics. He is a great soccer player and has major reservations against racket. According to him, racket has negative influence on the country's youth and diverts their attention from productive work. He also considers drug testing as an essential feature for any sports and games across the world. As the new cabinet minister for Youth and Sports he needs to take some important decisions on this controversial issue.

59. If the objective of Ranjan is to
(i) create a good image of himself as a politician and
(ii) create a long lasting positive impact, the best decision he should take is :

A Force Racket Club to accept all modifications related to drug testing.

B Provide adequate security protection to the satisfaction of players nominated by Racket Club before enforcing drug testing.

C Align with Counter Racket Club.

D Popularise soccer in country through endorsements by the popular players of racket.

E Ban racket.

60. Identify the best rationale that may force Ranjan as a politician to take a decision in favour of IRC.

A President of Racket Club and Ranjan belong to different political coalitions and he can use Counter Racket Club against the opponent.

B Next World cup is scheduled to be held in a country which has adopted DTC as the guiding principle.

C Ranjan is interested in reducing the popularity of racket in country

D As the cabinet minister, Ranjan has the power to take such a decision.

E Top three international teams (and respective national clubs) are keen to implement DTC.

61. According to DTC, each athlete/sportsperson need to submit a schedule for three months (in advance) that specifies an hour each day when they can be randomly tested for drugs. DTC also assured the confidentiality of the submitted schedule by
(i) limiting the access of player-supplied information to two senior officers,
(ii) these officers will have the internet based access only to the schedule of those sports persons who are randomly selected for testing (and not of everyone) and
(iii) introducing similar security features for DTC database as in case of financial institutions. Top three popular players realize that no reason other than security can help them to get a favourable decision from Ranjan. Hence during discussions they should focus on all options except

A Any clue related to their private schedules may also result in huge public gathering and it will make the job of security agencies very difficult.

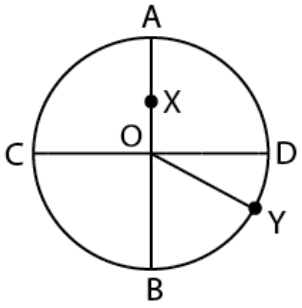
B Popular racket players are included in the hit list of terrorist organisations.

C Recent report by World Bank rate their country among the top five nations with maximum amount of internet based data stealing.

D It is difficult to provide adequate security coverage in large stadiums where racket is played.

E DTC is not willing to share the details of two senior officers involved in drug testing with the security agencies of the country for background study.

62.



In a circular field, AOB and COD are two mutually perpendicular diameters having length of 4 meters. X is the mid - point of OA. Y is the point on the circumference such that ∠YOD = 30°. Which of the following correctly gives the relation among the three alternate paths from X to Y?

A XOBY : XODY : XADY :: 5.15 : 4.50 : 5.06

B XADY : XODY : XOBY :: 6.25 : 5.34 : 4.24

C XODY : XOBY : XADY :: 4.04 : 5.35 : 5.25

D XADY : XOBY : XODY :: 5.19 : 5.09 : 4.04

E XOBY : XADY : XODY :: 5.06 : 5.15 : 4.50

63. If x and y are real numbers, then the minimum value of $x^2 + 4xy + 6y^2 - 4y + 4$ is

A –4

B 0

C 2

D 4

E None of the above

64. Let X be a four - digit positive integer such that the unit digit of X is prime and the product of all digits of X is also prime. How many such integers are possible?

A 4

B 8

C 12

D 24

E None of the above

65. There are two types of employees in Sun Metals, general graduates and engineers. 40% of the employees in Sun Metals are general graduates, and 75% of the engineers earn more than Rs. 5 lakh/year. If 50% of the organisation's employees earn more than Rs. 5 lakh/year, what proportion of the general graduates employed by the organisation earn Rs. 5 lakh or less?

A 3/5

B 3/4

C 1/2

D 2/5

E None of the above

66. In an equilateral triangle ABC, whose length of each side is 3 cm, D is the point on BC such that BD = ½ CD. What is the length of AD?

A $\sqrt{5}$cm

B $\sqrt{6}$cm

C $\sqrt{7}$cm

D $\sqrt{8}$cm

E None of the above

67. Two poles of height 2 meters and 3 meters are 5 meters apart. The height of the point of intersection of the lines joining the top of each poles to the foot of the opposite pole is,

A 1.2 meters

B 1.0 meters

C 5.0 meters

D 3.0 meters

E None of the above

68. A manufacturer has 200 litres of acid solution which has 15% acid content. How many litres of acid solution with 30% acid content may be added so that acid content in the resulting mixture will be more than 20% but less than 25%?

A More than 100 litres but less than 300 litres

B More than 120 litres but less than 400 litres

C More than 100 litres but less than 400 litres

D More than 120 litres but less than 300 litres

E None of the above

Instructions [69 - 71]

Answer questions based on the following information:

An automobiles company's annual sales of its small cars depends on the state of the economy as well as on whether the company uses some high profile individual as its brand ambassador in advertisements of its product. The state of the economy is "good", "okay" and "bad" with probabilities 0.3, 0.4 and 0.3 respectively. The company may choose a high profile individual as its brand ambassador in TV ads or may go for the TV ads without a high profile brand ambassador.

If the company fixes price at Rs. 3.5 lakh, the annual sales of its small cars for different states of the economy and for different kinds of TV ads are summarized in table 1. The figures in the first row are annual sales of the small cars when the company uses a high profile individual as its brand ambassador in its TV ads and the ones in the second row are that when the company does not use any brand ambassador in TV ads, for different states of the economy.
Table 1:

Table 1 :

	"Good"	"Okay"	"Bad"
With brand ambassador	100000	80000	50000
Without brand ambassador	80000	50000	30000

Without knowing what exactly will be the state of the company in the coming one year, the company will either have to sign a TV ad contract with some high profile individual, who will be the company's brand ambassador for its small car for the next one year, or go for a TV ad without featuring any high profile individual. It incurs a cost of Rs. 3.45 lakh (excluding the payment to the brand ambassador) to put a car on the road.

When the company's profit is uncertain, the company makes decisions on basis of its expected profit. If the company can earn a profit xi with probability pi (the probability depends on the state of economy), then the expected profit of the company is $\sum_1 XiPi$

69. The maximum that the company can afford to pay its brand ambassador is

A Rs. 10.0 crore

B Rs. 10.6 crore

C Rs. 10.8 crore

D Rs. 12.0 crore

E Rs. 16.4 crore

70. Mr. Khan a popular film actor, agrees to sign the contract to become the company's brand ambassador for Rs. 9 crore. The cost to the company of putting a car on the road also got escalated. The maximum escalation in cost of putting a car on the road, for which the company can afford to sign the contract with Mr.Khan is

A Rs. 900

B Rs. 967

C Rs. 1250

D Rs. 1267

E Rs. 1333

71. Mr. Khan a popular film actor, agrees to sign the contract to become the company's brand ambassador for Rs. 9 crore. The cost to the company of putting a car on the road also got escalated by Rs. 1000. If the company signs the contract with Mr.Khan, its profit will

A increase by Rs. 40 lakh

B increase by Rs. 60 lakh

C decrease by Rs. 20 lakh

D decrease by Rs. 40 lakh

E decrease by Rs. 50 lakh

72. Determine the value(s) of "a" for which the point (a, a^2) lies inside the triangle formed by the lines: 2x+ 3y= 1, x+ 2y=3 and 5x-6y= 1

A (-3,-1) ⋃ (1/2, 1)

B (-∞, 1/3) ⋃ (1/2, ∞)

C (-3/2,-1) ⋃ (1/2, 1)

D (-∞, 1) ⋃ (1/3, 6)

E None of the above

73. The supervisor of a packaging unit of a milk plant is being pressurised to finish the job closer to the distribution time, thus giving the production staff more leeway to cater to last minute demand. He has the option of running the unit at normal speed or at 110% of normal - "fast speed". He estimates that he will be able to run at the higher speed for 60% of the time. The packet is twice as likely to be damaged at the higher speed which would mean temporarily stopping the process. If a packet on a randomly selected packaging runs has probability of 0.112 of damage, what is the probability that the packet will not be damaged at normal speed?

A 0.81

B 0.93

C 0.75

D 0.60

E None of the above

Instructions [74 - 75]

Let $A_1, A_2, ...A_n$ be then points on the straight - line y = px + q. The coordinates of $A_k is (X_k, Y_k)$, where k = 1, 2, ...n such that $X_1, X_2....X_n$ are in arithmetic progression. The coordinates of A_2 is (2,−2) and A_{24} is (68, 31).

74. The y - ordinates of A_8 is

A 13

B 10

C 7

D 5.5

E None of the above

75. The number of point(s) satisfying the above mentioned characteristics and not in the first quadrant is/are

A 1

B 2

C 3

D 7

E None of the above

76. The operation (x) is defined by
(i) (1) = 2
(ii)(x + y) = (x).(y)

for all positive integers x and y.
If $\sum_{x=1}^{n}(x)$ = 1022 then n =

A 8

B 9

C 10

D 11

E None of the above

77. Amarendra and Dharmendra are brothers. One day they start at the same time from their home for Tatanagar railway station in their respective cars. Amarendra took 25 minutes to reach the station. After reaching the station Amarendra found that Dharmendra is 2500 m away from the station. The distance of Tatanagar Station from their home is 15 km. Next day Dharmendra decided to start 7 minutes early. If they drive at the speed same as the previous day then Amarendra will reach the station

A 120 seconds earlier than Dharmendra

B 120 seconds later than Dharmendra

C 300 seconds earlier than Dharmendra

D 300 seconds later than Dharmendra

E at the same time with Dharmendra

78. Let $S_1, S_2, \ldots$ be the squares such that for each n ≥ 1, the length of the diagonal of S_n is equal to the length of the side of S_{n+1}. If the length of the side of S_3 is 4 cm, what is the length of the side of S_n ?

A $2^{[\frac{2n+1}{2}]}$

B $2.(n-1)$

C 2^{n-1}

D $2^{[\frac{n+1}{2}]}$

E None of these

79. In a clock having a circular scale of twelve hours, when time changes from 7:45 A.M. to 7:47 A.M., by how many degrees the angle formed by the hour hand and minute hand changes?

A 10

B 11

C 12

D 15

E None of these

Instructions [80 - 81]

Questions are followed by two statements labelled as I and II. Decide if these statements are sufficient to conclusively answer the question. Choose the appropriate answer from the options given below:
A. Statement I alone is sufficient to answer the question.
B. Statement II alone is sufficient to answer the question.
C. Statement I and Statement II together are sufficient, but neither of the two alone is sufficient to answer the question.
D. Either Statement I or Statement II alone is sufficient to answer the question.
E. Both Statement I and Statement II are insufficient to answer the question

80. In the trapezoid PQRS, PS is parallel to QR. PQ and SR are extended to meet at A. What is the value of ∠PAS ?

I. PQ = 3, RS = 4 and ∠ QPS = 60°.

II. PS = 10, QR = 5.

A Statement I alone is sufficient to answer the question.

B Statement II alone is sufficient to answer the question.

C Statement I and Statement II together are sufficient, but neither of the two alone is sufficient to answer the question.

D Either Statement I or Statement II alone is sufficient to answer the question.

E Both Statement I and Statement II are insufficient to answer the question

81. A sequence of positive integer is defined as $A_{n+1} = A_n^2 + 1$ for each n ≥ 0. What is the value of Greatest Common Divisor of A_{900} and A_{1000} ?

I. $A_0 = 1$

II. $A_1 = 2$

A Statement I alone is sufficient to answer the question.

B Statement II alone is sufficient to answer the question.

C Statement I and Statement II together are sufficient, but neither of the two alone is sufficient to answer the question.

D Either Statement I or Statement II alone is sufficient to answer the question.

E Both Statement I and Statement II are insufficient to answer the question

82. a, b, c, d and e are integers such that 1 ≤ a < b < c < d < e. If a, b, c, d and e are geometric progression and lcm (m , n) is the least common multiple of m and n, then the maximum value of $\frac{1}{lcm(a,b)} + \frac{1}{lcm(b,c)} + \frac{1}{lcm(c,d)} + \frac{1}{lcm(d,e)}$ is

A 1

B 15/16

C 78/81

D 7/8

E None of these

Instructions [83 - 84]

Books and More sells books, music CDs and film DVDs. In December 2009, they earned 40% profit in music CDs and 25% profit in books. Music CDs contributed 35% towards their total sales in rupees. At the same time total sales in rupees from books is 50% more than that of music CDs.

83. If Books and More have earned 20% profit overall, then in film DVDs they made

A 15.2% profit

B 10.0% profit

C 10.0% loss

D 16.3% loss

E 23.4% loss

84. If Books and More made 50% loss in film DVDs, then overall they made

A 12.3% profit

B 8. 7% profit

C 0.4% loss

D 6.25% loss

85. ABCD is a parallelogram with $\angle$ ABC = 60°. If the longer diagonal is of length 7 cm and the area of the parallelogram ABCD is $15\frac{\sqrt{3}}{2}$ sq.cm, then the perimeter of the parallelogram (in cm) is

A 15

B $15\sqrt{3}$

C 16

D $16\sqrt{3}$

E None of the above

Instructions [86 - 87]

OABC is a square where O is the origin and AB = 1. Consider the set of points $s = (x_i, y_i)$ in the square such that $x_i + y_i \leq 1$. Let $P(x_1, y_1)$ and $Q(x_2, y_2)$ be two such points. Two operations addition (+) and multiplication (.) on S are defined as

$P + Q = (x_1 + x_2 - x_1x_2, y_1y_2)$

$P.Q = (x_1x_2, y_1 + y_2 - y_1y_2)$

86. For a very large number n, $P^n + Q^n$ is

A close to (0, 0)

B close to (1,0)

C close to (0, 1)

D any point in the region x + y < 1

E None of the above

87. For a very large number n, nP + nQ is

A close to (0, 0)

B close to (1,0)

C close to (0, 1)

D Any point in the region x + y < 1

E None of the above

Instructions [88 - 90]

Answer thequestions based on the data given in table 2

Cost and price data for Portland cement manufactured by Paharpur Cement and Bahsin Cement, for four consecutive quarters, are given in table 2:

	Paharpur Cement		Bahsin Cement	
	Cost (as % of sales revenue)	Price (Rs./bag)	Cost (as % of sales revenue)	Price (Rs./bag)
Oct - Dec 2008	92.11	352	94.21	438
Jan - Mar 2009	87.56	304	91.34	440
Apr - Jun 2009	91.03	340	89.96	430
Jul - Sep 2009	90.42	322	90.38	434

Sales Revenue = Price × Sales Quantity
Profit = Sales Revenue – Cost
Profit Rate = Profit / Sales Quantity

88. Profit rate of Paharpur Cement is more than the profit rate of Bahsin Cement in:

A Oct - Dec 2008 and Jan - Mar 2009

B Jan - Mar 2009 and Apr - Jun 2009

C Oct - Dec 2008 only

D Jan - Mar 2009 only

E Apr - Jun 2009 only

89. If between Jan - Mar 2009 and Apr - Jun 2009 sales of Paharpur Cement increased from 543278 to 698236 and that of Bahsin Cement decreased from 526532 to 499874, then which of the following is true?

A Between Jan - Mar 2009 and Apr - Jun 2009, profit and profit rate of Paharpur Cement increased, whereas profit and profit rate of Bahsin Cement decreased.

B Between Jan - Mar 2009 and Apr - Jun 2009, profit rate of Paharpur Cement increased but its profit decreased, whereas both profit and profit rate of Bahsin Cement increased.

C Between Jan - Mar 2009 and Apr - Jun 2009, both profit and profit rate of Paharpur Cement decreased, whereas profit rate of Bahsin Cement decreased but its profit increased,

D Between Jan - Mar 2009 and Apr - Jun 2009, profit of Paharpur Cement increased but its profit rate decreased, whereas profit rate of Bahsin Cement increased but its profit decreased.

E Between Jan - Mar 2009 and Apr - Jun 2009, profit rate of Paharpur Cement decreased but its profit increased, whereas both profit and profit rate of Bahsin Cement increased.

90. If between Apr - Jun 2009 and Jul - Sept 2009 sales of Paharpur Cement increased by 2.25%, its profit increased by

A 2.08%

B 2.25%

C 2.96%

D 3.28%

E 3.42%

Instructions [91 - 93]

Answer the questions based on the information given below:

Madhubala Devi, who works as a domestic help, received Rs. 2500 as Deepawali bonus from her employer. With that money she is contemplating purchase of one or more among 5 available government bonds - A, B, C, D and E.

To purchase a bond Madhubala Devi will have to pay the price of the bond. If she owns a bond she receives a stipulated amount of money every year (which is termed as the coupon payment) till the maturity of the bond. At the maturity of the bond she also receives the face value of the bond.
Price of a bond is given by: $P = [\sum_{t=1}^{T} \frac{C}{(1+r)^t}] + \frac{F}{(1+r)^t}$

where C is coupon payment on the bond. which is the amount of money the holder of the bond receives annually; F is the face value of the bond, which is the amount of money the holder of the bond receives when the bond matures (over and above the coupon payment for the year of maturity); T is the number of years in which the bond matures;
R = 0.25, which means the market rate of interest is 25%.

Among the 5 bonds the bond A and another two bonds mature in 2 years, one of the bonds matures in 3 years, and the bond D matures in 5 years.

The coupon payments on bonds A, E, B, D and C are in arithmetic progression, such that the coupon payment on bond A is twice the common difference, and the coupon payment on bond B is half the price of bond A.

The face value of bond B is twice the face value of bond E, but the price of bond B is 75% more than the price of bond E. The price of bond C is more than Rs. 1800 and its face value is same as the price of bond A. The face value of bond A is Rs. 1000.

Bond D has the largest face value among the five bonds.

91. The face value of bond E must be

A Rs. 1406.25

B Rs. 1686.25

C Rs. 2250.50

D Rs. 2812.50

E Rs. 3372.50

92. Madhubala Devi purchased one or more of the 5 available bonds from her bonus pay and spent the remainder. She made the purchase decision such thather return from the bonds is maximized. Her return from the bonds is

A Rs. 3000.00

B Rs. 3250.00

C Rs. 3656.25

D Rs. 3906.25

E Rs. 4531.25

93. The price of bond C must be

A Rs. 1825

B Rs. 1874

C Rs. 1925

D Rs. 1976

E Rs. 2342

94. If all letters of the word "CHCJL" be arranged in an English dictionary, what will be the 50^{th} word?

A HCCLJ

B LCCHJ

C LCCJH

D JHCLC

E None of the above

95. A manufacturer produces two types of products - A and B, which are subjected to two types of operations, viz. grinding and polishing. Each unit of product A takes 2 hours of grinding and 3 hours of polishing whereas product B takes 3 hours of grinding and 2 hours of polishing. The manufacturer has 10 grinders and 15 polishers. Each grinder operates for 12 hours/day and each polisher 10 hours/day. The profit margin per unit of A and B are Rs. 5/ - and Rs. 7/ - respectively. If the manufacturer utilises all his resources for producing these two types of items, what is the maximum profit that the manufacturer can earn in a day?

A Rs. 280/-

B Rs. 294/-

C Rs.515/-

D Rs. 550/-

E None of the above

96. A tank internally measuring 150cm × 120cm × l00cm has $1281600cm^3$ water in it. Porous bricks are placed in the water until the tank is full up to its brim. Each brick absorbs one tenth of its volume of water. How many bricks, of 20cm × 6cm × 4cm, can be put in the tank without spilling over the water?

A 1100

B 1200

C 1150

D 1250

E None of the above

97. The chance of India winning a cricket match against Australia is 1/6. What is the minimum number of matches India should play against Australia so that there is a fair chance of winning atleast one match?

A 3

B 4

C 5

D 6

E None of the above

98. A chocolate dealer has to send chocolates of three brands to a shopkeeper. All the brands are packed in boxes of same size. The number of boxes to be sent is 96 of brand A, 240 of brand B and 336 of brand C. These boxes are to be packed in cartons of same size containing equal number of boxes. Each carton should contain boxes of same brand of chocolates. What could be the minimum number of cartons that the dealer has to send?

A 20

B 14

C 42

D 38

E 16

Instructions [99 - 101]

based on the information given below.

The retail prices of flowers, consumer expenditure on flowers and sales of flowers for the calendar year 2009, in Phoolgaon, a small town with a population of 70000, is summarized in table 3:

Months	Price (retail) of roses (Rs./dozen)	Average consumer expenditure on roses and carnations (Rs.)	Total consumer expenditure on rosees (Rs.)	Sales of carnations (dozens)
Jan	99	47.4	1136916	13848
Feb	112.5	51.9	1051650	20486
Mar	135	49.5	1137915	12928
Apr	130.5	51.6	1315310	14021
May	126	59.4	1116612	18774
Jun	157.5	55.8	979020	17579
Jul	144	56.4	1188432	17521
Aug	117	54.00	940446	20355
Sep	162	55.5	1287900	16031
Oct	126	55.2	772884	22897
Nov	189	52.8	597240	19128
Dec	166.5	56.4	977688	18859

99. Compared to January, the total expenditure on carnations in March

A increased by 6.27%

B decreased by 6.64%

C increased by 6.69%

D decreased by 7.11%

E did not change

100. Compared to January, the sales of roses in July

A decreased by 39.15%

B decreased by 28.13%

C increased by 4.53%

D increased by 4.33%

E did not change

101. Compared to January, the price of carnations in December

A increased by 26.57%

B increased by 28.12%

C increased by 36.19%

D increased by 38.16%

E did not change

Answers

Verbal Ability and Logical Reasoning

1.**B**	2.**D**	3.**B**	4.**D**	5.**C**	6.**E**	7.**D**	8.**E**
9.**D**	10.**E**	11.**C**	12.**A**	13.**A**	14.**E**	15.**A**	16.**B**
17.**A**	18.**B**	19.**A**	20.**D**	21.**A**	22.**C**	23.**C**	24.**C**
25.**A**	26.**A**	27.**C**	28.**D**	29.**D**	30.**D**	31.**E**	

Decision Making

32.**D**	33.**B**	34.**E**	35.**A**	36.**D**	37.**B**	38.**A**	39.**D**
40.**B**	41.**C**	42.**C**	43.**D**	44.**A**	45.**E**	46.**C**	47.**D**
48.**B**	49.**C**	50.**A**	51.**B**	52.**E**	53.**E**	54.**C**	55.**D**
56.**B**	57.**C**	58.**B**	59.**B**	60.**B**	61.**D**		

Quantitative Ability

62.**D**	63.**C**	64.**A**	65.**E**	66.**C**	67.**A**	68.**C**	69.**D**
70.**C**	71.**B**	72.**C**	73.**B**	74.**C**	75.**C**	76.**B**	77.**B**
78.**D**	79.**B**	80.**A**	81.**D**	82.**B**	83.**E**	84.**B**	85.**C**
86.**C**	87.**B**	88.**C**	89.**E**	90.**E**	91.**A**	92.**C**	93.**D**
94.**C**	95.**B**	96.**B**	97.**B**	98.**B**	99.**C**	100.**B**	101.**E**

Explanations

Verbal Ability and Logical Reasoning

1. **B**

After reading all the sentences, we can see that statement 2 is a general statement and hence, the opening sentence. Statement 3 mentions a specific case of what has been mentioned in statement 2. 'He' is statements 4 and 1 refers to the person mentioned in statement 5. So, statement 5 should precede statements 4 and 1. The 'mistake' mentioned in statement 1 refers to the mistake mentioned in statement 4. So, statement 1 should follow statement 4. Thus, the correct order is 2 - 3 - 5 - 4 - 1.
hence, option B is the correct answer.

2. **D**

The primary reason for the status of human beings in the 22nd century is because humans developed AI and then lost against them.

Option A is rejected as it is not mentioned that humans are happy about their situation and it is also not the reason for their situation.

Option B is the reason for humans being grown on farms but not the main reason for them being in that situation.

Option C is rejected as it also relates to humans being used as energy sources.

Option D is the valid reason and therefore, the answer.

Option E is irrelevant to humans being in the stated situation.

Hence, the answer is option D.

3. **B**

Option A: Morpheus mentions the main deck where they used to broadcast pirate signal and hack into the matrix. Hence this option can be inferred.

Option B: It cannot be inferred that a war has been going between the humans and the machines for some decades.Hence B is the answer.

Option C: Morpheus informs Neo that the machines are getting their energy from human body and he has seen the fields where humans are grown for this purpose. It is obvious that humans don't get energy in this way.

Option D: Machines derive their energy from humans. Hence this option can be inferred.

Option E: Since Morpheus and his crew can hack into the Matrix, it can be inferred that the crew was not not entirely controlled by the matrix.

4. **D**

The negative consequences are due to the fact that the theory learnt in the classroom cannot be applied in the real life situation by the students. To cope with this situation, the classrooms should teach how to apply theoretical knowledge in practical domain. Option D is the most relevant.

5. **C**

The main argument of the passage is that scientists trying to gain knowledge about exotic particles will be of no help because it has already been assumed that the even if the exotic particles are found, they will be of no importance. Option C mentions that knowledge has preceded application in all spheres of science. If it is true, it will weaken the main argument of the passage which is based on the assumption that there would be no

application of those exotic particles on which research is going on because without knowledge we cannot assume the application.
Hence, option C is the correct answer.

6. **E**
Statement I is true as evident from the sarcastic comment mentioned about Higgs Boson theory by Silver.
Statement II is false as it is mentioned about the other exotic particles, and not, electron, proton and neutron.
Statement III cannot be inferred as no comment in this respect has been made in the paragraph.
Statement IV is true as mentioned in the paragraph.
Hence, option E is the correct answer.

7. **D**
The author in the paragraph states that fashion and culture are different and fashion is defined by those who are of high rank or character. Later in the paragraph, the author also mentions the fashion loses all grace when people of high rank or character drop it. So, the author wants to imply that fashion depends on those who wear it.
Thus, option D is the most appropriate title for the given paragraph.

8. **E**
The author mentions "that is not the fashion which everybody wears, but which those wear who are of a high rank, or character." and "As soon as they drop it, it loses all the grace, which it had appeared to possess before, and being now used only by the inferior ranks of people, seems to have something of their meanness and awkwardness." Therefore, the central idea is that a person's status or character is shown by grace.
Hence, option E is the correct answer.

9. **D**
The author states that social roles may either conflict or cooperate. Later, he gives examples to explain the same.

Hence, option D is the correct answer.

10. **E**
'Allusion' is an expression designed to call something to mind without mentioning it explicitly; an indirect or passing reference.
'Illusion' is an instance of a wrong or misinterpreted perception of a sensory experience.
'Delusion' is an idiosyncratic belief or impression maintained despite being contradicted by reality or rational argument, typically as a symptom of mental disorder.
'Elusion' is an act of successfully hiding or escaping from someone.
In the first blank the context is of not recalling or reminding the scandal. So, 'allusion' is the appropriate word. The second blank is followed by word 'created' and 'illusion' is the correct word. The broker created a false belief. So, 'delusion' is appropriate word for the third blank. The last blank would be filled by 'elusion' as the broker is celebrating his escape from legal authorities.
Hence, option E is the correct answer.

11. **C**
According to the passage, a person who does charitable or moral work not because they like it or get something out of it, but because they consider it a duty, are the people who display real moral worth.

i) The person is not donating blood because they consider it a duty but because they are thankful for someone saving their mother's life.

ii) The voluntary organisation is conducting blood donation camps not because of some moral duty but to increase its legitimacy.

Thus, both instances are of people doing some good work not from a sense of duty but for some personal reason.

Hence, the answer is option C.

12. **A**

Inference (I) is not mentioned in the passage and is thus, untrue.

Inference (II) can be inferred from the following lines: "*But acting according to the maxim that these inclinations might suggests - such as taking care of one's own health - lacks for Kant true moral worth.*"

Inference (III) can be inferred from the last few lines of the passage.

Hence, the answer is option A.

13. **A**

Proscribe means to forbid, especially by law. Option A mentions the most appropriate thing that can be banned by law.

Hence, option A is the correct answer.

14. **E**

After reading all the sentences, we know that the paragraph is about ostensive teaching of words. Statement 3 is the opening sentence as it introduces the idea of ostensive teaching of words. We can observe that 5-2-1 is a mandatory pair. Statement 5 further elaborates the idea mentioned in statement 3. Statement 2 and statement 1 are question-answer pair. Thus, the correct order is 3 - 5 - 2 - 1 - 4.
Hence, option E is the correct answer.

15. **A**

'Won't' means 'will not'.
'Wont' means 'one's customary behaviour.'.
'Expatiate' means 'to speak or write in detail about'.
Expiate means 'to make amends or reparation for (guilt or wrongdoing)'.
'Expatriate' means 'send (a person or money) abroad.'.
'Wont' cannot fit in the first blank. Options C and E are incorrect.
'Expatriate' does not fit in the third blank. Option D is wrong. It should be filled with 'expatiate'.
Hence, option A is the correct answer.

16. **B**

The given passage states that the probability of a certain event can only be calculated for a group and not for an individual entity.

Statement 1 contradicts the above point and is rejected.

Statement 2 follows the above point and is true.

Statement 3 is rejected as prediction of events is not mentioned.

Hence, the answer is option B.

17. **A**

The passage states that the probability of a particular event can only be calculated for a group and not for an individual entity.

Among the given options, all except A talk about analysing multiple fights of the two boxers. Option A talks about assessing them individually which goes against the point mentioned in the passage.

Hence, the answer is option A.

18. **B**

In the paragraph, the author has discussed that probability can be assigned to groups rather than individuals. So, if we have to assign the probability of winning of two boxers of different clubs, we must analyses the history of more players from the respective clubs. Option B is in-line with this.
Hence, option B is the correct answer.

19. **A**

From the paragraph, we can conclude that intruding other's liberty is essential for maintaining one's dignity.

Hence, option A is the correct answer.

20. **D**

'Gourmet' as an adjective means good food. 'Gourmand' means someone who is fond of eating and eats too much.

Similarly, an ‘election’ is ‘the process of electing or the selection of a person or persons for office by vote’. An ‘elector’ is ‘the person who elects; a qualified voter’.

Foliage: Plant leaves collectively

Ecclesiastic: priest, clergyman

Epitaph: Obituary, elegy, a phrase written in memory of a person who has died, inscription on a tombstone.

Epilogue: Postscript, afterwords, speech at the end of a book

Hence, option C is the correct answer.

21. **A**

Options C, D and E are incorrect usages.
For voice, high pitched is correct.
Hence, option A is the correct answer.

22. **C**

Internet is a medium of communication. 'Media' is the plural form of medium.
Hence, option C is the correct answer.

23. **C**

Magix never claimed to cure indigestion, hence acidity, it claimed a restful sleep in case of acidity. Except a cure to digestion, all other are claims of Magix.
Hence, option C is the correct answer.

24. **C**

The paragraph states that though filmmakers highlights their points through visuals, many films are filmed at one location or at one set only. Option C is the most opposite to the idea given in the paragraph.
Hence, option C is the correct answer.

25. **A**

Statement I and III are inferences because they are logical conclusions based on facts.
Statements II is a fact as it is verifiable.
Statement IV is judgement because the phrase "may consider this decision as a deliberate attempt" is highly opinionated.
Hence, option A is the correct answer.

26. **A**

The statement “Some words are highly inflammable” introduces the idea discussed in the passage and the author then gives some examples to further explain the point.

Hence the answer is option A.

27. **C**

Purist is a person who insists on absolute adherence to traditional rules or structures, especially in language or style. Option C is the most relevant in this context.

28. **D**

The children without a caretaker have the risk of getting lost in the rains. Thus, 'unaccompanied' is the most appropriate word.
Hence, option D is the correct answer.

29. **D**
The given statement argues that channels owners are more interested in boosting their revenues by pandering to voyeuristic tendencies of viewers. The premise behind this argument must be that reality shows make more money than other types of programs.
Hence, option D is the correct answer.

30. **D**
The prediction is a general advice which is applicable for everyone as everyone should plan ahead of his opponent.
Hence, option D is the correct answer.

31. **E**
If the customer prefers convenience over financial savings, the author's argument will become invalid.

Thus, for the author's argument to be true, the financial savings from purchasing bulk will be enough to outweigh the inconvenience of not being able to purchase the customized number of units.

Thus, the correct option is E.

Decision Making

32. **D**
Let us name the puppies as A, B, D, D, E, F and G on the basis of the first alphabet of their name.
From the first two statements we can infer that G and D must be in the same pen. From the last two statements we can infer that A and B must be in different pens.
Any other information is not provided. So, we have to make cases for different possibilities:

	Pen 1	Pen 2
Case I	G, D, B	A, C, E, F
Case II	G, D, A	B, C, E, F
Case III	E, F, A	G, D, B, C
Case IV	C, F, A	G, D, B, E
Case V	C, E, A	G, D, B, F
Case VI	E, F, B	G, D, A, C
Case VII	C, F, B	G, D, A, E
Case VIII	C, E, B	G, D, A, F

From the table, we can see that only the combination given in option D is possible (case II).
Hence, option D is the correct answer.

33. **B**
Let us name the puppies as A, B, D, D, E, F and G on the basis of the first alphabet of their name. From the first two statements we can infer that G and D must be in the same pen. From the last two statements we can infer that A and B must be in different pens. Any other information is not provided. So, we have to make cases for different possibilities:

	Pen 1	Pen 2
Case I	G, D, B	A, C, E, F
Case II	G, D, A	B, C, E, F
Case III	E, F, A	G, D, B, C
Case IV	C, F, A	G, D, B, E
Case V	C, E, A	G, D, B, F
Case VI	E, F, B	G, D, A, C
Case VII	C, F, B	G, D, A, E
Case VIII	C, E, B	G, D, A, F

If Earl shares a pen with Fala, cases I, II, III and VI are applicable. In all these cases, Custard is in pen 2.
Option A is violated in case III.
Option C is violated in cases I, II and VI.
Option D is violated in cases I and II.
Option E is violated in cases II and VI.
Hence, option B is the correct answer.

34. **E**

Let us name the puppies as A, B, D, D, E, F and G on the basis of the first alphabet of their name. From the first two statements we can infer that G and D must be in the same pen. From the last two statements we can infer that A and B must be in different pens. Any other information is not provided. So, we have to make cases for different possibilities:

	Pen 1	Pen 2
Case I	G, D, B	A, C, E, F
Case II	G, D, A	B, C, E, F
Case III	E, F, A	G, D, B, C
Case IV	C, F, A	G, D, B, E
Case V	C, E, A	G, D, B, F
Case VI	E, F, B	G, D, A, C
Case VII	C, F, B	G, D, A, E
Case VIII	C, E, B	G, D, A, F

If Earl and Fala are in different groups, cases IV, V, VII and VIII are acceptable.
Option A is true in cases IV and VII.
Option B is true in cases VII and VIII.
Option C is true in case VII.
Option D is true in case IV.
Option E is not true in any of the case IV, V, VII or VIII.
Hence, option E is the correct answer.

35. **A**

In the third paragraph, it has been mentioned that due to rise in oil prices and fall in passenger load, Jet Airways is incurring heavy losses. So, statements 1 and 2 are valid reasons. Statement 3 is not mentioned in the passage. Statement 4 is about Air India, and not Jet Airways.
Hence, option A is the correct answer.

36. **D**

The loss to Air India is given as almost Rs. 10 crore a day, which is equal to Rs 366*10=3660 crores in a year (leap year)

Total loss = 10000=3000+3660 + rest of the airlines loss

=> Rest of the airlines loss = Rs 3340 crore
Hence, option B is the correct answer.

37. **B**

Since we do not now what part of the operating costs is constituted by fuel, we cannot take a decision regarding prices. Also we don't know the percentage by which the passengers will increase if we reduce the prices.
Hence, option B is the correct answer.

38. **A**

It is given that Samuel is telling the truth. So, there must be exactly three truth tellers including Samuel.
If Samuel is telling the truth, Panda must be lying.

Case I

Let us assume that Shrinivas is telling the truth and Nagraj fudged the accounts.. In this case, Jose must also be telling the truth. So, everybody except Samuel, Shrinivas and Jose must be lying. However, Datta's statement is also true and thus there are more than three truth tellers. So, our assumption is wrong. Thus, Shrinivas must be lying and Nagraj did not fudge the accounts. Also, Jose and Ganeshan must be lying as both says that Shrinivas is telling the truth

Case II

Let us assume that Datta is telling the truth and Shrinivas did not fudge the accounts. In this case, Nagraj and Ezaz must be lying as they say that Datta is lying. So, we have already got six liers and thus, Chaudhary must be telling the truth. Therefore, our assumption is valid.

Case III

Let us assume that Datta is not telling the truth. In this case Nagraj and Ezaz can be telling the truth along with Samuel and the other six guys must be lying. This case is also possible.

Except the above cases, any other case is not possible.

Therefore, option A is true in case II.Hence, option A is the correct answer.

39. **D**

It is given that Panda is lying. Thus, Samuel is telling the truth. So, there must be exactly three truth-tellers including Samuel. If Samuel is telling the truth, Panda must be lying.

Case I

Let us assume that Shrinivas is telling the truth and Nagraj fudged the accounts.. In this case, Jose must also be telling the truth. So, everybody except Samuel, Shrinivas and Jose must be lying. However, Datta's statement is also true and thus there are more than three truth-tellers. So, our assumption is wrong. Thus, Shrinivas must be lying and Nagraj did not fudge the accounts. Also, Jose and Ganeshan must be lying as both say that Shrinivas is telling the truth

Case II

Let us assume that Datta is telling the truth and Shrinivas did not fudge the accounts. In this case, Nagraj and Ezaz must be lying as they say that Datta is lying. So, we have already got six liers and thus, Chaudhary must be telling the truth. Therefore, our assumption is valid.

Case III

Let us assume that Datta is not telling the truth. In this case, Nagraj and Ezaz can be telling the truth along with Samuel and the other six guys must be lying. This case is also possible.

Except for the above cases, any other case is not possible.

Therefore,
Option A is true in case I.
Option B is true in case I.
Option C is true in both cases.

Option E is true in case I.

Option D cannot be true in any case.
Option D is the correct answer.

Explanation [40 - 44]:

Titli produced the answer to 8 across, which had the same number of letters as the previous answer to be inserted, and one more than the subsequent answer which was produced by one of the men. So, Titli must have produced a 7-letter word i.e either Silence or Rosebud. The word next to Titli's word must be a 6-letter word which is Burden. It cannot be Barely because it has been given that Barely is the first word to be inserted. Also, the word preceding Titli's word must be a 7-letter word.

Thus, both the 7-letter word and Burden must be at he consecutive places. They can be either at second, third and fourth position or third, fourth and fifth position. But, in the second case, Baadshah would be at the second position which is not possible as given in the question. So, both the 7-letter words and Burden must be at the second, third and the fourth position respectively and Baadshah would be at the fifth position. Also, Silence is not at the third position. So, it must be at the second position and Rosebus must be at the third position.

First	Second	Third	Fourth	Fifth
Barely	Silence	Rosebud	Burden	Baadshah
		Titli		
		8 across		

15 across and 15 down must start from the same alphabet and their length must be unequal. Also, Silence is an answer to across clue which can be either 15 across or 21 across. However, if Silence is an answer to 15 across, the answer to 15 down must also start with 'S'. But, there is no other word starting with 'S'. So, Silence must be the answer to 21 across clue. Fifth one to be worked out was an answer to an across clue. So, Baadshah should be an answer to across clue.

40. **B**

Elsie's word was longer than Bineet's. So, Elsie's word must be either Baadshah or Silence and Bineet's word should be either Barely or Silence. In both the cases, Burden would be Easwar's word and it would be the answer to 15 down clue.
Sheela was neither the first nor the last to come up with an answer. So, her answer must be Silence. Bineet's word must be Barely and Elsie's word must be Baadshah.

First	Second	Third	Fourth	Fifth
Barely	Silence	Rosebud	Burden	Baadshah
Bineet	Sheela	Titli	Easwar	Elsie
4 down	21/15 across	8 across	15 down	15/21 across

From the table we can see that Sheela's word was Silence.
Hence, option B is the correct answer.

41. **C**

Elsie's word was longer than Bineet's. So, Elsie's word must be either Baadshah or Silence and Bineet's word should be either Barely or Silence. In both the cases, Burden would be Easwar's word and it would be the answer to 15 down clue. Sheela was neither the first nor the last to come up with an answer. So, her answer must be Silence. Bineet's word must be Barely and Elsie's word must be Baadshah.

First	Second	Third	Fourth	Fifth
Barely	Silence	Rosebud	Burden	Baadshah
Bineet	Sheela	Titli	Easwar	Elsie
4 down	21/15 across	8 across	15 down	15/21 across

From the table we can see that Titli's answer is Rosebud.
Hence, option C is the correct answer.

42. **C**

Elsie's word was longer than Bineet's. So, Elsie's word must be either Baadshah or Silence and Bineet's word should be either Barely or Silence. In both the cases, Burden would be Easwar's word and it would be the answer to 15 down clue. Sheela was neither the first nor the last to come up with an answer. So, her answer must be Silence. Bineet's word must be Barely and Elsie's word must be Baadshah.

First	Second	Third	Fourth	Fifth
Barely	Silence	Rosebud	Burden	Baadshah
Bineet	Sheela	Titli	Easwar	Elsie
4 down	21/15 across	8 across	15 down	15/21 across

From the table we can see that Titli's order is third.
Hence, option C is the correct answer.

43. **D**

Elsie's word was longer than Bineet's. So, Elsie's word must be either Baadshah or Silence and Bineet's word should be either Barely or Silence. In both the cases, Burden would be Easwar's word and it would be the answer to 15 down clue. Sheela was neither the first nor the last to come up with an answer. So, her answer must be Silence. Bineet's word must be Barely and Elsie's word must be Baadshah.

First	Second	Third	Fourth	Fifth
Barely	Silence	Rosebud	Burden	Baadshah
Bineet	Sheela	Titli	Easwar	Elsie
4 down	21/15 across	8 across	15 down	15/21 across

From the table we can see that Easwar's number is 15 down.
Hence, option D is the correct answer.

44. **A**

Elsie's word was longer than Bineet's. So, Elsie's word must be either Baadshah or Silence and Bineet's word should be either Barely or Silence. In both the cases, Burden would be Easwar's word and it would be the answer to 15 down clue. Sheela was neither the first nor the last to come up with an answer. So, her answer

must be Silence. Bineet's word must be Barely and Elsie's word must be Baadshah.

First	Second	Third	Fourth	Fifth
Barely	Silence	Rosebud	Burden	Baadshah
Bineet	Sheela	Titli	Easwar	Elsie
4 down	21/15 across	8 across	15 down	15/21 across

From the table, we can see that Bineet's word is Barely.
Hence, option A is the correct answer.

45. **E**

Bodhi Tree ,The Home band will perform on Sunday

Sid from Rock Band Cactus performs on Monday

Rupam from Fusion Band Fish performs on Wednesday

Since Angelina does not perform after Thursday and Meet does not perform after Angelina

Meet from Rock band has to perform on Tuesday and Angelina on Fusion Band Enigma on Thursday

Since Ali from Rock band does not perform on Saturday ,he has to perform on Friday

Finally Bony will perform on Saturday for a Fusion Band

On Tabulating the details , we get

Day	Band type(R/F)	Lead vocalist	Bandname
Monday	R	Sid	Cactus
Tuesday	R	Meet	Dhoom/Axis ~Boom
Wednesday	F	Rupam	Fish
Thursday	F	Angelina	Enigma ~Boom
Friday	R	Ali	Boom
Saturday	F	Bony	Dhoom/Axis
Sunday	Home band		Bodhi

All the options can be true except E

Hence E is the right answer

46. **C**

By going through the conditions , we can say

Bodhi Tree ,The Home band will perform on Sunday

Sid from Rock Band Cactus performs on Monday

Rupam from Fusion Band Fish performs on Wednesday

Since Angelina does not perform after Thursday and Meet does not perform after Angelina

Meet from Rock band has to perform on Tuesday and Angelina on Fusion Band Enigma on Thursday

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Finally Bony will perform on Saturday for a Fusion Band

On Tabulating the details , we get

Day	Band type(R/F)	Lead vocalist	Bandname
Monday	R	Sid	Cactus
Tuesday	R	Meet	Dhoom/Axis ~Boom
Wednesday	F	Rupam	Fish
Thursday	F	Angelina	Enigma ~Boom
Friday	R	Ali	Boom
Saturday	F	Bony	Dhoom/Axis
Sunday	Home band		Bodhi

Clearly C is the correct answer

47. **D**

By going through the conditions , we can say

Bodhi Tree ,The Home band will perform on Sunday

Sid from Rock Band Cactus performs on Monday

Rupam from Fusion Band Fish performs on Wednesday

Since Angelina does not perform after Thursday and Meet does not perform after Angelina

Meet from Rock band has to perform on Tuesday and Angelina on Fusion Band Enigma on Thursday

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Finally Bony will perform on Saturday for a Fusion Band

On Tabulating the details , we get

Day	Band type(R/F)	Lead vocalist	Bandname
Monday	R	Sid	Cactus
Tuesday	R	Meet	Dhoom/Axis ~Boom
Wednesday	F	Rupam	Fish
Thursday	F	Angelina	Enigma ~Boom
Friday	R	Ali	Boom
Saturday	F	Bony	Dhoom/Axis
Sunday	Home band		Bodhi

So D is the correct answer

Explanation [48 - 52]:

Let A, B, C, D, E, F, G, H and I represent Abdulla, Ballal, Chandan, Dogra, Eshita, Falguni, Ganguli, Henri and Indra.
Indira operates alone from Pune, Noida or Hyderabad and only Dogra and Falguni operate from Pune, while there are three operators from Noida
who have studies in Sutanama College. Since Indira works alone, she cannot be from Pune or Noida.
Thus, Indira works alone from Hyderabad.

Thus, D, F- Pune - 2
I- Hyderabad - 1
-Noida- 3
We are given, Abdulla and Henri operate together as a two member team from a single location and they do not operate from Mangalore.
Thus, A and H work from Jamshedpur and Only 1 person work from Mangalore.

D, F- Pune - 2
I- Hyderabad - 1
- Noida- 3
A, H- Jamshedpur
- Mangalore- 1
Ballal operates alone from his location.
Thus, we get:-

D, F- Pune - 2
I- Hyderabad - 1
C, E, G - Noida- 3
A, H- Jamshedpur
B - Mangalore- 1
Three of the operators took training from Sutanama College, and they operate from Noida
Thus, C, E and G took training from Sutanama College.
The operator(s) trained in Barala College operate from Hyderabad.
Thus, I is trained in Barala College.
The number of operator(s) trained in Khatanama College is same as the number of operator(s) trained in Barala College.
Thus, only 1 person is trained from Khatanama College and that person is B.
Only Dogra and Falguni operate from Pune, but they are not trained in Gutakal College.
Thus, D and F are trained in Abhiman college.
Thus, A and H are trained in Gutakal College.
The operator(s) from Jamshedpur will start working at 0:00 hrs
Hence, A and H will start working from 0.
Operator(s) trained in Abhiman College will start working at 12:00 hrs.
Hence, D and F will start working from 12

Ballal will commence his duty four hours after the operator(s) trained in Gutakal College
Hence, B will commence his duty from 4.
Thus, the final table is:-

Name of the employee	Name of the College	Place of the College	Time at which they commence duty
Dogra,Falguni	Abhiman	Pune	12
Chandan,Eshita,Ganguli	Sutanama	Noida	
Indra	Barala	Hyderabad	
Abdulla,Henri	Gutakal	Jamshedpur	0
Ballal	Khatanama	Mangalore	4

48. **B**
From the table, we can see that only option B is true.
Hence, option B is the correct answer.

49. **C**
From the table, we can see that only option C can be true.
Hence, option C is the correct answer.

50. **A**
From the table, we can see that option A is the correct answer.

51. **B**
From the table, if Chandan, Eshita and Ganguli start working at 4:00, then between 4:00 to 8:00, there will be 6 people working. Thus, option B is incorrect.
Hence, option B is the correct answer.

52. **E**
Five operators are working between 16:00 hrs and 20:00 hrs. This is only possible if Chandan, Ishita and Ganguli start working at 16:00. Hence, the operators working between 20:00 hrs and 0:00 hrs are Chandan Ganguli and Eshita.
Hence, option E is the correct answer.

53. **E**
Let's analyze the options one by one

Choice (A): It does not constitute a course of action to be taken up by Ms. Benita.

Choice (B): Dr. Puneet would not discuss the gravity of the situation unless he is sure about it. The passage indicates that Dr. Puneet is almost sure. The passage states that the test results indicate that Ms. Benita has the disease. The passage does not indicate whether the test that has been done is the first one or not. Hence, this is not a proper course of action.

Choice (C): It is stated that LAM is potentially fatal but not surely fatal. It is also stated that there are some drugs at experiment stage and that lung transplant is one of the options, even though risky. It indicates that there are chances to change the outcome. Hence, (C) is not a proper course of action.

Choice (D):It is improper to treat a patient without telling her/him about the disease for which he/she is being treated. Hence, it is not a proper course of action.

Choice (E): Test results indicate that Mr.Benita is suffering from LAM. The two available cures are medication. Which is at experimental stage and lung transplantation which is risky. Even if successful, she would require constant medical support and treatment. It is appropriate to go for experimental drug first, before taking up risky lung transplantation.

54. **C**
It is given that Bhola wants to earn money which is necessary for living. So, he should start his business. However, he is concerned about the environment. So, he must ensure minimal, if not zero, damage to the environment. Option C is the most relevant in this context.

55. **D**
Option A is too extreme because both the Government as well as local people want development.
Option B is also extreme because forgetting about the environment would be disastrous and Bhola does not want that.
Between option C and option D, D is a better choice because in option D, it is mentioned that the government

would work in coordination with private entities so that there would not be any harm to any of the parties involved. Option C talks about giving total control in the hands of government which might strangle the prospects of private enterprises.
Option E is holding government responsible for the degradation of environment which is not correct as people are also equally responsible.
Hence, option E is the correct answer.

56. **B**
The motive is to stop the degradation of the environment. So, only afforestation won't work. Steps which would discourage people from polluting the environment should be taken. Option B is correct.
Option E only mentions about rewarding those who are active in afforestation efforts, but has no provision for punishing those who pollutes the environment. Same is true for option C too.
Option D is too extreme and cannot be suggested.
Option A has two issues - It is suggesting to charge cess from all businesses without taking into consideration that some businesses might not be polluting the environment. Also, it is assuming that only business pollute environment and is not holding people responsible for it.
Hence, option B is the correct answer.

57. **C**
Replying an accusation with another without proper evidence and justification will be futile. Options A and E are discarded.
Option B is not something which the opposition disagrees with. The contention is of the the increasing unemployment and not regarding the effectiveness of Bhola's policies.
Between options C and D, option C is better because it considers the overall employment while option D considers employment in a specific cleaning drive.
Hence, option C is the correct answer.

58. **B**
Option A does not provide any reason for the argument mentioned.
Option B is correct as damaging others' properties without any reason and justification is unethical.
Option C is correct but the reason mentioned is not valid. According to option C, any activity performed in a peaceful manner would be ethical but this is not true.
Option D mentions about the legality of the activity but the question asks whether these activities are ethical.
Option E is extreme and cannot be true.
Hence, option B is the correct answer.

59. **B**
Option A will not help in fulfilling his first objective.
Option E is extreme and is not possible.
Options C and D are out of the context.
As players have cited security concerns, assuring them of their security would help them in cooperating in the implementation of drug testing. Providing security to the players would appease the general public and the players could not deny the enforcement of drug testing if their concerns are swayed. Both the objectives will be fulfilled in that case.
Hence, option B is the correct answer.

60. **B**
The members of the Racket club are bolstered by the revenue generated from their country and they are leveraging it for forcing their will against drug testing. If the next world cup would be played in a country which have adopted DTC as the guiding principle, Indian players would not be allowed to participate in the world cup if they do not adhere to the same principle. This is the best logic which can force Ranjan to take decision in the favour of IRC.
Hence, option B is the correct answer.

61. **D**

Here we have to find the choice which can compromise on security

A : Huge public gathering will call for Security

B : If racket players are included in the hit list of terrorist organisations then there is a need of Security

C : Internet based data stealing will definitely call for security

E : This will call for security measures to be taken

In Option D , In large stadiums where there are significant number of players they will be provided with Security by default

So racket players need not focus on this aspect .

Hence D is the correct answer

Quantitative Ability

62. **D**

XADY = XA + AD + DY = 2/2 + (2 * 3.14 * 2)/4 + (30/360) * (2 * 3.14 * 2) = 5.19
XOBY = XO + OB + BY = 2/2 + 2 + (60/360) * (2 * 3.14 * 2) = 5.09
XODY = XO + OD + DY = 2/2 + 2 + (30/360) * (2 * 3.14 * 2) = 4.04
Hence, option D is the correct answer.

63. **C**

Expression : $x^2 + 4xy + 6y^2 - 4y + 4$

= $(x^2 + 4xy + 4y^2) + (2y^2 - 4y + 4)$

= $(x + 2y)^2 + \frac{1}{2}(4y^2 - 8y + 8)$

= $(x + 2y)^2 + \frac{1}{2}[(2y)^2 - 2(2y)(2) + (2)^2 + 4]$

= $(x + 2y)^2 + \frac{1}{2}[(2y - 2)^2 + 4]$

= $(x + 2y)^2 + \frac{1}{2}(2y - 2)^2 + 2$

Since, x and y are real, => Min value of $(x + 2y)^2 = 0$

Minimum value of $(2y - 2)^2 = 0$

$\therefore$ Minimum value of expression = $0 + 0 + 2 = 2$

64. **A**

Given that unit digit of X and product of all 4 digits of X are prime.

The product of two numbers to be prime is possible only when one of the numbers is prime and the other is '1'.

The possibilities for the prime unit digits are - 2,3,5,7 (Note that 1 is not a prime number)

Hence the possibility of remaining 3 digits, considering the product of all 4 digits to be prime is '111' only.

Hence all the possible numbers are 1112,1113,1115,1117

$\therefore$ Total 4 integers are possible.

65. **E**

Let total employees in Sun Metals = $100x$

Number of employees who are general graduates = $\frac{40}{100} \times 100x = 40x$

=> Number of employees who are engineers = $100x - 40x = 60x$

Now, number of engineers who earn more than Rs. 5 lakh/year = $\frac{75}{100} \times 60x = 45x$

Number of employees (both general graduates and engineers) who earn more than Rs. 5 lakhs/year = $\frac{50}{100} \times 100x = 50x$

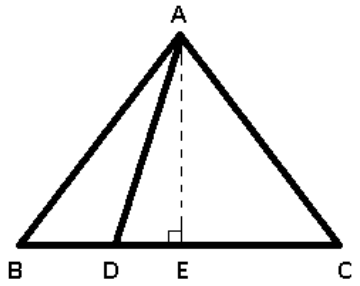
=> Number of general graduates who earn more than Rs. 5 lakhs/year = $50x - 45x = 5x$

Thus, number of general graduates who earn less than Rs. 5 lakhs/year = $40x - 5x = 35x$

$\therefore$ Proportion of the general graduates employed by the organisation earn Rs. 5 lakh or less

= $\frac{35x}{40x} = \frac{7}{8}$

66. **C**



Given : AB = AC = BC = 3 cm and BD = $\frac{1}{2}$ CD

AE is median.

To find : $AD = ?$

Solution : BD + CD = 3

=> $BD + 2BD = 3BD = 3$

=> $BD = \frac{3}{3} = 1$ cm

Also, since AE is media => $BE = CE = \frac{3}{2}$ cm

=> $DE = BE - DE = \frac{3}{2} - 1 = \frac{1}{2}$ cm

Also, AE = $\frac{\sqrt{3}}{2}a = \frac{3\sqrt{3}}{2}$ cm

In $\triangle$ ADE

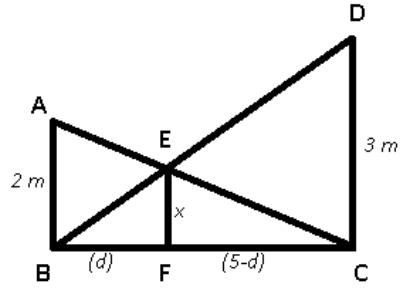
=> $(AD)^2 = (AE)^2 + (DE)^2$

=> $(AD)^2 = (\frac{3\sqrt{3}}{2})^2 + (\frac{1}{2})^2$

=> $(AD)^2 = \frac{27}{4} + \frac{1}{4} = \frac{28}{4}$

=> $AD = \sqrt{7}$ cm

67. **A**



To find : $EF = x = ?$

Solution : In $\triangle$ ABC and $\triangle$ EFC

$\angle ACB = \angle ECF$ (common)

$\angle ABC = \angle EFC = 90$

=> $\triangle ABC \sim \triangle EFC$

=> $\frac{x}{2} = \frac{5-d}{5}$ ----------Eqn(I)

Similarly, $\triangle BCD \sim \triangle BFE$

=> $\frac{x}{3} = \frac{d}{5}$ --------Eqn(II)

Adding Eqns (I) & (II), we get :

=> $\frac{x}{2} + \frac{x}{3} = \frac{5-d}{5} + \frac{d}{5}$

=> $\frac{3x+2x}{6} = \frac{5}{5}$

=> $5x = 6 \times 1 = 6$

=> $x = \frac{6}{5} = 1.2m$

68. **C**

Let the volume of the solution with 30 % acid content lie between v_1 and v_2, where we get a 20% acid solution for v_1

For v_2, we get a 25 % acid solution as the resultant mixture.

=> $15\%(200) + 30\%(v_1) = 20\%(200 + v_1)$

=> $30 + 0.3v_1 = 40 + 0.2v_1$

=> $0.1v_1 = 10$ => $v_1 = 10 \times 10 = 100$ litres

Similarly, $15\%(200) + 30\%(v_2) = 25\%(200 + v_2)$

=> $30 + 0.3v_2 = 50 + 0.25v_2$

=> $0.05v_2 = 20$ => $v_2 = 20 \times 20 = 400$ litres

∴ For the acid content in the resultant mixture to lie between 20 % and 25 %, the volume of the 30 % concentration acid solution must lie between 100 litres and 400 litres.

69. **D**

Expected profit when brand ambassador is used = (3.5 - 3.45)[100000 × 0.3 + 80000 × 0.4 + 50000 × 0.3] lakh = 0.05lakh*77000= 3850 lakh

Expected profit when brand ambassador is not used = (3.5 - 3.45)[80000 × 0.3 + 50000 × 0.4 + 30000 × 0.3] lakh =0.05lakh*53000= 2650 lakh

Difference = (3850 - 2650) = 1200 lakh = 12 crore.

This is the maximum amount of money that the company can afford to pay its brand ambassador.

Hence, option D is the correct answer.

70. **C**

Expected profit when brand ambassador is used = (3.5 - 3.45)[100000 × 0.3 + 80000 × 0.4 + 50000 × 0.3] lakh = 0.05lakh*77000= 3850 lakh

Expected profit when brand ambassador is not used = (3.5 - 3.45)[80000 × 0.3 + 50000 × 0.4 + 30000 × 0.3] lakh =0.05lakh*53000= 2650 lakh

Difference = (3850 - 2650) = 1200 lakh = 12 crore.

When profit is Rs.12.0 crores when Mr. Khan Advertises for the company.

Then profit is (12.0 - 9.0) = Rs.3 crore

No. of cars sold when Mr. khan advertises = [100000 × 0.3 + 80000 × 0.4 + 50000 × 0.3]= 77000

No. of cars sold when no popular actor is for advertisement= [80000 × 0.3 + 50000 × 0.4 + 30000 × 0.3]=53000

No of extra vehicles sold due to Mr. Khan= 24000

Suppose p is the amount escalated in cost of putting a car on the road,

24000p = 3,00,00,000

p = Rs1250

Had the cost not been increased, the company would have a extra profit of Rs. 1250 due to brand ambassador.

So, this the maximum escalation for which the company can afford signing contract with Mr. Khan.

Hence, option C is the correct answer.

71. **B**

As calculated in the last question, the company would have an additional profit or Rs. 1250/unit.

But, the cost is going up by Rs. 1000/unit

Therefore, profit/unit = Rs. 1250 - Rs. 1000 = Rs. 250

∴ Addition/increase in profit

Rs. $3 * \frac{250}{1250}$ = Rs. 60 lakh

Hence, option B is the correct answer.

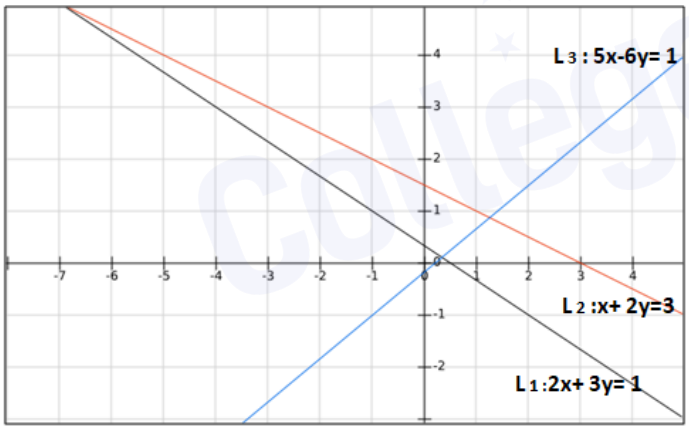
72. **C**

Let us draw the diagram first,

Let L_1: 2x+ 3y -1 = 0

L_2: x+ 2y -3 = 0

L_3: 5x-6y- 1 = 0



With respect to L_1, we can see that the point (a, a^2) lies within the triangle and (0, 0) are opposite side.
Therefore,

$L_{(a,a^2)} * L_{(0,0)} < 0$

$\Rightarrow (2a + 3a^2 - 1)(-1) < 0$

$\Rightarrow (3a^2 + 2a - 1) > 0$

$\Rightarrow$ a < -1 or a > $\frac{1}{3}$ ... (1)

With respect to L_2, we can see that the point (a, a^2) lies within the triangle and (0, 0) are on the same side.
Therefore,

$L_{(a,a^2)} * L_{(0,0)} > 0$

$\Rightarrow (a + 2a^2 - 3)(-3) > 0$

$\Rightarrow (2a^2 + a - 3) < 0$

$\Rightarrow \frac{-3}{2}$ < a < 1 ... (2)

With respect to L_3, we can see that the point (a, a^2) lies within the triangle and (0, 0) are on the same side. Therefore,

$L_{(a,a^2)} * L_{(0,0)} > 0$

$\Rightarrow (5a - 6a^2 - 1)(-1) > 0$

$\Rightarrow (6a^2 - 5a + 1) > 0$

$\Rightarrow$ a < $\frac{1}{3}$ or a > $\frac{1}{2}$ ... (3)

From equation (1), (2) and (3) we can say that

a ϵ (-3/2,-1) $\bigcup$ (1/2, 1). Hence, option C is the correct answer.

73. **B**

Let $p \times \frac{0.34mt}{mt}$m packets of milk be prepared in unit time at the normal speed.

Now, at normal speed in t time, the number of packets of milk that would be produced = mt

=> Number of packets of milk produced at fast speed = $(\frac{110}{100} \times m) + (\frac{60}{100} \times t) = 0.66mt$

The target for the supervisor = mt packets

Number of packets produced at normal speed = $mt - 0.66mt = 0.34mt$

Let the probability of a packet being damaged when produced at normal speed = p

=> Probability that a packet is damaged when produced at fast speed = $2p$

The probability that a packet selected at random will be damaged = 0.112

=> $(p \times \frac{0.34mt}{mt}) + (2p \times \frac{0.66mt}{mt}) = 0.112$

=> $0.34p + 1.32p = 1.66p = 0.112$

=> $p = \frac{0.112}{1.66} = 0.067$

$\therefore$ Probability that a packet will not be damaged at normal speed = $1 - 0.067 = 0.93$

74. **C**

$x_1, x_2, x_3, ..., x_n$ are in A.P. Let the first term be a and common difference be d

Also, $x_2 = a + d = 2$

and $x_{24} = a + 23d = 68$

Solving above equations, we get : $a = -1$ and $d = 3$

=> $x_8 = a + 7d = -1 + 7(3) = 20$

To find y coordinate, we will use $y = px + q$

$\because A_2(2, -2)$ and $A_{24}(68, 31)$

Substituting in above equation, => $-2 = 2p + q$

and $31 = 68p + q$

Solving above equations, we get : $p = \frac{1}{2}$ and $q = -3$

$\therefore y_8 = px_8 + q = \frac{1}{2}(20) + (-3) = 7$

75. **C**

$x_1, x_2, x_3, ..., x_n$ are in A.P. Let the first term be a and common difference be d

Also, $x_2 = a + d = 2$

and $x_{24} = a + 23d = 68$

Solving above equations, we get : $a = -1$ and $d = 3$

=> x coordinates = $\{x_1, x_2, x_3, x_4, x_5, ...\} = \{-1, 2, 5, 8, 11, 14, ...\}$ ----------(i)

To find y coordinates, we will use $y = px + q$

$\because A_2(2, -2)$ and $A_{24}(68, 31)$

Substituting in above equation, => $-2 = 2p + q$

and $31 = 68p + q$

Solving above equations, we get : $p = \frac{1}{2}$ and $q = -3$

=> $y_1 = px_1 + q = \frac{1}{2}(-1) + (-3) = -3.5$

Similarly, y coordinates = $\{y_1, y_2, y_3, y_4, y_5, ...\} = \{-3.5, -2, \frac{-1}{2}, 1, ...\}$ -------(ii)

From (i) and (ii),

=> $A_1 = (-1, -3.5)$

$A_2 = (2, -2)$

$A_3 = (5, \frac{-1}{2})$

$A_4 = (8, 1)$

For the points to lie in the first quadrant, the coordinates of both (x_k, y_k) must be positive.

Since, d is positive and y is a linear relation in x, the corresponding coordinates of A_k i.e. A_5 onwards will be increasing.

Thus, only for A_1, A_2 and A_3 we do not have both coordinates positive.

$\therefore$ Only 3 points do not lie in the first quadrant.

76. **B**

Expression : $f(x + y) = f(x).f(y)$

and $f(1) = 2$

Putting, $x = y = 1$, => $f(1 + 1) = f(1).f(1)$

=> $f(2) = 2 \times 2 = 4$

If $x = 2, y = 1$ => $f(3) = f(2).f(1)$

=> $f(3) = 4 \times 2 = 8$

Similarly, $f(4) = f(3).f(1) = 8 \times 2 = 16$

The pattern followed : $f(n) = 2^n$

Now, $\sum_{x=1}^{n} f(x) = 1022$

= $f(1) + f(2) + f(3) + ... + f(n) = 1022$

=> $2^1 + 2^2 + 2^3 + ... + 2^n = 1022$

The series is a G.P. with first term, $a = 2$ and common ratio, $r = 2$

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

=> $\frac{2(2^n-1)}{2-1} = 1022$

=> $2^n - 1 = \frac{1022}{2} = 511$

=> $2^n = 511 + 1 = 512 = 2^9$

Comparing both sides, we get : $n = 9$

77. **B**

Amarendra took 25 minutes to cover 15 km. In the same time Dharmendra travel 2500m less, i,e, 12.5 km

=> Speed of Amarendra = $\frac{15}{25} = 0.6$ km/min

Speed of Dharmendra = $\frac{12.5}{25} = 0.5$ km/min

=> Time taken by Dharmendra to reach the station = $\frac{15}{0.5} = 30$ minutes

Next day, Dharmendra started 7 minutes early, so he will reach the station = 30 - 25 - 7 = -2 minutes

=> 2 minutes or 120 seconds before Amarendra.

78. **D**

Length of side of S_{n+1} = Length of diagonal of S_n

=> Length of side of S_{n+1} = $\sqrt{2}$ (Length of side of S_n)

=> $\frac{\text{Length of side of } S_{n+1}}{\text{Length of side of } S_n} = \sqrt{2}$

=> Sides of $S_1, S_2, S_3, S_4, ..., S_n$ form a G.P. with common ratio, $r = \sqrt{2}$

It is given that, $S_3 = ar^2 = 4$

=> $a(\sqrt{2})^2 = 4$

=> $a = \frac{4}{2} = 2$

$\therefore n^{th}$ term of G.P. = $a(r^{n-1})$

= $2(\sqrt{2})^{n-1}$

=$2^{[\frac{n+1}{2}]}$

79. **B**

Angle covered by the hour hand in 12 hours = 360°

In 1 hour = $\frac{360}{12} = 30^\circ$

and in 1 minute = $\frac{30}{60} = \frac{1}{2}^\circ$

Similarly, angle covered by minute hand in 1 hour = 360°

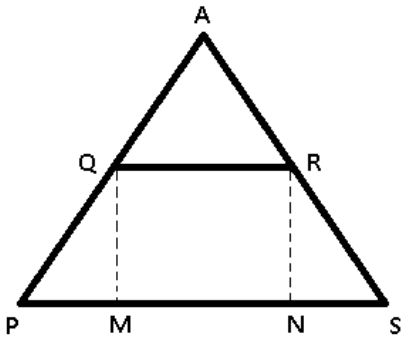
In 1 minute = $\frac{360}{60} = 6^\circ$

=> Every minute, the angle between the two hands changes by = $6 - \frac{1}{2} = \frac{11}{2}^\circ$

$\therefore$ From 7:45 A.M. to 7:47 A.M.,i.e. in 2 minutes the angle between the two hands will change by

= $2 \times \frac{11}{2} = 11^\circ$

80. **A**



In the figure, $\triangle AQR \sim \triangle APS$

=> $\frac{AQ}{AP} = \frac{QR}{PS} = \frac{AR}{AS} = k$ --------Eqn(I)

Statement I : PQ = 3 cm , RS = 4 cm , $\angle$ QPS = 60°

In right $\triangle$ PQM

=> $sin60^\circ = \frac{QM}{QP}$

=> $\frac{\sqrt{3}}{2} = \frac{QM}{3}$

=> $QM = \frac{3\sqrt{3}}{2} = RN$

Similarly, $sin(\angle RSN) = \frac{3\sqrt{3}}{8}$

=> $\angle RSN = sin^{-1}(\frac{3\sqrt{3}}{8})$

$\therefore$ In $\triangle$ APS

=> $\angle PAS = 180^\circ - \angle APS - \angle PSA$

=> $\angle PAS = 120^\circ - sin^{-1}(\frac{3\sqrt{3}}{8})$

Thus, statement I alone is sufficient.

Statement II : PS = 10, QR = 5

From eqn(I), $k = \frac{1}{2}$

But, we do not know anything regarding the measures of the remaining sides or any of the angles.

So, statement II is not sufficient.

81. **D**

Expression : $A_{n+1} = A_n^2 + 1$ --------Eqn(I)

Statement I : $A_0 = 1$

Putting n = 0 in Eqn (I), => $A_1 = A_0^2 + 1 = 1 + 1 = 2$

Similarly, $A_2 = A_1^2 + 1 = 4 + 1 = 5$ and so on

We can find the values of A_{900} and A_{1000} and also their greatest common divisor.

Thus, statement I alone is sufficient.

Statement II : We have $A_1 = 2$

In the above manner, we can determine A_{900} and A_{1000} and also their greatest common divisor.

Thus, statement II alone is sufficient.

∴ **Either statement alone is sufficient.**

82. **B**

Given that the numbers are in G.P.

Let the common ratio be 'r', hence the series a,b,c,d,e can also be expressed as:

a, ar, ar^2, ar^3, ar^4

lcm(a,b) = lcm$(a, ar) = ar$

lcm(b,c) = lcm$(ar, ar^2) = ar^2$

lcm(c,d) = lcm$(ar^2, ar^3) = ar^3$

lcm(d,e) = lcm$(ar^3, ar^4) = ar^4$

∴ $\frac{1}{lcm(a,b)} + \frac{1}{lcm(b,c)} + \frac{1}{lcm(c,d)} + \frac{1}{lcm(d,e)}$

= $\frac{1}{ar} + \frac{1}{ar^2} + \frac{1}{ar^3} + \frac{1}{ar^4}$

= $\frac{1}{a}(\frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3} + \frac{1}{r^4})$

To get max value of this, 'a' and 'r' should be minimum.

It is given that $1 \leq a$ => Minimum value of 'a' = 1

For the values in the series to be integers, the minimum common ratio, r = 2 ($r \leq 1$ won't work here as it is an increasing GP)

Substituting values of 'a' and 'r' in the expression, we get :

Max value = $\frac{1}{1}(\frac{1}{2} + \frac{1}{2^2} + \frac{1}{2^3} + \frac{1}{2^4})$

= $\frac{8+4+2+1}{16} = \frac{15}{16}$

83. **E**

Let total cost price of Books and More = $RS.100x$

It is given that Books and More have earned 20% profit overall

=> Total S.P. = $\frac{120}{100} \times 100x = 120x$

Thus, S.P. of music CDs = $\frac{35}{100} \times 120x = 42x$

S.P. of books = $42x + \frac{50}{100} \times 42x = 63x$

=> S.P. of DVDs = $120x - 42x - 63x = 15x$

40% profit is earned in music CDs and 25% profit in books.

=> C.P. of music CDs = $\frac{100}{140} \times 42x = 30x$

and C.P. of books = $\frac{100}{125} \times 63x = 50.4x$

=> C.P. of DVDs = $100x - 30x - 50.4x = 19.6x$

=> Loss made on DVDs = $19.6x - 15x = 4.6x$

∴ Loss % on DVDs = $\frac{4.6x}{19.6x} \times 100 = 23.46\%$

84. **B**

Let total selling price of books and more = $Rs.100x$

Thus, S.P. of music CDs = $\frac{35}{100} \times 100x = 35x$

S.P. of books = $35x + \frac{50}{100} \times 35x = 52.5x$

=> S.P. of DVDs = $100x - 35x - 52.5x = 12.5x$

40% profit is earned in music CDs and 25% profit in books.

=> C.P. of music CDs = $\frac{100}{140} \times 35x = 25x$

and C.P. of books = $\frac{100}{125} \times 52.5x = 42x$

It is given that Books and More made 50% loss in film DVDs

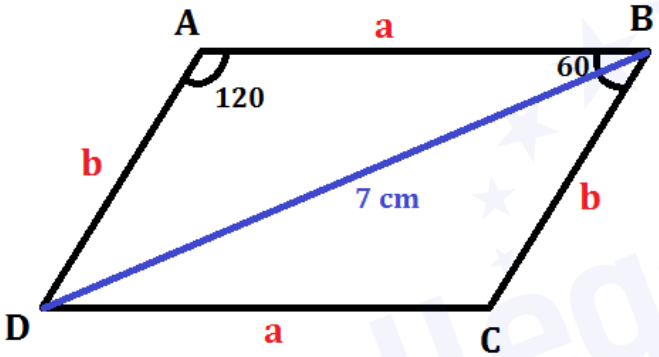
=> C.P. of DVDs = $\frac{100}{50} \times 12.5x = 25x$

Thus, total C.P. of books and more = $25x + 42x + 25x = 92x$

$\therefore$ Profit made by books and more = $\frac{100x - 92x}{92x} \times 100$

= $\frac{8}{92} \times 100 = 8.69\% \approx 8.7\%$

85. **C**



Area of parallelogram = $absin60 = 15\frac{\sqrt{3}}{2}$

=> $\frac{\sqrt{3}}{2}ab = 15\frac{\sqrt{3}}{2}$

=> $ab = 15$

Using cosine rule in $\triangle$ ABD

=> $cos120 = \frac{a^2+b^2-7^2}{2ab}$

=> $\frac{-1}{2} = \frac{a^2+b^2-49}{30}$

=> $a^2 + b^2 = 49 - 15 = 34$

Also, $(a+b)^2 = a^2 + b^2 + 2ab$

=> $(a+b)^2 = 34 + 2(15) = 64$

=> $(a+b) = \sqrt{64} = 8$

$\therefore$ Perimeter of parallelogram = $2(a+b) = 2 \times 8 = 16$ cm

86. **C**

Let $P = (x_1,\ y_1)$ and $Q = (x_2,\ y_2)$

$P^2 = P \times P = (x_1 \times x_1, y_1 + y_1 - y_1 \times y_1) = (x_1^2, y_1(2 - y_1))$

Since x_1 and y_1 are both less than 1, $x_1^2 < x_1$ and $y_1(2 - y_1) > y_1$

As P is raised to higher powers, the x-coordinate will keep on decreasing and the y-coordinate will keep on increasing.

As the value of n tends to infinity, x_1 and y_1 will tend towards 0 and 1, resptectively.

Thus, $P^n = (0, 1)$.

Similarly, $Q^n = (0, 1)$

Thus, $P^n + Q^n = (0 \times 0, 1 + 1 - 1 \times 1) = (0, 1)$

Hence, the answer is option C.

87. **B**

Let $P = (x_1,\ y_1)$ and $Q = (x_2,\ y_2)$

$2P = P + P = (x_1 + x_1 - x_1^2,\ y_1^2) = (x_1(2 - x_1),\ y_1^2)$

Since x_1 and y_1 are less than 1, $x_1(2 - x_1) > x_1$ and $y_1^2 < y_1$.

As the value of n increases the value of x-coordinate tends towards 1 and the value of y-coordinate tends towards 0.

Thus, $nP = (1, 0)$

Similarly, $nQ = (1, 0)$

Thus, $nP + nQ = (1 + 1 - 1 \times 1,\ 0 \times 0) = (1, 0)$

Hence, the answer is option B.

88. **C**

Let (Costs / Sales Revenue) * 100 = x%

(Profit / Sales Revenue) * 100 = (100-x) %

(Profit / Sales Revenue) = (100-x) /100 %

(Profit / Price * Sales Quantity) =(100-x) /100 %

Profit / Sales Quantity =[(100-x) /100]* Price

On tabulating the Profit rate of both the factories , we get

Month Span	Praharpur	Bahsin
Oct – Dec 2008	27.78	25.36
Jan – Mar 2009	37.82	38.1
Apr – Jun 2009	30.5	43.17
Jul – Sep 2009	30.85	41.75

Clearly C is the correct answer

89. **E**

For Jan- Mar 2009 Paharpur cement

Sales Quantity = 543278

Cost as percentage of revenue = 87.56 %

Profit as a percentage of revenue = 100-87.56

= 12.44 %

Profit = (12.44/100)* 543278 *304

= 20545470

Profit rate = 37.82

For Jan- Mar 2009 Bahsin Cement

Sales Quantity = 526532

Cost as percentage of revenue = 91.34 %

Profit as a percentage of revenue = 100-91.34

= 8.66 %

Profit = (8.66/100)* 526532*440

= 20062975.3

Profit rate = 30.5

For Apr- Jun 2009 Paharpur cement

Sales Quantity = 698236

Cost as percentage of revenue = 91.03%

Profit as a percentage of revenue = 100-91.03

= 8.97 %

Profit = (8.97/100)* 698236*340

= 21294801.53

Profit rate = 30.5

For Apr- Jun 2009 Bahsin Cement

Sales Quantity = 499874

Cost as percentage of revenue = 89.96%

Profit as a percentage of revenue = 100-89.96

= 10.04 %

Profit = (10.04/100)* 499874*430

= 21580560.33

Profit rate = 43.17

Hence E is the correct answer

90. **E**

Let the Sales of Paharpur Cement during Apr - Jun 2009 be x

Therefore profit = [(100-91.03)*340*x]/100

= 30.498x

the Sales of Paharpur Cement during Jul- Sept 2009 increased by 2.25%

Therefore Sales of Paharpur Cement during Jul- Sept 2009 is 31.54x

Percentage increase in profit = (31.54x-30.498x)/30.498x

= 3.42%

Hence E is the correct answer

Explanation [91 - 93]:

Let the coupon payments of A, E, B, D and C be a-2d, a-d, a, a+d, and a+2d, respectively.

Since, the coupon payment of A is twice the common difference,

a - 2d = 2d

a = 4d

Thus, the coupon payments of A, E, B, D and C are 2d, 3d, 4d, 5d, and 6d, respectively.

Since the coupon payment on bond B is half the price of bond A, the price of bond A = 2 x 4d = 8d.

Let the price of bond E be x. Thus, the price of bond B = $1.75x$.

Let the face value of bond E be e. Thus, the face value of bond B = $2e$.

91. **A**

Since, the face value of bond C is equal to the price of bond A, the face value of C is 8d.

We know that three of the bonds mature in two years, two in three years and one in five years. We are also given that A matures in 2 and D matures in 5 years.

Tabulating the given information.

	A	B	C	D	E
Coupon Payment	2d	4d	6d	5d	3d
Price	8d	1.75x			X
Face Value	1000	2e	8d		E
Years	2			5	

Applying the price formula for A, we get

8d = $\frac{2d}{1.25} + \frac{2d}{1.25^2} + \frac{1000}{1.25^2}$

Solving this, we get $d = 125$

Thus, the coupon payments of A, B, C, D, and E are 125, 500, 750, 625 and 375, respectively.

Price of A = 8d = 1000 = Face value of C

We are given that the price of bond C is more than 1800. The time period for C could be 2 or 3 years.

Case 1: Time period is 2 years.

Applying the price formula for C.

Price = $\frac{750}{1.25} + \frac{750}{1.25^2} + \frac{1000}{1.25^2}$

Price = 1720 (<1800)

Thus, the maturity period of bond C is 3 years and for bonds B and E will be 2 years.

Applying the price formula again, we get

Price = $\frac{750}{1.25} + \frac{750}{1.25^2} + \frac{750}{1.25^3} + \frac{1000}{1.25^3}$

Price of C = 1976

Using the price formula on bond B, we get

$1.75x$ = $\frac{500}{1.25} + \frac{500}{1.25^2} + \frac{2e}{1.25^2}$ ...(1)

Using the price formula on bond E, we get

x = $\frac{375}{1.25} + \frac{375}{1.25^2} + \frac{2}{1.25^2}$ ...(2)

Solving equations (1) and (2) simultaneously, we get

$x = 1440$ and $e = 1406.25$

Thus, the table becomes

	A	B	C	D	E
Coupon Payment	250	500	750	625	375
Price	1000	2520	1976		1440
Face Value	1000	2812.5	1000		1406.25
Years	2	2	3	5	2

Thus, the face value of bond E is 1406.25.

Hence, the answer is option A.

92. **C**

Since the face value of bond C is equal to the price of bond A, the face value of C is 8d.

We know that three of the bonds mature in two years, two in three years and one in five years. We are also given that A matures in 2 and D matures in 5 years.

Tabulating the given information.

	A	B	C	D	E
Coupon Payment	2d	4d	6d	5d	3d
Price	8d	1.75x			X
Face Value	1000	2e	8d		E
Years	2			5	

Applying the price formula for A, we get

8d = $\frac{2d}{1.25} + \frac{2d}{1.25^2} + \frac{1000}{1.25^2}$

Solving this, we get $d = 125$

Thus, the coupon payments of A, B, C, D, and E are 125, 500, 750, 625 and 375, respectively.

Price of A = 8d = 1000 = Face value of C

We are given that the price of bond C is more than 1800. The time period for C could be 2 or 3 years.

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Price = 1720 (<1800)

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Applying the price formula again, we get

Price = $\frac{750}{1.25} + \frac{750}{1.25^2} + \frac{750}{1.25^3} + \frac{1000}{1.25^3}$

Price of C = 1976

Using the price formula on bond B, we get

$1.75x = \frac{500}{1.25} + \frac{500}{1.25^2} + \frac{2e}{1.25^2}$ ...(1)

Using the price formula on bond E, we get

$x = \frac{375}{1.25} + \frac{375}{1.25^2} + \frac{2}{1.25^2}$ ...(2)

Solving equations (1) and (2) simultaneously, we get

$x = 1440$ and $e = 1406.25$

Thus, the table becomes

	A	B	C	D	E
Coupon Payment	250	500	750	625	375
Price	1000	2520	1976		1440
Face Value	1000	2812.5	1000		1406.25
Years	2	2	3	5	2

Since Madhubala has Rs. 2500, she can either buy one bond each of A and E, or a single bond C.

Return from bonds A and E = 1000 + 2(250) + 1406.25 + 2(375) = 3656.25

Return from bond C = 1000 + 3(750) = 3250

Thus, the maximum return that Madhubala can get is Rs. 3656.25.

Hence, the answer is option C.

93. **D**

Since, the face value of bond C is equal to the price of bond A, the face value of C is 8d.

We know that three of the bonds mature in two years, two in three years and one in five years. We are also given that A matures in 2 and D matures in 5 years.

Tabulating the given information.

	A	B	C	D	E
Coupon Payment	2d	4d	6d	5d	3d
Price	8d	1.75x			X
Face Value	1000	2e	8d		E
Years	2			5	

Applying the price formula for A, we get

8d = $\frac{2d}{1.25} + \frac{2d}{1.25^2} + \frac{1000}{1.25^2}$

Solving this, we get $d = 125$

Thus, the coupon payments of A, B, C, D, and E are 125, 500, 750, 625 and 375, respectively.

Price of A = 8d = 1000 = Face value of C

We are given that the price of bond C is more than 1800. The time period for C could be 2 or 3 years.

Case 1: Time period is 2 years.

Applying the price formula for C.

Price = $\frac{750}{1.25} + \frac{750}{1.25^2} + \frac{1000}{1.25^2}$

Price = 1720 (<1800)

Thus, the maturity period of bond C is 3 years and for bonds B and E will be 2 years.

Applying the price formula again, we get

Price = $\frac{750}{1.25} + \frac{750}{1.25^2} + \frac{750}{1.25^3} + \frac{1000}{1.25^3}$

Price of C = 1976

Using the price formula on bond B, we get

$1.75x = \frac{500}{1.25} + \frac{500}{1.25^2} + \frac{2e}{1.25^2}$ ...(1)

Using the price formula on bond E, we get

$x = \frac{375}{1.25} + \frac{375}{1.25^2} + \frac{2}{1.25^2}$ ...(2)

Solving equations (1) and (2) simultaneously, we get

$x = 1440$ and $e = 1406.25$

Thus, the table becomes

	A	B	C	D	E
Coupon Payment	250	500	750	625	375
Price	1000	2520	1976		1440
Face Value	1000	2812.5	1000		1406.25
Years	2	2	3	5	2

The price of bond C = 1976.

Hence, the answer is option D.

94. **C**

The alphabetical order = CCHJL

Number of words starting with C = $4! = 24$

Number of words starting with H = $\frac{4!}{2} = 12$

Number of words starting with J = $\frac{4!}{2} = 12$

Total words till now = 24 + 12 + 12 = 48

First word starting with L (49th in dictionary) = LCCHJ

Therefore, the 50th word = LCCJH

95. **B**

Let the number of units of A and B produced be x and y respectively.

For product A, time taken for grinding = $2x$ and polishing = $3x$

For product B, time taken for grinding = $3y$ and polishing = $2y$

Total number of hours of grinding done per day = $10 \times 12 = 120$ hrs

Total number of hours of polishing done per day = $15 \times 10 = 150$ hrs

=> $2x + 3y = 120$ ---------Eqn(I)

and $3x + 2y = 150$ ----------Eqn(II)

Applying the operation : 3* Eqn(I) - 2* Eqn(II), we get :

=> $(6x - 6x) + (9y - 4y) = 360 - 300$

=> $y = \frac{60}{5} = 12$

=> $x = 42$

$\therefore$ Profit made by the manufacturer = $(42 \times 5) + (12 \times 7)$

= $210 + 84 = Rs.294$

96. **B**

Volume of tank = $150 \times 120 \times 100 = 18,00,000cm^3$

Volume of water in the tank = $12,81,600cm^3$

Volume to be filled in the tank = $18,00,000 - 12,81,600 = 5,18,400cm^3$

Let the number of bricks to be placed in the tank = x

Volume of x bricks = $x \times 20 \times 6 \times 4 = 480xcm^3$

Each brick absorbs $(\frac{1}{10})^{th}$ of its volume in water

=> x bricks will absorb = $\frac{480x}{10} = 48xcm^3$

$\therefore 5,18,400 + 48x = 480x$

=> $480x - 48x = 432x = 5,18,400$

=> $x = \frac{518400}{432} = 1200$

97. **B**

Let the number of matches that India needs to play = x

Now, if $1 - (\frac{5}{6})^x \geq \frac{1}{2}$, we can consider that India has a fair chance of winning the match.

=> $(\frac{5}{6})^x \leq \frac{1}{2}$

If, $x = 3$, we get $\frac{125}{216}$, which is greater than $\frac{1}{2}$

If, $x = 4$, we get $\frac{625}{1296}$, which is less than $\frac{1}{2}$

$\therefore$ The number of matches that India needs to play must be atleast 4

98. **B**

Since each carton should contain boxes of the same brand of chocolates and all boxes being of equal size, to get the minimum number of cartons, we should have the maximum number of boxes in each carton.

Thus, the number of boxes in each carton = H.C.F (96,240,336)

= 48

So, we will get minimum number of cartons if there are 48 boxes in each carton.

$\therefore$ Number of cartons = $\frac{96}{48} + \frac{240}{48} + \frac{336}{48}$

= $2 + 5 + 7 = 14$

Explanation [99 - 101]:

Total population = 70000

Average consumer expenditure on Roses and carnations = 47.4

Total expenditure on both carnations and roses = 47.4*70000

= 3318000

Given total expenditure on roses = 1136916

So the total expenditure on carnations = 3318000 - 1136916

= 2181084

99. **C**

Similarly in the month of March

Average consumer expenditure on Roses and carnations = 49.5

Total expenditure on both carnations and roses = 49.5 *70000

= 3465000

Given total expenditure on roses = 1137915

So the total expenditure on carnations = 3465000 - 1137915

= 2327085

Percentage increase in Expenditure = (2327085-2181084)/2181084

=6.69%

Hence C is the correct answer

100. **B**

Expenditure on roses in January = 1136916

Price of roses per dozen = 99

Roses sold = 1136916/99

=11484 dozens

Expenditure on roses in July = 1188432

Price of roses per dozen = 144

Roses sold = 1188432/144

=8253 dozens

Sales of roses in July as compared to January = [(8253-11484)/11484]*100

= - 28.13%

Since Change is negative, there is a decrease of 28.13%.
Hence B is the correct answer.

101. **E**

es of carnations in January = 13848 dozens

Price of carnation per dozen in January =2181084/13848

= 157.5

Similarly In December

Average consumer expenditure on Roses and carnations = 56.4

Total expenditure on both carnations and roses = 56.4*70000

= 3948000

Given total expenditure on roses = 977688

So the total expenditure on carnations = 3948000 - 977688

= 2970312

Sales of carnations = 18859 dozens

Price of carnation per dozen in January =2970312/18859

= 157.5

Therefore the price did not change

Hence E is the correct answer