

CSAT Paper 2: Aptitude Test

The obvious starting point for an aspirant to start preparing for the aptitude paper of CSAT is the syllabus prescribed by UPSC:

1. Comprehension
2. Interpersonal skills including communication skills
3. Logical reasoning and analytical ability
4. Decision making and problem solving
5. General mental ability
6. Basic numeracy (numbers and their relations, orders of magnitude etc. (Class X level), Data interpretation (charts, graphs, tables, data sufficiency etc. –Class X level)
7. English language comprehension skills (Class X level)

A few challenges are obvious at the first glance whereas the others reveal themselves on a more careful observation. The greatest challenge though is the fact that this test in this format will be conducted by UPSC for the first time and as such there is no precedence. Also the simple list of seven broad areas makes no mention of the relative extent of coverage of either of these.

The syllabus provided is very broad and general. So the first challenge is to break it down into more specific topics towards which specific learning efforts can be targeted. One will have to be careful to produce the largest number of classifications or sub classifications without being irrelevant to the subject matter. In an aptitude test, the questions have to be solved within the test and the greatest discomfort is caused when one comes across question types that one is not familiar with. Without any doubt, the first task here is to familiarize yourself with the largest possible variety of question types.

At next level, one has to be concerned about the possible number of questions and the difficulty level. These two are closely related. If the number of questions is more, they will tend to be easier and vice versa. However, the preparation and approach required to solve these two types of test is very different. Lengthy tests are normally “SPEED TESTS” and the path to excellence lies in training yourself rigorously on “Test taking Techniques” or working more on the strategy. The content part does not pose much problem in this case. On the other hand, if the number of questions is small, they will tend to be tough. Such tests are “Tests of knowledge” and the key to success here lies in a lot of prior preparation, covering the topics involved to a greater degree of depth.

To illustrate, if we are dealing with Algebra, a speed test might require the candidate to solve about 10 questions in 10 minutes. Most of these questions will involve simple concepts like linear or quadratic equations or basic functions. An excellent student will solve 8 or 9 whereas an average student will also be able to solve 6. Here, the average student will also be able solve all 10 in absence of time limitation. In a knowledge test however, the examiner might set only 4 questions to be solved in a 10 minute span. The questions here shall generally pertain

to tougher topics like logarithmic equations, maxima and minima, progressions etc. Here an excellent student may solve 2 or 3 and an average student may be able to solve only one. Time as a factor is not important in this case and the attempt levels would remain the same even if more time was made available.

The challenge remains that UPSC has not given any indication on the number of questions in the two hour test. The general understanding is that the test shall contain 100 questions to be solved in two hours. In my opinion, the number of questions could be anywhere from 60 to 200 and it would be prudent for students to prepare themselves accordingly. Also nothing is known at this stage about the number of options per question. The same may be 4 or 5. Whereas it does not make any difference in Data Interpretation and problem solving, it could compound the difficulty level in case of Reading comprehension and Reasoning (especially non – verbal).

What is also not clear is whether all questions will carry equal marks or will there be a differential marking pattern graded in line with the difficulty level and degree of complexity of questions. This again has a bearing on the preparation as well as attempt strategy. An equal weightage paper calls for the right question selection techniques whereas one has to be more careful with a paper that adopts differential marking schemes.

By this time, you might be beginning to feel that you are up against a wall. Actually that is not the case. A lot of precedence in aptitude testing exists in exams like NDA/CDS, Bank PO, MBA entrance and international exams like GRE and GMAT. It will make good sense to spend a little time gathering an overview of these. The Bank PO exams are essentially speed tests with a moderate level of difficulty. The MBA entrances (CAT, MAT, SNAP, and XAT) are a mixed bag with the CAT and XAT being knowledge tests essentially and MAT and SNAP tilting a bit towards being called a speed test. The international exams follow a completely different approach as they are computer based adaptive tests which are far from what the UPSC CSAT is likely to be. The most relevant guidelines may be available from the NDA and the CDS as these are published by UPSC itself. Yet, caution must be exercised as in my opinion, the CSAT aptitude paper shall have a difficulty level definitely higher than that of the NDA or CDS. Yet one could certainly look at these tests in terms of the question types if not more.

The key to success shall lie in going for an all encompassing comprehensive preparation strategy that covers all areas to a sufficient degree of depth. This should be matched with adequate practice in real time testing environment with stringent time limits.

To begin with, we present a broad elaboration of the syllabus so that we can get specific topics towards which efforts can be targeted. We also present in this issue a collection of 250 questions that will help you become well acquainted with the nature of questions involved.

Basic numeracy, Data interpretation

▶ Number tree: Properties of Natural numbers, Whole numbers, Rational & Irrational numbers, Real and Com-

plex numbers.

- ▶ Prime and Composite numbers, Decimal numbers.
- ▶ Properties of surds and indices.
- ▶ Problems on number of factors and multiples in a range, Factorization of large numbers
- ▶ Last digit problems. Cyclicity
- ▶ Base systems: Binary, Octal, Hexadecimal. Remainder theorem. Congruence modulo M.
- ▶ Basic Plane Geometry: Properties of lines, angles, triangles, quadrilaterals and circles.
- ▶ Set Theory: Relations, Mappings, Functions, Operations on sets. Venn Diagrams
- ▶ Speed Calculations: Oral methods for Multiplication, squaring. Oral calculation of percentages
- ▶ Data Interpretation: Tables, Line graphs, Bar charts, Pies charts, Combination diagrams, Caselets.
- ▶ Data Sufficiency, Data Redundancy.

Decision making and Problem solving

- ▶ *Percentages*: Concept of a base, successive percentage changes, Change of base. Application to profit, loss and discount.
- ▶ *Simple and compound interest*: Principle and amount, Difference between CI and SI. Bankers' discount and True discount.
- ▶ *Averages*: Addition to or deletion from a group, weighted average. Ratios and Proportions, Alligation, Average speed, Unitary method.
- ▶ Application to partnerships, mixtures, time, speed, work and distance.
- ▶ *Counting Principles*: Permutations, combinations, Probability, venn diagrams, and application to arrangement, selection, and numeric and geometry problems.
- ▶ Decision making problems: selection, elimination, qualification

English language comprehension skills

- ▶ Reading comprehension (Fact based and Inference based questions)
- ▶ Paragraph completion,
- ▶ Jumbled paragraphs, Jumbled sentences,
- ▶ Inferences, assumptions and conclusions based on paragraphs.

General mental ability, Logical reasoning and analytical ability

- ▶ Series, sequences, Coding, Arrangements, Blood relations, Direction sense, Input Output,
- ▶ Logic Puzzles: Sitting arrangements, Age problems, Table filling,
- ▶ Syllogisms: Mediate inference, Immediate inference.
- ▶ Statements: Assumptions, arguments, conclusions. Cause effect, Assertions reason, degree of truth and falsity.
- ▶ Analytical Reasoning, Logical reasoning, Mathematical reasoning
- ▶ Figure problems: Non verbal reasoning.

Comprehension and interpersonal skills

- ▶ Data Analysis, Basics of communication process, Written, verbal and non- verbal communication, Cases on appropriate behaviour in communicative situations.

Critical Reasoning

Directions for questions 1 to 5: Read the paragraph carefully and answer the question that follows each of them.

1. Steve Robinson, who made significant contribution to many researches in Physics and was a recipient of the Nobel Prize in physics, trained many physicists, among them five Nobel Prize winners, 24 fellows of the Royal Society of London, and 76 professors of physics. This shows that the skills needed for creative research can be taught and learned.
Which one of the following is an assumption on which the argument depends?
 - (a) Steve Robinson was an internationally known physicist, and scientists came from all over the world to work with him.
 - (b) All the scientists trained by Steve Robinson were renowned for their creative scientific research.
 - (c) Creative research in physics requires research habits not necessary for creative research in other fields.
 - (d) At least one of the eminent scientists trained by Steve Robinson was not a creative researcher before coming to study with him.
2. No one will be admitted to National Law School unless he or she studies hard for the Law Entrance. No one studied hard for the Law Entrance unless he or she was not a graduate from Sambhav University. **Which one of the following conclusions necessarily follows from the above statements?**
 - (a) Some graduates of Sambhav University were admitted to National Law School.
 - (b) No graduate of Sambhav University was admitted to National Law School.
 - (c) All graduates of Sambhav University studied hard for the Law Entrance.
 - (d) Only graduates of Sambhav University did well on the Law Entrance.
3. All savings accounts in Rashtriya Bank are interest-bearing accounts. The interest from some interest-bearing accounts is tax-free, so there must be some savings accounts that have tax-free interest. **Which one of the following arguments is flawed in a way most similar to the way in which the passage is flawed?**
 - (a) All great photographers are artists. Some artists are intellectuals. Therefore, some great photographers are intellectuals.
 - (b) All artists are intellectuals. Some great photographers are artists. Therefore, some great photographers must be intellectuals.
 - (c) All great photographers are artists. All artists are intellectuals. Therefore, some great photo-

graphers must be intellectuals.

(d) All great photographers are artists. Some great photographers are intellectuals. Therefore, some artists must be intellectuals.

4. In 1430, members of a foreign religious order arrived in Peru and established a mission. The following year, typhoid killed thirty thousand people of certain ethnic groups in Peru.
Concluding that the foreign mission members were responsible for the typhoid among the ethnic groups would require which of the following assumptions?
 (a) The ethnic groups of Peru were more susceptible to contracting the typhoid disease than other groups.
 (b) Typhoid is an illness that is highly contagious and fatal.
 (c) Typhoid did not exist in Peru before 1430.
 (d) The ethnic groups that lived in Peru in the fifteenth century became extinct because of the typhoid epidemic.
5. If Sonam forgets her watch when she leaves the house to go to work, then she is late for all her meetings that day. If Sonam is not late for her noon meeting, then she always goes out to the park at lunchtime. Today is Wednesday, and Sonam forgot to take her watch with her to work.
Which of the following statements must be true, based on the above statements ?
 (a) Sonam will be going to the park at lunchtime today.
 (b) Sonam will be going to the park today.
 (c) Sonam will be late for her noon meeting.
 (d) Sonam was not late when she left the house.

Directions for questions 6 to 10: In each of these questions, an idiomatic expression and its four possible meanings are given. Find out the correct meaning of the idiom and choose that as your answer.

6. **A wild goose chase**
 (a) A fuss over a trifling matter
 (b) To run for longer distances
 (c) To be insensitive to someone
 (d) An absolutely hopeless enterprise
7. **Break a leg**
 (a) Fighting badly with someone.
 (b) Meeting with an accident
 (c) Wishing someone good luck
 (d) Eating non-vegetarian food
8. **Close the stable door after the horse has bolted**
 (a) Trying to fix up something after the problem has occurred
 (b) Doing the maintenance job
 (c) Letting the things settle down before taking any action

(d) Establishing a stable for the horse

9. **Dear John Letter**
 (a) A letter written to a friend
 (b) A letter by the partner explaining why they are ending the relationship
 (c) A letter by a girlfriend to boyfriend
 (d) Letter written to John expressing affection
10. **To cry wolf**
 (a) To give false alarm
 (b) To run away
 (c) To feel astonished
 (d) To turn pale

Directions for questions 11 to 15: Each question has a part of the sentence or the entire sentence underlined, this is followed by four different ways of phrasing the sentence. Choose the alternative which is grammatically correct and concise.

11. More than 35 school children, some of them who were as young as nine, were killed when an explosion ripped through their primary school.
 (a) More than 35 school children, some of them who were as young as nine,
 (b) More than 35 school children, some as young as nine,
 (c) As many as 35 school children, some as young as nine,
 (d) Not less than 35 school children, some as young as nine,
12. In view of the reasons that have been cited, I hereby recommend passing of the resolution.
 (a) In lieu of the reason given
 (b) Because the reasons have been given
 (c) In view of the reasons given
 (d) In view of the reasons that have been cited
13. Mrs. Pooja, our class teacher and who is also a member of the school committee can speak excellent German.
 (a) who is also a member of the school committee can speak excellent German.
 (b) who also is a member of the school committee can speak excellent German.
 (c) also a member of the school committee can speak in German.
 (d) a member of the school committee can speak excellent German.
14. As Sohan was on probe he was determined to not fall foul of the law.
 (a) was on parole he was determined to not fall foul of the law.
 (b) was on parole, he was determined not to fall foul of the law.
 (c) was in parole, he was eager to avoid the law.
 (d) was paroled, he did not wish to provoke the law.

15. Ram's courage, determination, stoicism and indomitable spirit has been a source of inspiration for many of his followers.
 (a) has been a source of inspiration for many of his followers.
 (b) has been a source of inspiration for a lot of his followers.
 (c) have been inspiration for his followers.
 (d) have been a source of inspiration for many of his followers.

Directions for questions 16 to 20: For each of the words given below, a contextual usage is provided. Pick the word from the options that can be the most appropriate replacement of the given word.

16. **Probity:** Her unquestioned probity helped her win the respect of her follow judges.
 (a) knowledge (b) integrity
 (c) behaviour (d) societal standing
17. **Obeisance:** While he was young, everybody paid obeisance to him.
 (a) Money (b) Admired
 (c) Respect (d) Cheated
18. **Altercation:** The altercation between husband and wife attracted the attention of neighbours.
 (a) Discord (b) Dispute
 (c) Agreement (d) Argument
19. **Tactical:** India has committed many tactical errors in its foreign policy.
 (a) Humanitarian (b) Strategic
 (c) Shrewd (d) Minor
20. **Vindicated:** Our faith in democracy gets vindicated by the steady progress of our country vis-a-vis other non-democratic countries.
 (a) Justified (b) Decreased
 (c) Simplified (d) Explained

Directions for questions 21 to 25: In each of these questions, a capitalised pair of words is given followed by pair of words. Choose the option which has a pair that exhibits the same relationship as the capitalised pair.

21. **ETYMOLOGY : WORDS**
 (a) Sociology : Women
 (b) Philosophy : Religion
 (c) Botany : Trees
 (d) Ornithology : Spider
22. **EULOGISE : CRITICIZE**
 (a) Enrich : Enhance
 (b) Humiliate : Embarrass
 (c) Invigorate : Weaken
 (d) Mystify : Narrate
23. **CIRCUMSPECT : RECKLESS**

- (a) Pertinent : Superfluous
 (b) Generic : General
 (c) Thrifty : Economical
 (d) Intricate : Complicated

24. **LYING : PERJURY**
 (a) Taking : Stealing
 (b) Snatching : Looting
 (c) Seeing : Observing
 (d) Statement : Testimony
25. **DESPOTIC : TYRANNY**
 (a) Authoritarian : Superiority
 (b) Skillful : Versatile
 (c) Generous : Liberality
 (d) Suspect : illegality

Parajumbles

Directions for questions 26 to 30: The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given options to construct a coherent paragraph.

26. (A) Sometimes they lead to emotional and physical strain or problems.
 (B) It is in these situations that a state of inner peace is a great blessing
 (C) Almost everyday we pass through situations that cause stress, anxieties, worries or unhappiness.
 (D) We often face problems, conflicts, demands or emergencies at work, at home or in relationships.
 (a) CDAB (b) CABD
 (c) ABCD (d) BCAD
27. (A) Sometime around 3000 BC, an interesting settlement emerged near the mountains.
 (B) A variety of utilitarian and public buildings were found within the settlement.
 (C) Particularly interesting was the layout of the settlement, which indicates an advanced level of planning and an elaborate defense system.
 (D) The settlement was, undoubtedly, highly organized; politically, economically, and socially.
 (a) CBDA (b) BDAC
 (c) ACBD (d) ABCD
28. (A) Then the bubble just as suddenly burst, an experience that could cost Ireland as much as one-fifth of GDP annually in years to come.
 (B) Europe has seen many spectacular stories in the past 20 years, but few can match Ireland's rise and fall.
 (C) A depressed and indebted country in the late 1980s suddenly became the bubbly Celtic Tiger of the 1990s.
 (D) In 2010 the budget deficit will be at least 32% of GDP and the public debt is almost 100% of GDP.
 (a) ABCD (b) BCDA
 (c) CDBA (d) BCAD

29. (A) Frictions accruing from bilateral trade have been on the increase since the 1980s.
(B) Apart from the electronic problem, the automobile issue began to assume the character of a significant irritant.
(C) The protective policy followed by Japan has its adverse impact on trading partners, particularly the US.
(D) Japan in the 1970s continued to maintain an exceptionally high tariff even after lifting of quantitative restrictions on imports of automobiles.
(a) DBCA (b) DBAC
(c) BDCA (d) BDAC
30. (A) His left-hand concealed a blackjack, his right hand groped for the torch in his pocket.
(B) The meeting was scheduled for 9 o'clock and his watch showed the time to be a quarter to nine.
(C) The man lurked in the corner, away from the glare of light.
(D) His heart thumped in his chest, sweat beads formed themselves on his forehead, his mouth was dry.
(a) BADC (b) ABCD
(c) CABD (d) BDAC

Paracompletion

Directions for questions 31 to 35: Each of these questions has a paragraph from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

31. Based on the information we have it is difficult to predict how migration numbers will change with the impacts of warming. Given the scale of uncertainties, most reported numbers are good guesses. Perhaps more people will move to other rural and urban areas with an increase in droughts, fall in agricultural yield, water shortage, and floods. People will be vulnerable to many effects: globalisation, water shortage, famine, poverty and so on. _____
(a) Seasonal migration during floods or droughts may intensify and then become permanent.
(b) They will experience them simultaneously and respond to them based on how these impinge on their daily lives.
(c) Migration of people is not a good trend.
(d) Fewer people will migrate if there are no droughts or floods.
32. Until a hundred years ago as humans we had a simple, uncomplicated biological connect. It was a straight-forward equation: we drew roughly 3000 calories each of energy out of Earth for our food and life's sustenance. Today that number per capita has grown to 100,000 calories. We still need only 3000 calories each to nourish life itself. _____
(a) All the rest of this energy is what we extract from Earth for everything else besides keeping ourselves alive.
(b) In some countries, like the US, this per capita number runs at over 200,000 calories.
(c) But average Indian consumes much more calories than that.
(d) But life today has become much more complicated so we consume more energy than what we need for sustenance.
33. Much like Big Tobacco once did with nicotine, the soda industry and high-fructose corn syrup producers of America have maintained a ridiculous state of flat-out denial about the links between soda consumption and obesity. "Sodas don't make you fat," they insist. Meanwhile, as Americans guzzle down insanely large quantities of soda and liquid sugar with each passing year, rates of obesity and diabetes continue to steadily climb. _____
(a) There are 2 million people in America who are suffering from diabetes.
(b) Surely diet must have something to do with it, right?
(c) Obesity has become a major problem in the entire world.
(d) Soda consumption and obesity are very strongly linked whether companies accept it or not.
34. To develop an understanding of the system under investigation, scientists build real-world models and make predictions with them. The models are tentative at first, but over time they are revised and refined, and can lead the community to novel problem solutions. _____
(a) Hence the community improves.
(b) Some scientists even develop incorrect models
(c) These solutions then help in coming the community forward.
(d) Models, thus, play a big role in the creative thinking processes of scientists.
35. In a certain type of supernova, the detonation starts with a flame ball buried deep inside a white dwarf. The flame ball is much lighter than its surroundings
(a) Hence it does not detonate.
(b) in some other supernova the process is somewhat different.
(c) so it rises rapidly making a plume topped with an accelerating smoke ring.
(d) The energy produced is much more than generated by a nuclear fission.

Fill in the blanks

Directions for questions 36 to 40: Each of these questions has a sentence which has two blanks. Choose the pair of words among the given options that will meaningfully fit the blanks.

36. The columnist was almost ____ when he mentioned his friends but he was unpleasant and even ____ when he discussed people who irritated him.

- (a) recalcitrant, sarcastic
(b) reverential, acrimonious
(c) sensitive, remorseful
(d) insipid, militant
37. The meaning of this line seems clear : The poet, though not denigrating the concept of _____, nonetheless emphasizes the importance of man's role in humanity in the _____ .
(a) independence, abstract
(b) community, extreme
(c) unity, synthesis
(d) individuality, aggregate
38. Although Shakespeare received little formal education, scholars have in recent years _____ the view that he was _____ the work of classical authors.
(a) substantiated, unimpressed by
(b) eroded, obsessed by
(c) supported, oblivious to
(d) undermined, unfamiliar with
39. As a staunch _____ of our right to leisure time, Krishna had few _____ .
(a) proponent, friends
(b) advocate, defenders
(c) disciple, rivals
(d) defender, equals
40. Ideas ____ to us and gradually _____ into behaviour.
(a) happen, occur (b) Strike, form
(c) occur, coalesce (d) shape, recede

Error Detection

Directions for questions 41 to 45: Each of the following sentences are divided into parts, which are marked a, b, c and d. One of these parts may contain an error or may not be acceptable in standard written communication. Select the part containing the error and mark it your answer.

41. (a) It is said that / (b) the state of his affairs / (c) are such as to cause anxiety / (d) to his creditors like me.
42. (a) When Gayatri said that / (b) she is coming to see me the next day / (c) I wondered / (d) what problems she would bring.
43. (a) You must know / (b) who Akbar was / (c) even if you have no / (d) special liking to history.
44. (a) No less than / (b) twenty persons / (c) were killed in / (d) the air crash.
45. (a) In India / (b) malnutrition is / (c) the cause / (d) for many diseases.

Directions for questions 46 to 50: Choose the word which is most nearly the opposite of the word given in question.

46. **Crucial**
(a) Fundamental (b) Basic
(c) Trivial (d) Important
47. **Annoyed**
(a) Happy (b) Angry
(c) Sad (d) Choleric
48. **Wilted**
(a) Stand (b) Tall
(c) Flourished (d) Straight
49. **Wistful**
(a) Fortunate (b) Happy
(c) Disturbed (d) Satisfied
50. **Grave**
(a) Unimportant (b) Serious
(c) Critical (d) Scholastic

Decision Making and Problem Solving

51. The length, breadth and height of a room in the shape of cuboid are increased by 10%, 20% and 50% respectively. Find the percentage change in the volume of cuboid.
(a) 77% (b) 87%
(c) 98% (d) 55%
52. If A's monthly income is 40% more than that of B. How much percentage of B's income less than that of A?
(a) 20% (b) 28%
(c) $28\frac{4}{7}\%$ (d) None
53. A man spends 75% of his income. His income is increased by 20% and saving remains same then what would be the increase in his expenditure?
(a) 10% (b) 26.66%
(c) 37.5% (d) None of these
54. A manufacture offers a 10% discount on the market price of a machine and yet makes a profit of 10%. If he gains Rs. 900 per machine, what is the market price of each machine?
(a) Rs. 9,000 (b) Rs. 9,900
(c) Rs. 10,000 (d) Rs. 11,000
55. Cost price of 15 tables is equal to the selling price of 20 tables, then loss percent would be
(a) 25% (b) 20%
(c) 30% (d) 45%
56. An importer of cereals got a consignment of coarse rice. He had to sell his goods at 10% loss to the distributor who sold it to the relailer at 9% loss. However, the retailer manages to sell it to the customer at 8% profit. If the cost price per kg is Rs.

- 200, then what is the cumulative loss?
 (a) Rs. 47 (b) Rs. 23
 (c) Rs. 27 (d) Rs. 33
57. A 10% reduction in prices enables one to get 10 kg more sugar than before for Rs. 500. What is the reduced price per kilogram of sugar?
 (a) Rs. 5 (b) Rs. 5.45
 (c) Rs. 5.25 (d) Rs. 5.30
58. Cost price of 20 tables is equal to the selling price of 15 tables, then Profit percent would be
 (a) $33\frac{1}{3}\%$ (b) 20%
 (c) 30% (d) 45%
59. A milkman makes a profit of 20% on the sale of milk. If he were to add 10% water to the milk, by what percent would his profit increase?
 (a) 25% (b) 60%
 (c) 40% (d) 45%
60. Ramesh's salary has been increased by 20% but his expenditure becomes 30% of the new salary. If he saves Rs. 700, then, what was his salary before increment?
 (a) Rs. 900 (b) Rs. 923.33
 (c) Rs. 833.33 (d) Rs. 850.66
61. Which of the following is the smallest
 $\frac{14}{25}, \frac{57}{100}, \frac{49}{86}, \frac{3}{5}$?
 (a) $\frac{14}{25}$ (b) $\frac{57}{100}$
 (c) $\frac{49}{86}$ (d) $\frac{3}{5}$
62. The incomes of A and B are in the ratio 3 : 2 and the expenditures in the ratio 5 : 3. If each saves Rs. 2,000, what are their incomes?
 (a) A's income is Rs. 4,000
 (b) B's income is Rs. 8,000
 (c) Both (a) and (b)
 (d) None of these
63. A sum of Rs. 1300 is divided between A, B, C and D such that
 $\frac{\text{A's share}}{\text{B's share}} = \frac{\text{B's share}}{\text{C's share}} = \frac{\text{C's share}}{\text{D's share}} = \frac{2}{3}$.
 Then, A's share is
 (a) Rs. 140 (b) Rs. 160
 (c) Rs. 240 (d) Rs. 320
64. A and B entered into a partnership investing Rs.16000 and Rs.12000 respectively. After 3 months, A withdrew Rs. 5000 while B invested Rs. 5000 more. After 3 more months C joins the business with a capital of Rs. 21000. The share of B exceeds that of C
- out of a total profit of Rs. 26400 after one year, by
 (a) Rs. 1200 (b) Rs. 2400
 (c) Rs. 3600 (d) Rs. 4800
65. A grocer buys two kinds of rice at Rs. 1.80 and Rs. 1.20 per kg respectively. In what proportion should these be mixed, so that by selling the mixture at Rs. 1.75 per kg, 25% may be gained?
 (a) 5 : 2 (b) 3 : 2
 (c) 3 : 4 (d) 1 : 2
66. A dishonest milkman tops up his bucket which is only $\frac{4}{5}$ full of milk with water. He again removes 5 litres of the mixture from the bucket and adds equal quantity of water. If milk is now 60% of the mixture, what is the capacity of the bucket in litres?
 (a) 15 (b) 20
 (c) 22.5 (d) 25
67. An 8 litre cylinder contains a mixture of oxygen and nitrogen, the volume of oxygen being 16% of the total volume. A few litres of the mixture is released and an equal amount of nitrogen is added. Then the same amount of the mixture as before is released and replaced by nitrogen for the second time. As a result, the oxygen content becomes 9% of the total volume. How many litres of mixture is released each time?
 (a) 3 litres (b) 5 litres
 (c) 2 litres (d) 4 litres
68. An express train 'A' from Ahmedabad to Chennai leaves Ahmedabad 6.30 a.m. and travels at 50 km/hr towards Baroda situated 100 km away. At 7.00 a.m. another express train 'B' leaves Baroda towards Ahmedabad and travels at 40 km/hr. At 7.30 a.m., Mr. X, the traffic controller at Baroda realises that both the trains are running on the same track. How much time does he have to avert a head-on collision between the two trains?
 (a) 15 min (b) 20 min
 (c) 25 min (d) 30 min
69. Arun, Barun and Kiranmala start from the same place and travel in the same direction at speeds of 30, 40 and 60 km per hour, respectively, Barun starts two hours after Arun. If Barun and Kiranmala overtake Arun at the same instant, how many hours after Arun did Kiranmala start?
 (a) 3 (b) 3.5
 (c) 4 (d) 4.5
70. A train approaches a tunnel AB. Inside the tunnel is a cat located at a point that is $\frac{3}{8}$ of the distance AB measured from the entrance A. When the train whistles the cat runs. If the cat moves to the entrance of the tunnel A, the train catches the cat exactly at the entrance. If the cat moves to the exit B, the train

- catches the cat exactly at the exist. The speed of the train is greater than the speed of the cat by what order?
 (a) 3 : 1 (b) 4 : 1
 (c) 5 : 1 (d) None of these
- 71.** Ramu starts a trip when the hands of the clock are together between 8 am and 9 am. He arrives at his destination between 2 pm and 3 pm when the hands are exactly 180° apart. How long did the trip take?
 (a) 3 (b) 4
 (c) 5 (d) 6
- 72.** X can do a piece of work in 20 days and Y can do the same work in 30 days. They finished the work with the help of Z in 8 days. If they earned a total of Rs. 5550, then what is the share of Z?
 (a) 1850 (b) 1950
 (c) 2050 (d) None of these
- 73.** There is an empty reservoir whose capacity is 30 litres. There is an inlet pipe which fills at 5 L/min and there is an outlet pipe which empties at 4 L/min. Both the pipes function alternately for 1 minute. Assuming that the inlet pipe is the first one to function, how much time will it take of the reservoir to the filled up to its capacity?
 (a) 60 (b) 51
 (c) 50 (d) 40
- 74.** Thief and Police, 27 km apart, start at the same time and are together in 9 hours, if they walk in the same direction and in 3 hours if they walk towards each other. Thief's speed of walking is most likely to be
 (a) 3 km/hour (b) 9 km/hour
 (c) 1.5 km/hour (d) 4 km/hour.
- 75.** On a circular track of length more than 200 m, Chaman runs twice as fast as Mohan. In a running race, if Chaman gives a lead of 200 m to Pawan, at what distance they will meet for the first time from the starting point?
 (a) 300 m (b) 500 m
 (c) 400 m (d) 400 m
- 76.** Suresh rows for 6 hours downstream and then for 6 hours upstream. In this whole process he covers a total distance of 24 kms. If the speed of stream is 1 kmph, for how much more time will he have to row upstream to reach the starting point?
 (a) 6 hours (b) 12 hours
 (c) 24 hours (d) None of these
- 77.** A brother and a sister appear for an interview against two vacant posts in an office. The probability of the brother's selection is $\frac{1}{5}$ and that of the sister's selection is $\frac{1}{3}$. What is the probability that only one of them is selected?
 (a) $\frac{1}{5}$ (b) $\frac{2}{5}$
- (c) $\frac{1}{3}$ (d) $\frac{2}{3}$
- 78.** A six-sided die with faces numbered 1 through 6 is rolled three times. What is the probability that the face with the number 6 on it will not face upward on all the three rolls?
 (a) $\frac{1}{216}$ (b) $\frac{1}{16}$
 (c) $\frac{2}{3}$ (d) $\frac{215}{216}$
- 79.** A test contains 8 questions. A student must answer at least two of the first five questions and at least one of the remaining three questions. In how many ways can he answer the test, if he must answer five questions in all?
 (a) 55 (b) 56
 (c) 75 (d) 168
- 80.** A coin is tossed 5 times. What is the probability that head appears an odd number of times?
 (a) $\frac{2}{5}$ (b) $\frac{1}{5}$
 (c) $\frac{1}{2}$ (d) $\frac{4}{25}$
- 81.** Course materials are sent to students by a distance teaching institution. The probability that they will send a wrong programme's study material is $\frac{1}{5}$. There is a probability of $\frac{3}{4}$ that the package is damaged in transit, and there is a probability of $\frac{1}{3}$ that there is a short shipment. What is the probability that the complete material for the course arrives without any damage in transit?
 (a) $\frac{4}{5}$ (b) $\frac{2}{15}$
 (c) $\frac{8}{15}$ (d) $\frac{1}{5}$
- 82.** There are 8 different books and 2 identical copies of each in a library. The number of ways in which one or more books can be selected is
 (a) 2^8 (b) $3^8 - 1$
 (c) $2^8 - 1$ (d) 3^8
- 83.** Sixteen guests have to be seated around two circular tables, each accommodating 8 members. 3 particular guests desire to sit at one particular table and 4 others at the other table. What are the number of ways of arranging these guests?
 (a) 9C_3 (b) $\frac{9!(7!)^2}{4!5!}$
 (c) $\frac{9!(7!)^2}{4!5!}$ (d) $(7!)^2$

- 84.** 10 points are marked on a straight line and 11 points are marked on another straight line. How many triangles can be constructed with vertices from among the above points?
 (a) 495 (b) 550
 (c) 1045 (d) 2475
- 85.** If the letters of the word 'EQUATION' be arranged at random, what is the probability that all vowels are together?
 (a) $\frac{1}{8}$ (b) $\frac{1}{12}$
 (c) $\frac{1}{12}$ (d) $\frac{1}{14}$
- 86.** Using all digits from 0 to 9, how many 4 digits numbers can be formed such that they are divisible by 5 and no 2 digits are the same?
 (a) 752 (b) 852
 (c) 952 (d) None of these
- 87.** There are 22 members in a family including two brothers, Ramu and Kamlesh. In how many ways can they be arranged around the circular table if there is exactly one person between these two brothers.
 (a) 20! (b) 19!
 (c) $(20!)^2$ (d) $2 \times 20!$
- 88.** If we have to make 9 boys sit alternately with 9 girls around a round table which is numbered, then the number of ways in which this can be done is
 (a) $2 \times (9!)^2$ (b) $9! \times 6!$
 (c) $9! \times 9!$ (d) None of these
- 89.** Ten years ago, the average age of a family of 4 members was 24 years. Two children having been born, the average age of the family is same today. What is the present age of the youngest child if they differ in age by 2 years?
 (a) 1 year (b) 2 years
 (c) 3 years (d) 5 years
- 90.** The average of 8 readings is 24.3, out of which the average of first two is 18.6 and that of next three is 21.2. If the sixth reading is 3 less than seventh and 8 less than eighth, what is the sixth reading?
 (a) 24.8 (b) 26.5
 (c) 27.6 (d) 29.4
- 91.** The average age of 11 players of a cricket team is decreased by 2 months when two of them aged 17 years and 20 years are replaced by two reserve players. The average age of the players is
 (a) 18 years 3 months
 (b) 17 years 1 month
 (c) 17 years 7 months
 (d) 17 years 11 months
- 92.** Average marks obtained by 120 candidates was 35. If the average marks of passed candidates was 39 and that of failed candidates was 15 the number of candidates who passed the examination is
 (a) 100 (b) 80
 (c) 95 (d) 105
- Directions for questions : 93 to 95:** These questions are based on the following data.
 A team of four members is to be selected, from eight persons-Aryan, Brijesh, Chetan, Dhruva, Eshwar, Farheen, Goutam and Hakim under the following constraints.
- (i) Unless Aryan is selected, Brijesh or Chetan is not selected.
 (ii) No two of Dhruva, Eshwar and Farheen can be selected together.
 (iii) If Eshwar is selected, Goutam cannot be selected.
 (iv) At most one of Farheen and Hakim can be selected.
 (v) One of Dhruva and Brijesh must be selected.
 (vi) Whenever one of Goutam and Hakim is not selected, then the other must not be selected.
- 93.** If Brijesh is not selected, then in how many ways can a team be selected?
 (a) 3 (b) 4
 (c) 5 (d) 2
- 94.** If Chetan is selected, then who must be selected?
 (a) Brijesh (b) Dhruva
 (c) Farheen (d) None of these
- 95.** If Farheen is selected then in how many ways can the team be selected?
 (a) 4 (b) 5
 (c) 6 (d) 1
- 96.** Ram travels $\frac{1}{2}$ the distance at the speed of 40 kmph, $\frac{1}{3}$ the distance at the speed of 50 kmph and rest of the distance at 60 kmph. What is the average speed of Ram in whole journey?
 (a) 52.57 (b) 45.57
 (c) 50 (d) 45
- 97.** In a class of 50 students, everyone can take either Maths or Biology or both, 40 take Maths, 12 take both, then how many took Biology only?
 (a) 22 students (b) 12 students
 (c) 10 students (d) 18 students
- Directions for questions 98 to 100 :** These questions are based on the following information.
 Eight boys Akash through Ganesh gathered at a picnic. Each of them brought a different dish among Pizza through Bhel-Poori to the picnic. The following information is known about them.
- (1) Neither Akash nor Ram brought the dish Pav-Bhaji. Either Amar or Mohan brought Manchurian.
 (2) Either Vishnu or Ram brought the dish Pizza.
 (3) Either Shankar or Kishan brought Dosa.
 (4) Vishnu brought neither Pav-Bhaji nor Uttpam. Mohan brought Bhel-Poori.
 (5) Either Ganesh or Ram brought Burgar.

- (6) Either Akash or Kishan brought Dam-Aloo. Neither Shankar nor Ganesh brought Pav-Bhaji.
98. Which of the following dishes is brought by Akash?
 (a) Dam-Aloo (b) Dosa
 (c) Bhel-Poori (d) Uttipam
99. Which of the following is a correct combination of the boy and the dish he brought?
 (a) Vishnu - Dam-Aloo
 (b) Amar - Pav-Bhaji
 (c) Vishnu - Burger
 (d) Kishan - Pav-Bhaji
100. Who brought the dish Uttipam ?
 (a) Akash
 (b) Amar
 (c) Shankar
 (d) Cannot be determined

General Mental Ability, Logical Reasoning and Analytical Ability

101. Mohan travelled 3 km towards North, then turned right and travelled 4 km straight. He then turned 45° to his left, walked for about a kilometre and turned 135° in anticlockwise direction. He walked straight for about 2 km and turned left to travel 2 km. and finally turned to his right. In which direction was he walking finally?
 (a) East (b) South-east
 (c) West (d) South-west
102. Ram went for a morning walk towards north. He walked 200m straight, turn right at an angle of 45° and travel 100m. He then turned 135° in clock-wise direction and reached a point which was in the east of the starting point. What is the total distance covered by Ram.
 (a) 550m (b) 600 m
 (c) $\frac{100}{\sqrt{2}} + 550$ (d) $500 + \frac{100}{\sqrt{2}}$
103. If '+' means '-'; '-' means 'x'; 'x' means '+' and '+' means '+', then $40 \times 120 \div 80 - 40 + 20 = ?$
 (a) 80 (b) 120
 (c) 60 (d) 0
104. If A denotes '+', B denotes '-', C denotes 'x' and D denotes '+', then which of the following statements is correct?
 (a) $32C \ 24A \ 98D \ 12B \ 18 = 400$
 (b) $64D \ 16C \ 18 = 320 \ B \ 24C \ 24$
 (c) $16C \ 16A \ 16D \ 16B \ 16 = 241$
 (d) $72C \ 8D \ 16B \ 14A \ 8 = 20$
105. **Statements -**
 A. All crows are tablets
 B. Some tablets are cats.
 C. All cats are tourists
 D. All tourists are travelling.
Conclusions -
 I - Some travelling are crows
 II - No travelling is a crows
 III - Some cats are crows
 (a) Only I follows
 (b) Only II follows
 (c) Only III follows
 (d) Either I or II follows
 (e) None of these
106. **Statements -**
 A. Some pens are pencils
 B. Some pencils are cows.
 C. All cows are good
 D. Some good are peacocks.
Conclusions -
 1. Some cows are pens
 2. All goods are cows.
 3. Some cows are peacock
 4. No cow is peacock
 (a) Only I & II follows
 (b) Either III or IV follows
 (c) Only III & IV follow
 (d) None of these
 (e) Only I, II and III follow
107. **Statements -**
 All boys are girls
 Most girls are fans
Conclusions -
 (1) Some girls may not be fans
 (2) Some fans are Boys
 (3) All fans are Boys
 (4) Some girls are Boys
 (a) Only I & II follow
 (b) Either III or IV follows
 (c) Only IV follows
 (d) Either II or III follows
 (e) None of these
108. In a certain code SOLDIER is written as JFSCRNK, how is GENIOUS written in that code?
 (a) PVTHHFO
 (b) PVTHMDF
 (c) TVPHFDM
 (d) None of these
109. In a certain code language, 'come again' is written as 'ho na', 'come over here' is written as 'pa na ta' and 'over and above is written as 'ki ta ja'. How is 'here' written in that code language?
 (a) pa (b) na
 (c) ta
 (d) ja
 (e) None of these

Directions for Question 110: Study the following information carefully and answer the given questions:

A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input :

sun forgone 15 only 93 25 cast 42

Step I :

cast sun forgone 15 only 93 25 42

Step II:

cast 93 sun forgone 15 only 25 42

Step III :

cast 93 forgone sun 15 only 25 42

Step IV :

cast 93 forgone 42 sun 15 only 25

Step V:

cast 93 forgone 42 only sun 15 25

Step VI:

cast 93 forgone 42 only 25 sun 15

Step VI is the last step of the rearrangement of the above input.

As per the rules followed in the above steps, answer the following questions.

110. **Input:** marksheet hour for 17 artistic 84 27 40

Which of the following will be step II?

- (a) Artistic 84 hour marksheet for 17 27 40
- (b) Artistic 84 marksheet 17 hour for 27 40
- (c) Artistic 84 marksheet hour for 17 27 40
- (d) Cannot be determined
- (e) None of these

Directions for Question 111 : Study the following information carefully and answer the given questions:

A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input

364 622 432 536 623 436

Step I :

622 364 432 536 623 436

Step II:

622 432 364 536 623 436

Step III:

622 432 623 364 536 436

Step IV:

622 432 623 364 436 536

111. If the input is 323 456 623 341 229 842, What will be the output at the III step

- (a) 341 323 623 456 842 229
- (b) 341 623 323 229 456 842
- (c) 229 323 341 456 623 842
- (d) 341 842 323 623 456 229

Directions for question 112 to 114 : What should be in the place of ' ? ' ?

112. 2A16 6B8 42F4 ?

- (a) 84Q2
- (b) 168 P2

(c) 1806P2

(d) 1764P2

113. 3 10 29 74 ?

- (a) 125
- (b) 173
- (c) 111
- (d) 184

114. 10 80 120 2340 ?

- (a) 4600
- (b) 4680
- (c) 2965
- (d) 4200

Direction for questions 115 to 117 : In each question below is given a statement followed by two courses of action numbered I and II. A course of action is a step or administrative decision to regard to the problem, policy, etc. On the basis of the information given in the statement - you have to assume everything in the statement to be true-decide which of the suggested courses of action logically follow(s) for pursuing.

Give answer:

- (a) if only I follows.
- (b) if only II follows.
- (c) if either I or II follows.
- (d) if neither I nor II follows.
- (e) if both I and II follow.

115. Statement: The prices of crude oil in the international market have risen by about 40 percent in a month's time and show no downward trend.

Courses of action:

I. The petrol prices in the domestic retail market should immediately be increased by about 30 percent to absorb the cost escalation.

II. The Govt should provide subsidy to the oil marketing companies to absorb the cost escalation.

116. Statement : Drinking and rave parties have become a fashion among the present college youth, which diverts them from their studies.

Courses of action:

I. The state Government should make it a rule to disallow the students from entering pubs and bars.

II. The parents as well as the colleges should impose strict discipline among the college-going youth.

117. Statement: Cases of robbery while travelling in public transport have increased substantially in the recent past.

Courses of action:

I. Adequate number of security guards should be deployed in all public transport vehicles immediately.

II. People should be advised to refrain from carrying highly valuable articles while travelling by public transport system.

Directions for questions 118 to 120 : In each question below is given a statement followed by two assumptions numbered I and II. An assumption is something supposed or taken for granted. You have to consider the statement

and the following assumptions and decide which of the assumptions is implicit in the statement.

Give answer (1) : if only Assumption I is implicit.

Give answer (2) : if only Assumption II is implicit.

Give answer (3): if either Assumption I or Assumption II is implicit.

Give answer (4): if neither Assumption I nor Assumption II is implicit.

Give answer (5): if both the Assumptions I and II are implicit.

118. Statement: "If you have obtained 75 percent or more marks in X Std examination, your admission to our coaching class for XII Std is guaranteed." – An advertisement.

Assumptions:

I. Bright students do not generally opt for attending coaching classes.

II. The coaching class has adequate capacity to accommodate all such students.

119. Statement: The state govt has announced an amnesty scheme for all the housing societies defaulting on payment of municipal taxes asking these societies to pay upfront six percent of the dues and regularize their stats without any penalty.

Assumptions :

I. Most of the defaulting housing societies may not opt for the amnesty scheme and pay up their dues.

II. Other housing societies which have been paying their taxes regularly may file case against the Government for discriminatory practices.

120. Statement : Many employees of the organisation applied for special sabbatical leave of two years to pursue higher education.

Assumptions:

I. The management of the organisation may not grant leave to most of these employees.

II. These employees may be able to complete their education during the sabbatical leave.

Directions for questions 121 to 123 : In making decisions about important questions, it is desirable to be able to distinguish between "strong" arguments and "weak" arguments. "Strong" arguments must be both important and directly related to the question. "weak" arguments may not be directly related to the question and may be of minor importance or may be related to the trivial aspects of the question.

Each question below is followed by two arguments numbered I and II. You have to decide which of the arguments is a "strong" argument and which is a "weak" argument.

Give answer (a) : if only argument I is strong.

Give answer (b) : if only argument II is strong.

Give answer (c) : if either argument I or II is strong.

Give answer (d) : if neither argument I nor II is strong.

Give answer (e) : if both arguments I and II are strong.

121. Should the women be advised not to travel alone at night in view of the increasing incidences of rape and sexual abuse?

Arguments:

I. No, instead the Government should take measures to control such incidences.

II. Yes, it is difficult even for the police department to control such cases.

122. Should there be a ban on affiliation of students' unions to political parties?

Arguments:

I. Yes, the political parties take under advantage of the students' unions to fulfil their own selfish interests.

II. No, without the support of political parties student's unions will not be able to survive.

123. Should the Government introduce a system of obtaining bond from students for working in India before sanctioning education loan for higher studies?

Arguments:

I. No, this is not a workable solution and will obstruct the development of young talent in the country.

II. Yes, this is the only way to ensure use of the talent of our country for the development of the country and not only an individual.

III. No, this step will be too harsh.

Directions for questions 124 to 125 : Below in each question are given two statements (A) and (B). These statements may be either independent causes or may be effects of independent causes or of a common cause. One of these statements may be the effect of the other statement. Read both the statements and depicts the relationship between these two statements.

Mark answer (a) if statement (A) is the cause and statement (B) is its effect.

Mark answer (b) if statement (B) is the cause and statement (A) is its effect.

Mark answer (c) if both the statements (A) and (B) are independent causes.

Mark answer (d) if both the statements (A) and (B) are effects of independent causes.

Mark answer (e) if both the statements (A) and (B) are effects of some common cause.

124. Statement:

A. There has been a continuous increase in average temperature during winter in many parts of the country over the past few years.

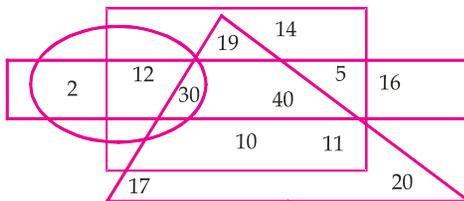
B. There has been significant changes in the wind pattern across the country over the last few years.

125. Statement:

A. Though mobile phones find a good number of users in rural India, computers and Internet still remain a distant dream.

B. In the recent past there has been a largescale migration from the rural parts of India to the urban sectors.

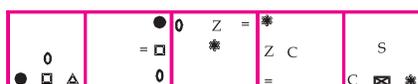
Direction for questions 126 and 127: In the diagram given below the triangle represents people who like driving, the square represents people who enjoy singing while the rectangle represents people who like painting, the circle represents people who like dancing. Answer the questions based on the following diagram the figures written in the diagram show the number of persons belonging to that category.



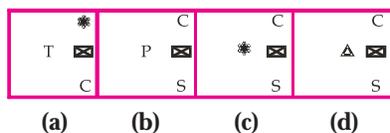
- 126.** How many people like both Dancing and Singing but not driving.
 (a) 12 (b) 30
 (c) 42 (d) None of these
- 127.** How many people like painting and driving.
 (a) 12 (b) 45
 (c) 43 (d) 70

Directions for questions 128: In each of the questions given below which one of the four answer figures on the right should come after the problem figures on the left, if the sequence were continued?

128. Problem Figures

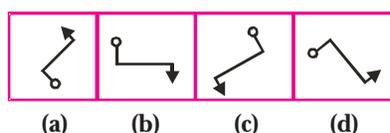


Answer Figures



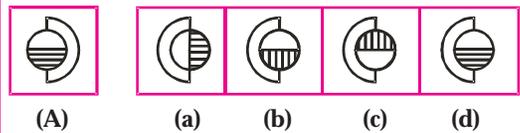
Directions for questions 129: Out of the given figure four, are similar in a certain way. One figure is not like the other four. That means four figures form a group based on some common characteristics. Find out the figure which does not belong to the group i.e., which does not share the common features/characteristics with the other four figures.

129.

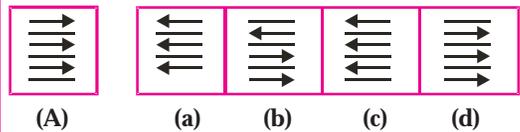


Directions for questions 130 and 131: In each of the following questions, choose the correct mirror image from alternatives (a), (b), (c), (d) of the figure (A).

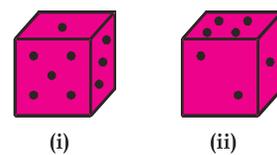
130.



131.

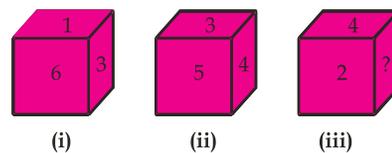


132. Two positions of a dice are shown below. When there are two dots at the bottom, the number of dots at the top will be



- (a) 2 (b) 3
 (c) 5 (d) 6

133. Three positions of the same dice are given below. Observe the figures carefully and tell which number will come in place of (?)



- (a) 1 (b) 6
 (c) 3 (d) 5

134. A cube is coloured red on two opposite faces, blue on two adjacent faces and yellow on two remaining faces. It is then cut into two halves along the plane parallel to the red faces. One piece is then cut into four equal cubes and the other one into 32 equal cubes.

How many cubes do not have any red faces?
 (a) 8 (b) 16
 (c) 20 (d) 24

Directions for questions 135 to 137: Study the following information carefully and answer the questions given below:

A, B, C, D, E, F, G, H and K are sitting around a circle facing the centre. F is fourth to the right of A who is third to the right of B. K is fourth to the left of B and third to the right of D. C is third to the right of H. E is second to the left of G.

- 135.** What is E's position with respect to B?
 (a) Second to the left

- (b) Third to the right
(c) Fourth to the right
(d) Third to the left
- 136.** Who is to the immediate right of F?
(a) B (b) G
(c) E (d) Data inadequate
- 137.** In which of the following combinations is the third person sitting between the first and the second persons?
(a) GFB (b) BGH
(c) ADC (d) EGF

Directions for questions 138 and 139: Read the given information carefully and answer the questions that follows.

Roshan, Amar, Pawan and Gagan are brothers of Rashmi, Suman, Purwa and Sita, not necessarily in that order. Each boy has one sister and the names of brothers and sisters do not begin with the same letter. Pawan and Gagan are not Sita's or Suman's brother. Sita is not Roshan's sister.

- 138.** Purwa's brother is
(a) Roshan (b) Amar
(c) Pawan (d) Gagan
- 139.** Which of the following are brother and sister?
(a) Roshan and Purwa
(b) Amar and Sita
(c) Pawan and Suman
(d) Gagan and Rashmi

Directions for questions 140 and 141: Answer the questions based on the following information. N is a natural number and it has only four distinct factor - 1, a, b and N itself. (Assume that a is always less than b.)

- 140.** Integer a is a
(a) Prime number
(b) Odd but not prime number
(c) Even number
(d) Composite number
- 141.** a . a . b =
(a) N (b) N²
(c) \sqrt{N} (d) a . N

Directions for questions 142 and 143 : The following table gives the final medal tally of the Commonwealth Nations Games

Rank	Country	Gold	Silver	Bronze
1	Australia	8	5	-
2	Srilanka	-	7	9
3	Pakistan	-	-	2
4	India	7	4	10

- 142.** How many gold medals were won by Srilanka?

- (a) 7 (b) 6
(c) 5 (d) 8
- 143.** Minimum number of silver medals Germany would have won:
(a) 7 (b) 6
(c) 5 (d) 4

- 144.** The score card of Sachin in One day match is shown in the table below.

Runs	Balls	4s	6s	Strike rate
57	79	6	0	72.15

All runs scored are in singles, doubles, threes, fours and sixes. No extras.

Strike rate = No. of runs score ? No. of balls faced
The minimum strike rate Sachin would have had after facing 70 balls or deliveries?

- (a) 40.00% (b) 57.82%
(c) 34.28% (d) 45.2%

Directions for questions 145 to 146 : Each question has a set of four sequentially ordered statements. Each statement can be classified as one of the following:

Facts, which deal with pieces of information that one has heard, seen or read, and which are open to discovery of verification (the answer option indicates such a statement with an 'F')

Inferences, which are conclusions drawn about the unknown, on the basis of the known (the answer option indicates such a statement with an 'I').

Judgements, which are opinions that imply approval or disapproval of persons, objects, situations and occurrences in the past, the present of the future (the answer option indicates such a statement with a 'J').

Select the answer option that best describes the set of four statements.

- 145.** (A) of all the magical powers wielded by Harry Potter, perhaps none has cast a stronger spell than his supposed ability to transform the reading habits of young people.
(B) In what has become near mythology about the wildly popular series, many parents, teachers, librarians and book messaging and music downloads.
(C) The series has been an inspiration for many children but in keeping with the intricately plotted novels themselves, the truth about Harry Potter and reading is not quite so straightforward a success story.
(D) As the series draws to a much lamented close, federal statistics in the United States show that the percentage of Youngsters who read for fun continues to drop significantly as children get older, at almost exactly the same rate as before Harry Potter came along.

would apply to all of the above examples. If the offending image is one that has the potential to incite fear, hatred, or prejudice, then it should be moved to a museum and surrounded with explanatory text panels. If a monument is added to an archaeological site, then it becomes part of the history of that site. Even if the reasons for its addition are overtly political, as in the case of Abraham's house at Ur, I would argue that the monument should continue to stand, albeit with panels that explain the political agenda behind it.

The urge to destroy the visual markers of history is a very old one, and it may always be with us. As archaeologists, however, I hope that we can make a difference in the current discussion of what cultural property is and how it can be protected. We may never be able to temper the passion for destruction, but we can at least situate those passions in historical perspective and ensure that today's historical evidence will still be here tomorrow.

- 151.** The author is least likely to agree to which of the following?
- (a) If there is a political agenda behind a monument, it should be destroyed.
 - (b) If an image increases hatred in the society, it should be moved to a museum with proper reference contexts.
 - (c) Iconoclasm is not something mankind should resort to.
 - (d) The wish to destroy the visual markers of history is very old one.
- 152.** What would be the suitable title of the passage?
- (a) Destruction of museums
 - (b) Fall of Nero and Saddam
 - (c) Protecting the Monuments
 - (d) The Danger of Iconoclasm
- 153.** Why was the monument to Prophet Abraham built by Saddam Hussein?
- (a) Because this was a political agenda of Saddam.
 - (b) Because Prophet was born there.
 - (c) Because Saddam wanted to attract Pope John Paul II's interest in Ur.
 - (d) None of these
- 154.** Which of the following is true as per the passage?
- (a) Archaeologists can make a difference in the current discussion of what cultural property is and how it can be protected.
 - (b) Iconoclasm sometimes can be justified.
 - (c) Saddam Hussein did do many wrong things.
 - (d) Only (a) and (b)
- 155.** What does the word "Iconoclasm" mean?
- (a) The deliberate destruction within a culture of the culture's own religious icons and other symbols or monuments, usually for religious or political motives.
 - (b) Shifting the images from the monuments to the museums.
 - (c) Trying to protect the images from getting destroyed.

- (d) Not believing in the rituals and images of any religion.

Passage 2

'For many of us, the fundamental question of ethics is, "What should I do?" or "How should I act?" Ethics is supposed to provide us with "moral principles" or universal rules that tell us what to do. Many people, for example, read passionate adherents of the moral principle of utilitarianism: "Everyone is obligated to do whatever will achieve the greatest good for the greatest number." Others are just as devoted to the basic principle of Immanuel Kant: "Everyone is obligated to act only in ways that respect the human dignity and moral rights of all persons."

Moral principles like these focus primarily on people's actions and doings. We "apply" them by asking what these principles require of us in particular circumstances, e.g., when considering whether to lie or to commit suicide. We also apply them when we ask what they require of us as professionals, e.g., lawyers, doctors, or business people, or what they require of our social policies and institutions. In the last decade, dozens of ethics centers and programs devoted to "business ethics", "legal ethics", "medical ethics", and "ethics in public policy" have sprung up. These centers are designed to examine the implications moral principles have for our lives.

But are moral principles all that ethics consists of? Critics have rightly claimed that this emphasis on moral principles smacks of a thoughtless and slavish worship of rules, as if the moral life was a matter of scrupulously checking our every action against a table of do's and don'ts. Fortunately, this obsession with principles and rules has been recently challenged by several ethicists who argue that the emphasis on principles ignores a fundamental component of ethics—virtue. These ethicists point out that by focusing on what people should do or how people should act, the "moral principles approach" neglects the more important issue—what people should be. In other words, the fundamental question of ethics is not "What should I do?" but "What kind of person should I be?"

- 156.** What is the difference between the principles of Utilitarianism and Immanuel Kant, as per the passage?
- (a) Utilitarianism focuses on greatest good for a few people and Kant focuses on human dignity.
 - (b) Utilitarianism talks about human dignity and Kant about respect for moral rights of all persons.
 - (c) Utilitarianism focuses on greatest good for a greatest number of people and Kant focuses on respect for human dignity.
 - (d) Both principles are the same.
- 157.** What all different kinds of ethics have been talked about in the passage?
- (a) business ethics
 - (b) legal ethics
 - (c) medical ethics
 - (d) all of these

- 158.** Passage seems to have been taken from which of

the following areas?

- (a) religion
- (b) philosophy
- (c) spirituality
- (d) leadership

- 159.** Which of the following has not been mentioned in the passage?
- (a) The fundamental question of ethics is “What kind of person should I be?”
 - (b) In the last decade, dozens of ethics centers and programs devoted to “business ethics”, “legal ethics”, “medical ethics”, and “ethics in public policy” have closed down.
 - (c) Ethics is supposed to provide us with “moral principles” or universal rules that tell us what to do.
 - (d) Emphasis on moral principles smacks of a thoughtless and slavish worship of rules.
- 160.** Where do we apply the moral principles that have been described in the passage?
- (a) We apply them by asking what these principles require of us in particular circumstances.
 - (b) We apply them when we ask what they require of us as professionals.
 - (c) Both (c) and (d)
 - (d) None of these.

Passage 3

In theory, the ownership of a business in a capitalist economy is irrelevant. In practice, it is often controversial. From Japanese firms' wave of purchases in America in the 1980s and Vodafone's takeover of Germany's Mannesmann in 2000 to the more recent antics of private-equity firms, acquisitions have often prompted bouts of national angst.

Such concerns are likely to intensify over the next few years, for China's state-owned firms are on a shopping spree. Chinese buyers—mostly opaque, often run by the Communist Party and sometimes driven by politics as well as profit—have accounted for a tenth of cross-border deals by value this year, bidding for everything from American gas and Brazilian electricity grids to a Swedish car company, Volvo.

There is, understandably, rising opposition to this trend. The notion that capitalists should allow communists to buy their companies is, some argue, taking economic liberalism to an absurd extreme. But that is just what they should do, for the spread of Chinese capital should bring benefits to its recipients, and the world as a whole.

Not so long ago, government-controlled companies were regarded as half-formed creatures destined for full privatisation. But a combination of factors—huge savings in the emerging world, oil wealth and a loss of confidence in the free-market model—has led to a resurgence of state capitalism. About a fifth of global stockmarket value now sits in such firms, more than twice the level ten years ago. The rich world has tolerated the rise of mercantilist economies before: think of South Korea's state-led

development or Singapore's state-controlled firms, which are active acquirers abroad. Yet China is different. It is already the world's second-biggest economy, and in time is likely to overtake America. Its firms are giants that until now have been inward-looking but are starting to use their vast resources abroad.

Chinese firms own just 6% of global investment in international business. Historically, top dogs have had a far bigger share than that. Both Britain and America peaked with a share of about 50%, in 1914 and 1967 respectively. China's natural rise could be turbocharged by its vast pool of savings. Today this is largely invested in rich countries' government bonds; tomorrow it could be used to buy companies and protect China against rich countries' devaluations and possible defaults.

Chinese firms are going global for the usual reasons: to acquire raw materials, get technical know-how and gain access to foreign markets. But they are under the guidance of a state that many countries consider a strategic competitor, not an ally. It often appoints executives, directs deals and finances them through state banks. Once bought, natural-resource firms can become captive suppliers of the Middle Kingdom. Some believe China Inc can be more sinister than that: for example, America thinks that Chinese telecoms-equipment firms pose a threat to its national security.

- 161.** According to the passage, which country has the world's largest economy?
- (a) China
 - (b) USA
 - (c) India
 - (d) UK
- 162.** The passage is likely to be written by a/an
- (a) Economist.
 - (b) Govt. servant.
 - (c) Member of Income Distribution Committee.
 - (d) Editor of Economics Magazine.
- 163.** How much has been the change in the global stock value of government controlled companies?
- (a) Thrice
 - (b) Twice
 - (c) Five times
 - (d) No change.
- 164.** Which of the following statements is TRUE according to the passage ?
- (a) Chinese buyers are not run by Communist Parties
 - (b) Chinese Capital does not bring benefits
 - (c) China has the Worlds Second Largest Economy
 - (d) China firms are not looking for International Business

Passage 4

EUROPE has seen many spectacular stories in the past 20 years, but few can match Ireland's rise and fall. A depressed and indebted country in the late 1980s suddenly became the bubbly Celtic Tiger of the 1990s. Then the bubble just as suddenly burst, an experience that could cost Ireland as much as one-fifth of GDP annually in years to come. In 2010 the budget deficit will be at least 32% of GDP and the public debt is almost 100% of GDP. After a brief interlude of net immigration, the Irish are

as that given by The Telegraph copy-editor to the National Archives exhibition. For speaking again of the social sciences, from the Fifties to the Eighties, the major debates about Indian society and history were centred in India. It was Indian university teachers who led and guided these debates. At the time, the best work of Western specialists was also published in Indian journals. It may still be the case that scholars of Indian origin lead these debates, but they are more likely now to work in Western universities, and to publish in Western journals.

This shifting of the centre of discourse is both a cause and consequence of the decline of academic research in Indian universities. And the malaise cuts deeper - once research declines, so does the quality of teaching, in postgraduate departments as well as in undergraduate colleges. The situation is moderately better in the professional colleges. There are still places in India where one can get a decent education in engineering or medicine or the law. But the great days of colleges such as St Stephen's in Delhi or Elphinstone in Mumbai lie behind them. Likewise with postgraduate schools like the Delhi School of Economics. A historian might want to celebrate the contributions of the Indian university in the past. But a citizen has regrettably also to take account of their situation in the present. Once, our universities made a fundamental contribution to the opening of the Indian mind. Now, it is more likely that they will act as a constraint to the further economic and social development of India.

As I see it, there are four principal ailments from which our universities (and colleges) suffer. These illnesses carry the names parochialism, dogmatism, populism and gigantism respectively. I think that many readers will recognise - and may even have experienced - the symptoms of each in Calcutta University. Is this the same university whose vice-chancellor once invited two young, talented, but then mostly unknown south Indians - one a physicist, the other a philosopher - and gave them both a professorial chair? Is this the same place where many of the best, and best-loved, teachers in undergraduate colleges were from places as far distant as Punjab and Kerala?

- 169.** According to the passage, what did Beteille do before proceeding to Delhi?
- He taught sociology at the Delhi school of economics.
 - He completed his first degrees at Calcutta university.
 - He completed his PhD.
 - He went abroad to complete his doctrate.
- 170.** Which of the following satatements is TRUE according to the passage?
- There are some good places in India for engineering, medicine and law.
 - The violent Revolution of 1857 was much forgotten by socialogist.
 - The autobiography of beteille is "A career in a declining profession".
 - Academic researches in Indian universities are good in quality.

- 171.** What according to the passage, is /are the principal ailment /ailments of our universities?
- Parochialism
 - Dogmatism
 - Population
 - All of the above
- 172.** What do you mean by term "Plagiarism"?
- The unauthorized use or close imitation of the language.
 - The small shreds of epidermis that are continually exfoliated from the skin.
 - Continuing without interruption.
 - Not ceasing.

Passage 6

Thoughts arise in us and we think them. We may choose to ignore them and experience real inner freedom, or we may choose to water them with the power of our attention and make them grow.

When you have to think, choose only positive, happy and uplifting thoughts. Think about and imagine only what you really and truly and desire and that will come to pass. Always remember that life is shaped according to your thoughts.

When the mind is silent there is happiness inside and happiness outside. It is a great asset and advantage to be able to silence the mind when its services are not needed. The attainment of serenity of mind, which is actually freedom from the compulsion of incessant thinking, is open for everyone, provided the proper training is undertaken. Just reading this article you will not bring you peace of mind. When you understand its value and have a true desire to succeed, nothing can stand in your way. Though this is an inner state, work, time and persistence are required, just like the attainment of any other tangible goal.

Most people are enslaved by their predominant thoughts and habits. It does not occur to them that they can become free from their grasp. From the moment they wake up in the morning, to the moment they fall asleep at night, the chatter of the mind continues incessantly, giving no moment of rest. The habit of constantly thinking futile thoughts that prevnt inner tranquility is very deeply ingrained in the human race. Nevertheless, this habit can be undone. The mind is a great and useful instrument, but it should not be allowed to rule our lives. It has to be obedient to us.

To change or get rid of an undesirable habit, we have to be aware of it, and consciously and attentively act in a different manner. Whatever new skill we develop, we have to train ourselves, until it turns into second nature and becomes easy to use. The same is with control our mind and thoughts.

True control the mind is not just the ability to concentrate on one thought and disregard other thoughts. It is the ability to cleanse the mind completely and make it silent. Sri Ramana Maharshi, the great Indian sage, has said: "Mind is only a bundle of thoughts, stop thinking and show me the mind". When one becomes really free from incessant thinking, he or she becomes free from slavery to the mind, as both thoughts and mind are one and the

same thing. One then also comes to see and understand the illusiveness of the mind.

When the clouds hide the sun, it is still there, beyond the clouds. Our Essence, our inner Self, is always here. We only need to remove the sheets and covers that envelope it in order to experience peace and calmness. These sheets and covers are our thoughts, ideas, habits and beliefs. I do not mean to tell you that you have to stop using your mind. You need it in order carry on your life. I mean that it has to be under the control of the Self. It should be your servant to serve you right, and not your master.

- 173.** According to the passage, what brings the inner happiness ?
 (a) Serenity of mind
 (b) Freedom of mind
 (c) Silent mind
 (d) Habit of constantly thinking.
- 174.** According to the passage, which habit futes thoughts?
 (a) Constant thinking.
 (b) Persistence.
 (c) True desire to succeed.
 (d) Giving no moment of rest.
- 175.** According to the passage, what is NOT mentioned in the passage?
 (a) One has to be aware of the undesirable habit.
 (b) State, work, time and persistence are not required to attain the senenity of mind.
 (c) Life shapes up according to your thoughts.
 (d)Freeing from incessant thinking leads to happiness.
- 176.** According to the passage, what you mean by IT in the line 'It has to be obedient to us'?(line 15).
 (a) Habit (b) Body
 (c) Spirit (d) Mind
- 177.** According to the passage, in order to experience peace and calmness one has to
 (a) stop thinking too much.
 (b) sheet and cover ideas, thoughts, habits and beliefs.
 (c) be under self control.
 (d) stop using is mind.

Passage 7

When the Spaniards first arrived at the Aztec capital of Tenochtitlan in 1519, among the lavish spectacles they witnessed was King Moctezuma being served more than 50 jars of foaming chocolatl. This drink, made from the seeds of the cacao tree (*Theobroma cacao*), was the precursor to what we now know as chocolate. Chronicler Bernal Díaz del Castillo, who left behind the most extensive record of the Spanish conquest, noted that the Aztecs said the cacao beverage was for “success with women,” suggesting the link between chocolate and romance is ancient. Studies, in fact, show that a compound found in chocolate, phenylethylamine, is the same chemical the brain releases when a person experiences attraction.

But for the Aztecs, the drink was much more than an aphrodisiac. Cacao was central to their concept of political power and played a role in rituals of all sorts, including funerals and marriage celebrations. A 1545 document written in Nahuatl, the language of the Aztecs and other Central Mexican peoples, shows that cacao was even used as currency—a turkey was worth 200 cacao seeds, a tamale was worth one, and the daily wage of a porter at the time was 100 cacao seeds.

Despite its economic and cultural importance in pre-Columbian Mesoamerica, archaeologists have until recently had only a hazy understanding of cacao’s history. But within the past decade, detective work on dirty clay pots by chemists at the labs of the Hershey Company, the largest producer of chocolate in the U.S., has pushed back the antiquity of cacao beverages by 2,000 years to at least 1500 B.C., if not earlier. Understanding the early history of chocolate has led archaeologists to speculate that cacao played a critical role in the economic, religious, and political development of people such as the Olmec, Maya, and ultimately even the Anasazi, or Ancestral Puebloan peoples of the American Southwest.

- 178.** According to the passage , Cacao in the earlier times was used
 (a) as a Beverage.
 (b) as a source of protein.
 (c) as a currency.
 (d) as a Useless seed.
- 179.** According to the passage, which company in the U.S. is the largest producer of Cacao ?
 (a) Diaz del Castillo (b) Cote D Ivoire
 (c) Guatemala (d) Hershey Company
- 180.** What according to the passage you think is the tone of the Author ?
 (a) Serious and Contemplative
 (b) Explanatory
 (c) Ironic
 (d) Authotarian
- 181.** According to the passage , which chemical in human body is responsible for attraction ?
 (a) Theobroma Cacao. (b) Thenochtitlan.
 (c) Phenylethylamine. (d) Chocolate.

Passage 8

They taught the French to make wine and the Romans to build roads, and they introduced writing to Europe, but the Etruscans have long been considered one of antiquity’s great enigmas. No one knew exactly where they came from. Their language was alien to their neighbors. Their religion included the practice of divination, performed by priests who examined animals’ entrails to predict the future. Much of our knowledge about Etruscan civilization comes from ancient literary sources and from tomb excavations, many of which were carried out decades ago. But all across Italy, archaeologists are now creating a much richer picture of Etruscan social structure, trade relationships, economy, daily lives, religion, and

language than has ever been possible. Excavations at sites including the first monumental tomb to be explored in over two decades, a rural sanctuary filled with gold artifacts, the only Etruscan house with intact walls and construction materials still preserved, and an entire seventh-century B.C. miner's town, are revealing that the Etruscans left behind more than enough evidence to show that perhaps, they aren't such a mystery after all.

- 182.** According to the passage, which of the following statements is TRUE ?
- Etruscans civilization was one of the most developed civilization.
 - The remains of the Etruscans civilization helped in the development of roman civilization.
 - Etruscan civilization taught french people to make wine and romans to build road.
 - Etruscan language was well known to all in the neighbouring civilizations.
- 183.** According to the passage, what were the different sources for archeologists to study about Etruscan civilization ?
- Study of different Language of roman civilization.
 - Imperial Excavation of scrapbook projects.
 - Ancient literary Sources and tomb Excavations.
 - Sampling of the Clay contents of Soil.
- 184.** What do you mean by the term " Great Enigmas" used in the passage ?
- | | |
|------------------|-----------------|
| (a) Mysterious | (b) Easy Going |
| (c) Neutralizing | (d) Intelligent |

Passage 9

Until a hundred years ago as humans we had a simple, uncomplicated biological connect. It was a straight-forward equation: we drew roughly 3000 calories each of energy out of Earth for our food and life's sustenance. Today that number per capita has grown to 100,000 calories. We still need only 3000 calories each to nourish life itself. All the rest of this energy is what we extract from Earth for everything else besides keeping ourselves alive. In some countries, like the US, this per capita number runs at over 200,000 calories. Some of us are concerned about this. We fret over what we could - and should - really be doing to soften this abuse of resources. Little things fox us in the welter of things that we get to read. What is sustainable development? How can it be started at our homes? Beyond the ceremonial planting of green and getting people to run marathons of various lengths in support of the environment, is there more that we can add to the abstract value of 'sustainability'? What are the little things we can do in our day-to-day lives, to reduce demand for things that people make and market? Of course, we know that it helps to avoid a plastic bag when you can use a newspaper bag, or a brown bag, or even a jute a bag which you can use for many more years unlike a plastic bag which you throw away in less than a week or after a few uses. Can I avoid using the car when I can use a mobike? Can I avoid using a mobike when I

can use a bicycle? Can I avoid using petrol or kerosene or diesel and use other alternate fuels which are renewable? These are common, and widely-understood ideas of environmental responsibility. And the more of us practising them the better. However, there's actually quite a bit more that you and I can do, without compromise on comfort, with very little as cost incurred, with financial savings that you can gain on energy and water use, and with solutions that are very feasible and within your reach.

- 185.** Which of the following can be inferred from the passage?
- We should run marathons to save the environment.
 - We should not use jute bags.
 - We should save environment.
 - We should draw more calories than required from the earth.
- 186.** Which of the following can be a suitable title of the passage?
- Save energy, save environment.
 - Why we should use jute bags.
 - Sustainable development.
 - Future of earth and environment.
- 187.** The author does not seem to be concerned about which of the following?
- What are the little things we can do in our day-to-day lives, to reduce demand for things that people make and market?
 - What did our ancestors do to spoil the environment?
 - What is sustainable development?
 - How can sustainable development be started at our homes?
- 188.** Why, according to the author, we should use jute bags?
- Because they are easily available.
 - Because they are more beautiful.
 - Because they can be used for a longer duration of time.
 - Because they are less expensive.
- 189.** Which of the following statements is not true except
- We will have to compromise on comfort if we want to contribute to the sustainable development.
 - We can not use bicycle in place of mobike.
 - We are not concerned about how sustainable development can be started at home.
 - There is a lot we can do to contribute to save environment.

Passage 10

India cannot afford not to take a proactive approach to climate change and migration. Adaptation measures in key sectors such as water conservation, agriculture, urban planning and coastal management will improve resilience and reduce the pressure on migration from climate

change.

One may consider, for example, that coastal planning and infrastructure development need to be regulated. While existing investment of crores of rupees is not resilient to SLR, infrastructure development continues along India's coastline as ports, highways, airports, special economic zones, industrial parks, upscale hotels, and housing developments are proposed. Mal-development along the coast already leads to salt water intrusion and destruction of coastal ecosystems. Thus in the case of SLR as in other areas of climate change, development challenges are not always distinct from adaptation, but some of the specific problems that we will encounter with warming will be relatively distinct while at the same time exacerbate development problems if they are ignored.

There are particular knowledge gaps on internal migration in India, which need to be located. We need to do a better job of tracking migration and its causes, identify indicators and thresholds, so we understand how decisions on migration are made. We need an understanding of multiple vulnerabilities in particular ecological zones in India in order to adapt better to warming. In situations in which migration cannot be avoided we need to have policies in place to prepare for a proactive phased movement of people. Provision of skills in advance of migration, civil and legal rights and appropriate labour policies are all relevant to preparing for the changes in migration patterns.

If the global community and South Asia are to survive climate change, it will require us to learn that we cannot engineer our way out by merely using new technologies. We may have to re-imagine a more cosmopolitan South Asia, redefine our identities and what we mean by culture.

- 190.** According to the passage ,what can reduce the pressure on climate change?
- Deforestation
 - Water Conservation
 - Coastal Management
 - Both b and c
- 191.** What is the primary concern of the author in the passage?
- To knowledge the gap between internal Migration of India.
 - To Understand the multiple Vulnerabilities in the Zones.
 - To draw attention on the increasing climatic change and Migration Issues.
 - To provide the reasons of Migration.
- 192.** What are the effects of Mal- development along the coast , according to the passage?
- Housing Development
 - Destruction of Coastal Ecosystems
 - Salt water intrusion
 - Both b & c

Passage -11

Violence is first and last about power. When two pairs of antlers are locked into each other, it is to decide who

controls power. Jainism is even more extreme than Buddhism in its stance on violence. Its monks and nuns often wear white masks over their noses and mouths to avoid killing the infinitesimal forms of life floating around in the air. But it sometimes seems to me that they have only replaced violence with finance. It is still very much the pursuit of power. And yet even I, one of the bloodiest mass murderers in history, must confess to the temptation of peace, the peace of mind that must come from renouncing violence.

There is no gainsaying both the Buddhist and the Blue God's analysis of the human condition. It is desire, the life of the senses, attachment and ignorance which take us deeper and deeper into the quagmire of unhappiness, misery and more desire, and keep turning the wheel of reincarnation ceaselessly. But Buddha's compassion, vision and understanding are all the more remarkable because even after enlightenment, he refrained from saying that his is the one and only way; follow it. Quite the contrary, he tells anyone who is interested that the golden mean and discipline are what worked for him but each of us must discover on our own whether they are valid for us. If not, we must seek our own way out of the maze of life, death, rebirth. The detachment that Buddha preached is, like all techniques, open to different interpretations. It is true that your chances of meeting with an accident to down perceptibly if you do not stir out of the house and cross the street or join the army and go to war. Needless to say, your chances of not meeting with that accident will not just improve dramatically but become fool-proof and fail-safe if you commit suicide. But if detachment is really fear of failure and hence never putting oneself to test, or if it is fear of being hurt, humiliated or rejected, then one is closing all doors of life to the possibilities for happiness, pain, dejection, achievement and experience. Reincarnation may be on the cards of most of us but we live this particular life, whether it is *maya* or whatever else, only once. This is our only chance to engage it. Excess is the language of adolescence. We do not have to posit life as extremes or polarities, as either close to nothing or surfeit. The thought of the afterlife or lives or even nirvana does not mean that we have to miss out on this life.

- 193.** According to the passage , What has replaced Violence in Jainism?
- Pursuit of Power
 - Finance
 - Both a & b
 - None of the above
- 194.** What do you think the Author is in favour of?
- Jainism and it's teaching
 - Buddhism
 - Re- Birth
 - None of the above
- 195.** According to the passage, which for the following statements is TRUE ?
- Jainism is less Extreme than Buddhism.
 - There are no remarkable preaching of Buddha.

- (c) There are no chance to meet accident in Buddhism.
(d) None of the above.
196. How can one achieve Peace of mind?
(a) By Wearing White Masks.
(b) By Renouncing Violence.
(c) By Preaching Buddha.
(d) None of the above.
197. According to the passage , what do you think leads to Unhappiness ?
(a) Ignorance
(b) Violation
(c) Deachment
(d) All of the above

Passage 12

As seen from space, it is a rotating blue ball streaked with varying cloud patches, reddish-brown deserts and brilliant white polar caps. The energy for heating the Earth comes almost exclusively from sunlight, the energy conducted up from the hot interior of the Earth amounting to less than one thousandth of one percent of that arriving in the form of visible light from the Sun. But not all the sunlight is absorbed by the Earth. Some is reflected back to space by polar ice, clouds, and the rocks and water on the surface of the Earth. The average reflectivity, or albedo, of the Earth, as measured directly from satellites and indirectly from Earthshine reflected off the dark side of the Moon, is about 35 percent. The 65 percent of sunlight that is absorbed by the Earth heats it to a temperature which can readily be calculated. This temperature is about 18C , below the freezing point of seawater and some 30 C colder than the measured average temperature of the Earth.

198. What happened to the amount of Sunlight which is not absorbed by Earth?
(a) Reflected Back
(b) Absorbed by Polar Ice.
(c) Reflected off the dark side of the Moon.
(d) Rotated back to Source.
199. What is the main Source of Energy to heat the Earth?
(a) Clouds
(b) Rocks
(c) Sunlight
(d) None of the above.
200. What is the amount of the heat which is reflected back?
(a) 65 Percent (b) 35 Percent
(c) 100 Percent (d) None of the above.

Basic Numeracy and Data Interpretation

201. The integers 34031 and 32506, when divided by a three-digit integer n, leave the same remainder. What is the value of n?
(a) 289 (b) 367

- (c) 453 (d) 307
202. let $N = 55^3 + 17^3 - 72^3$. N is divisible by:
(a) both 7 and 13 (b) both 3 and 13
(c) both 17 and 7 (d) both 3 and 17
203. The remainder when 7^{84} is divided by 342 is:
(a) 0 (b) 1
(c) 49 (d) 341
204. Three wheels can complete 60, 36, 24 revolutions per minute respectively. There is a red spot on each wheel that touches the ground at time zero. After how much time, all these spots will simultaneously touch the ground again?
(a) $\frac{5}{2}$ s (b) $\frac{5}{3}$ s
(c) 5s (d) 7.5 s
205. If $\log_2 [\log_7 (x^2 - x + 37)] = 1$, then what could be the value of 'x'?
(a) 3 (b) 5
(c) 4 (d) None of these
206. Which of the following is true?
(a) $7^{3^2} = (7^3)^2$ (b) $7^{3^2} > (7^3)^2$
(c) $7^{3^2} < (7^3)^2$ (d) None of these
207. $p = \frac{\sqrt{8} + \sqrt{7}}{\sqrt{8} - \sqrt{7}}$ and $q = \frac{\sqrt{8} - \sqrt{7}}{\sqrt{8} + \sqrt{7}}$, then the value of $p^2 + pq + q^2$ is
(a) 899 (b) 998
(c) 900 (d) 901
208. How many natural numbers between 1 and 900 are not multiples of any of the numbers 2, 3, or 5?
(a) 240 (b) 250
(c) 270 (d) 300
209. All the divisors of 360, including 1 and the number itself, are summed up. The sum is 1170. What is the sum of the reciprocals of all the divisors of 360?
(a) 3.25 (b) 2.75
(c) 2.5 (d) 1.75
210. What will be the last digit of $2^{3^{3^5}} - 2^{3^{3^4}}$?
(a) 0 (b) 2
(c) 4 (d) 6
211. Find the last two-digits of 87^{474}
(a) 79 (b) 69
(c) 89 (d) 29
212. Find the coefficients of x^{32} in the expansion of $\left[x^4 - \frac{1}{x^3}\right]^{15}$

- (a) 1365 (b) 1345
(c) 1325 (d) 1355
- 213.** A natural number's a is given in base 10. The number 'a' can be written as 212 in base b and 128 in base ' $b + 2$ '. The value of $a + b$ in base 10 is
(a) 219 (b) 125
(c) 114 (d) 107
- 214.** If α and β are the roots of the quadratic equation $ax^2 + bx + c = 0$, then the value of $\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}$ is
(a) $\frac{2bc - a^2}{b^2c}$ (b) $\frac{3bc - b^2}{a^2c}$
(c) $\frac{3abc - b^2}{a^2c}$ (d) $\frac{ab - b^2c}{2b^2c}$
- 215.** A person bought a certain number of oranges for Rs. 70. If the price of each orange was Rs. 2 less, he would have bought 4 more oranges for the same amount. What is the number of oranges he bought originally?
(a) 12 (b) 10
(c) 18 (d) 15
- 216.** In a class, eight students play basketball. The remaining students, who represent 7 times the square root of the strength of the class, play football. What is the strength of the class?
(a) 36 (b) 16
(c) 64 (d) 100
- 217.** Find the range values of x which satisfy the inequality $x^2 - 5x - 14 \leq 0$. [x is a real number]
(a) $a < 5$ (b) $x \geq 5$
(c) $-2 < x \leq -7$ (d) $-2 < x \leq 7$
- 218.** Find the solution set of x for the following inequalities, where ' x ' is a real number.
 $2x - 5 < 3x$ and $4 - \frac{x}{3} < \frac{2x}{5} - 6$
(a) $x > -5$
(b) $x < -5$ and $x > 13\frac{7}{11}$
(c) $x > 13\frac{7}{11}$
(d) None of these
- 219.** Solve for ' x ', if $5^x \times (\sqrt{32})^{\frac{x}{x+3}} = 50$
(a) $x = 2$ (b) $x = 1$
(c) $x = 3$ (d) $x = 4$
- 221.** If $\log_5 \log_3 (\sqrt{x+3} + \sqrt{x}) = 0$, then what is the value of x ?
(a) $x = 1$ (b) $x = 2$
(c) $x = 3$ (d) $x = 4$
- 221.** find the number of solutions of the equation,

$$|x - |x - 2|| = 6.$$

(a) 2 (b) 1
(c) 3 (d) 4

- 222.** If $f(x) = \log \left\{ \frac{(1+x)}{(1-x)} \right\}$ then $f(x) + f(y)$ is
(a) $f(x+y)$ (b) $f \left\{ \frac{(x+y)}{(1+xy)} \right\}$
(c) $(x+y)f \left\{ \frac{(1)}{(1+xy)} \right\}$ (d) $\frac{f(x)+f(y)}{(1+xy)}$
- 223.** The domain of $y = f(x) = \frac{1}{\sqrt{|x| - x}}$ is
(a) $-\infty < x$ (b) $x < 0$
(c) $-\infty < x < 0$ (d) None of these

Directions for question 224 to 226: Each question given below is followed by two statements I and II.

Mark your answer as:

- (a) If the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.
(b) If the question can be answered by using either statement alone.
(c) If the question can be answered by using both statements together, but cannot be answered by using either statement alone.
(d) If the questions cannot be answered even by using both the statements together.
- 224.** Is 'c' a prime number?
I. $c > 0$
II. c divided by 2 remainder is 0.
- 225.** If $a + b + c = 7$, what is the value of $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$?
I. a, b and c are distinct natural numbers
II. $a + c = 3$
- 226.** What is the weight of 1 red brick? (Weight of all bricks of the same colour is same).
I. Weight of 3 red bricks and 5 non-red bricks is 100 kg.
II. Weight of 5 red bricks and 3 non-red bricks is 50 kg.
- 227.** $X = A \times B$, where A and B are both natural numbers. How many consecutive zeros are there at the end of X .
I. A ends with exactly three consecutive zeros.
II. B ends with exactly two consecutive zeros.

Directions for questions 228 to 231: Each of the following questions consists of a question followed by three statements I, II and III you have to study the question and the statement and decide which of the statement is redundant.

- 228.** What is the two-digit number?
I. Sum of the digits is 7.
II. Difference between the number and the number obtained by interchanging the digits is 9.

- III. Digit in the ten's place is bigger than the digit in the unit's place by 1.
 (a) Only I
 (b) Only II
 (c) Only III
 (d) Statement II or III

229. What is the ratio of the present ages of Ashima and her mother?

- I. The sum of the ages of Ashima, her mother and her father is 62 years.
 II. Five years ago, Ashima age was one-fifth of her father's age.
 III. Two years ago, the sum of the ages of Ashima and her father was 36 years.
 (a) None is redundant (b) II or III only
 (c) III only (d) I or III only

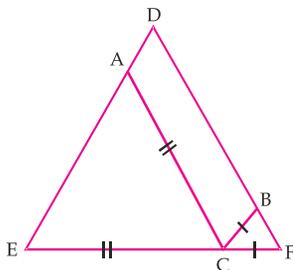
230. How much profit did Rahul earn on the cost price of an article by selling it?

- I. He got 15% discount on the marked price at the time of purchase.
 II. He sold it for Rs. 3,060.
 III. He earned 2% profit on the marked price.
 (a) Only I (b) Only II
 (c) Only III (d) None is redundant

231. What is the difference in the shares of profit between P and Q in a joint business at the end of one year?

- I. P invested Rs. 80,000 and withdrew Rs. 20,000 after 6 months.
 II. Q joined four months after the start of business.
 III. Q's investment was 80% of P's investment in the business during the last six months.
 (a) I only
 (b) II only
 (c) III only
 (d) Even with all I, II and III together, the answer cannot be arrived at.

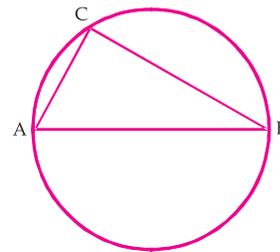
232. In triangle DEF shown below, points A, B, and C are taken on DE, DF and EF respectively such that EC = AC and CF = BC. If angle D = 40 degree then what is angle ACB in degrees?



- (a) 140 (b) 70
 (c) 100 (d) None of these

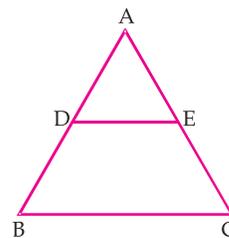
233. The figure shows a circle with diameter AB and radius

6.5 cm. If chord CA is 5 cm long, find the area of $\triangle ABC$.



- (a) 60 sq. cm (b) 30 sq. cm
 (c) 40 sq. cm (d) 52 sq. cm

234. In $\triangle ABC, DE \parallel BC$ and the area of the quadrilateral DBCE = 45 sq. cm. If $AD : DB = 1 : 3$ then find the area of $\triangle ADE$.



- (a) 2 sq. cm (b) 3 sq. cm
 (c) sq. cm (d) 6 sq. cm

235. Two identical circles intersect so that their centers, and the points at which they intersect, form a square of side 1 cm. The area in sq. cm of the portion that is common to the two circles, is

- (a) $\frac{\pi}{4}$ (b) $\frac{\pi}{2} - 1$
 (c) $\frac{\pi}{5}$ (d) $\sqrt{2} - 1$

236. On a semicircle with diameter AD, chord BC is parallel to AD. Further each of the chords AB and CD has length 2 units, while $AD = 8$ units. What is the length of BC ?

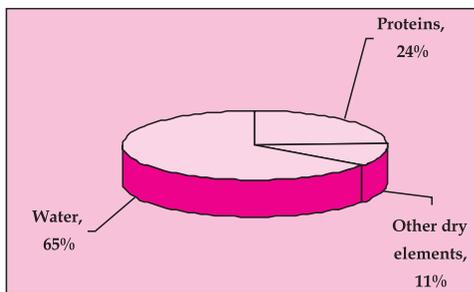
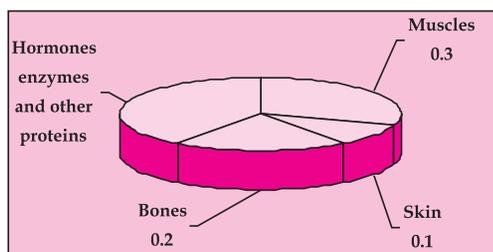
- (a) 7.5 (b) 7
 (c) 7.75 (d) 8

237. Four horses are tethered at four corners of a square plot of side 14 metres (m) so that the adjacent horses can just reach one another. There is a small circular pond of area 20 m^2 at the centre. Find the ungrazed area.

- (a) 22 m^2 (b) 42 m^2
 (c) 84 m^2 (d) 168 m^2

Directions for questions 238 to 240: Study the following pie chart carefully and answer the questions that follow. The following pie charts give the information about the distribution of weight in the human body according to different kinds of components.

Fraction wise distribution of weight among hormones, Muscles, Skin and Bones

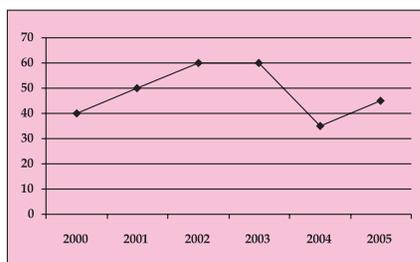


Percentage distribution of weight in human body

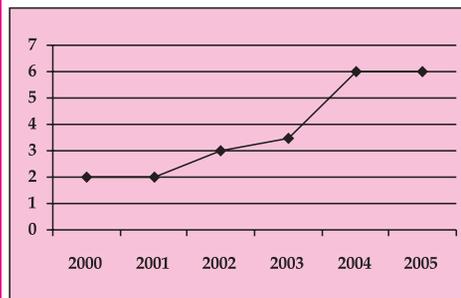
- 238.** How much percentage of the human body is neither made of bones nor skin?
 (a) 40% (b) 50%
 (c) 60% (d) 70%
- 239.** What is the ratio of the distribution of Proteins in the Muscles to that of the distribution of Proteins in the bones?
 (a) 2 : 1
 (b) 2 : 3
 (c) 3 : 2
 (d) Cannot be determined
- 240.** What percentage of proteins of the human body is equivalent to the weight of its skin?
 (a) 41.66%
 (b) 43.33%
 (c) 44.44%
 (d) Cannot be determined

Directions for questions 241 to 243 : Study the given line graphs carefully and answer the questions given below. The line graphs below provide the GDP and the percentage of GDP spent on education for the years 2000 to 2005. Study the graphs and answer the questions that follow.

GDP in Rs. '000 Crore



Percentage of GDP spent on Education



- 241.** Among the given years, both inclusive, what percentage of the country's total GDP has gone into education?
 (a) 4.3% (b) 3.6%
 (c) 3.4% (d) 3.1%
- 242.** The total amount given to education would be how many times the total amount given to defence, if every year 2% of the GDP is given to defence (for the entire period)?
 (a) 2.15 times (b) 1.55 times
 (c) 1.7 times (d) 1.8 times
- 243.** If due to an HR ministry report it is obligatory for the government to allocate at least Rs. 3,200 crore for education in 2006, provided educational spending, as a percentage of the GDP, does not exceed 6.5%, then what is the least desirable GDP for 2006 (in Rs. '000 crore)?
 (a) 51.52 thousand crores
 (b) 48.24 thousand crores
 (c) 49.23 thousand crores
 (d) 42.72 thousand crores

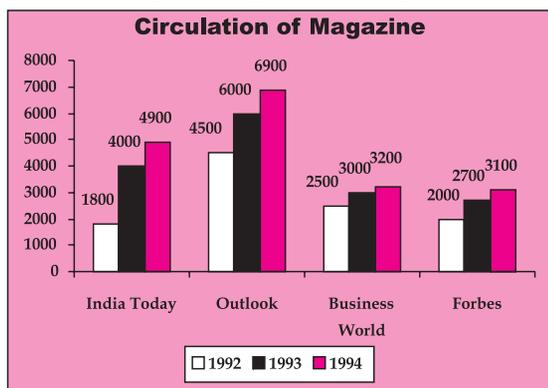
Directions for questions 244 to 246: Study the following table and answer the questions that follow. The following table gives the percentage distribution of Age-wise Brand Ownership of bikes of various brands namely Honda, Herohonda, Bajaj, TVS and Suzuki.

Age-wise Brand Ownership of bikes				
Brand	<1 year old	1-2 years old	2-5 years old	> 5 years old
Honda	15%	45%	40%	
Herohonda	5%	15%	25%	55%
Bajaj	10%	10%	10%	70%
TVS	25%	55%	20%	
Suzuki	15%	50%	20%	15%

- 244.** If 1,00,000 bikes were sold in last year, how many Honda bikes were sold?
 (a) 10, 000 bikes
 (b) 12,500 bikes
 (c) 15,000 bikes
 (d) Cannot be determined

- 245.** If the total Bajaj bikes sold till date are 500,000, how many are more than one year old?
 (a) 5,00,000 bikes
 (b) 4,50,000 bikes
 (c) 50,000 bikes
 (d) Cannot be determined
- 246.** When did TVS capture the maximum market?
 (a) Last year
 (b) 2 year ago
 (c) 5 year ago
 (d) Cannot be determined

Directions for question 247 to 248: Study the following graph carefully and answer the questions given below it. The following bar graph gives the circulation of four Magazines namely India Today, Outlook, Business World, Hindu and Forbes for three years in XYZ city. The table gives the cost of publishing of these Magazine.



	1992	1993	1994
India Today	Rs. 800	Rs.1400	Rs. 1800
Outlook	Rs. 2300	Rs. 3000	Rs. 3300
Business World	Rs.500	Rs. 2000	Rs. 2300
Forbes	Rs. 1500	Rs.1700	Rs 2800

- 247.** Which of the following is the average cost of publishing Business world Magazine for the given three years?
 (a) Rs. 1.812 (b) Rs. 2.486
 (c) Rs. 2.6 (d) None of these
- 248.** The average cost of publishing of which Magazine is the highest for the given years?
 (a) India Today (b) Outlook
 (c) Business world (d) Forbes

Directions for questions 249 or 250: Shweta, Swarna, Sneha and Soumya are four sisters who have an agreement that they share all snacks among themselves. One day, uncle Prem gave a box of cookies to Shweta. Since the other sisters were not around. Shweta divided the cookies into four parts, ate her share and put the rest into the box. As she was closing the box, Swarna came in. She took all the

cookies from the box and divided them into four equal parts. Shweta and Swarna ate one part each and put the rest in the box. Just then, Sneha walked in. She took all the cookies from the box, divided them into four equal parts. The three of them ate their respective shares and put the rest into the box. Later, then Soumya came, they divided all the cookies into four equal parts and all the four sisters ate their respective shares. In total, Soumya ate 3 cookies.

- 249.** How many cookies, in total, did Sneha eat?
 (a) 30 (b) 12
 (c) 15 (d) 6
- 250.** How many cookies, in total, did Swarna eat?
 (a) 9 (b) 30
 (c) 39 (d) 25

Explanatory Solutions

1.d If the physicists trained by Steve Robinson were creative researchers before studying under him, then clearly the argument would be unjustified. On the other hand, if none of the physicists were creative researchers before studying under Robinson, then the argument would be strong. However, the argument does not require this strong of a statement in order to be valid. All it needs is one person whose research skills profited from the tutelage of Robinson.

2.b There are two statements given in the paragraph. The first implies that one has to study hard for Law Entrance to get admitted to National law school and the second one implies that the graduates from Sambhav University did not study hard for Law Entrance. So, the obvious conclusion is that the graduates from Sambhav University can not be admitted to National Law School as they don't fulfill the necessary condition.

3.a The argument can be diagrammed as follows:

All S are I
Some I are F
Some S are F

where S stands for "savings accounts," I stands for "interest-bearing accounts," and F stands for "tax free." Sentences given in (a) also follow the same structure.

All GP are A
Some A are I
Some GP are I

Where GP stands for "great photographers," A for "artists," and I for "intellectuals." This diagram clearly shows choice (a) has the same structure as the original argument.

4.c Assumption that the ethnic group of Peru was more susceptible than other groups does not justify the conclusion as the conclusion does not make any sort of comparison between this group and other groups. Typhoid is contagious and fatal does not lead to the conclusion that foreign mission was responsible for bringing this disease to Peru, so option (b) is also not correct assumption to be made. Option (d) is not an assumption as it talks about aftereffects of this incident.

5.c The paragraph states that if Sonam forgets to carry her watch she is late for all the meetings and since she has

forgotten to carry her watch on Wednesday, she obviously will be late for all her meetings which includes the noon meetings as well.

6.d 'A wild goose chase' means doing something which will not have any positive result or in other words, it is merely a wasted effort.

7.c 'Break a leg' means to wish someone good-luck for something.

8.a 'Close the stable door after the horse has bolted' means trying to solve the problem when it has aggravated too much.

9.b 'Dear John Letter' is the letter that a partner writes explaining why they should dissolve the partnership.

10.a 'To cry wolf' means to unnecessarily spread the worry before something actually has happened.

11.b Only (b) is the most concise and correct expression, (a) is verbose, (c) and (d) do not express the meaning clearly - 'as many as 35' implies upto 35. (d) implies 35 or more.

12.d 'In lieu' means 'instead of'. Hence, option (a) is rejected. The original statement conveys the meaning that because of the nature of the reasons given, the resolution may be passed. Option (b) however, means that the resolution may be passed merely because reasons have been furnished. Hence, option (b) changes the meaning. Option (c) is more concise than option (d).

13.d (a) is too wordy, (b) is incorrect because of the incorrect placement of 'is' - 'also is'. (c) changes the meaning of the sentence. Only (d) gives the correct usage.

14.a The sentence is correct. Hence, (a).

15.d 'Courage, determination, stoicism' is plural, therefore have been. '(c) changes the meaning of the sentence.

16.b 'Probity' is the absolute honesty and uprightness.

17.c 'Obeisance' means an attitude of defences.

18.d 'Altercation' means loud and heated argument between people.

19.b 'Tactical' refers to something related to strategy.

20.a 'Vindicated' essentially means something that gets proven and justified through experience.

21.c Etymology is the study of words and Botany is studying about trees. Ornithology is study of birds and sociology is study of society.

22.c Eulogise means to praise someone, hence these two words are antonyms. Invigorate (to fill someone with energy) and weaken are also antonyms.

23.a Someone who is circumspect (very cautious) can never be reckless (carefree). Similarly something that is pertinent (relevant) can not be superfluous (not required).

24.d Perjury means to swear falsely, it is of higher intensity than lying as lying might be taken as lightly but perjury can not be. Similarly, testimony is the next higher form of statement.

25.a Despotism shows tyranny and similarly authoritarian show superiority.

26.a 'A' and 'B' cannot start the paragraph as they only continue some idea which must have been mentioned already. So, options (c) and (d) are ruled out. 'C' introduces the idea talking of it in a general sense and 'D' elaborates it further. Hence the correct sequence is 'CDAB'.

27.c 'A' is the opening statement as it introduces the topic and talks about the referent time-frame and 'C' continues the idea as 'A' mentions 'interesting' and 'C' describes what was the most interesting in that description. Statement 'D' closes the talk very well by summarizing the para. Hence the correct sequence is 'ACBD'.

28.d 'B' should be the first sentence as it mentions Europe and then specifically Ireland. 'C' carries on the discussion by telling what happened in 1980s and then 1990. In 'C' author tells how the bubble built up in Irish Economy and 'A' mentions how the bubble has suddenly burst. 'D' carries the discussion further by making prediction about what is expected next. Hence the correct sequence is BCAD.

29.c From the options either B or D may open the paragraph. B is the most appropriate statement to begin the paragraph. It introduces the topic of automobile problem. Further the idea is continued in D. Hence, BD go together. Either C or A has to follow D. C is more appropriate statement to follow D. E tells about the adverse impact on trading partners particularly in the U.S. further A concludes the paragraph. Hence Option (c) is the best answer.

30.c 'C' introduces the subject of the passage. 'A' describes him, 'B' shows the actual time and reason of stopping at a place. 'D' concludes by explaining his mental state. Therefore the correct arrangement should be 'CABD'

31.b Previous sentence of the paragraph gives a good clue about the next sentence. As in this sentence the author mentions various events which might impact extent of migration, in the next line the impact of these events should be explained. Hence the answer is 'b'.

32.a As the paragraph is not restricted to any particular country as such, options 'b' and 'c' can be easily ruled out. Option 'd' does not mention anything about where rest of the calories go, hence 'a' is the right answer.

33.b The author's attitude gives a good idea about the answer. He uses words like 'ridiculous', 'guzzle', which obviously shows that he vehemently wants to stress on the role these products play in the obesity of American people. The paragraph should also end on the same note which is option 'b'. Option 'a' merely gives the number, option 'c' is beyond the scope as the author is mainly concerned about the extent of the problem in America. Option 'd' is a very superfluous statement as it only restates which has been already stated.

34.d The main emphasis of the paragraph here is to study how models are developed and how they play a role in development of community.

35.c Since the previous part of the sentence stresses on its quality of being light, the next part should continue with the same idea.

36.b 'But' used in the sentence gives a clue that words should be contradictory, hence (b) is the answer. 'Recalcitrant' is someone who is unwilling to obey orders, 'Sarcastic' means ironical.

Someone who is sensitive is easily included, changed or damaged, remorseful is to have strong feeling of guilt.

Insipid is lacking a strong taste or character, militant is someone active, determined and often willing to use force.

37.d The use of the word 'though' give a clue to the answer that words in the blanks have to be contrasting words. Only 'd' fits into the scheme.

38.d 'Although Shakespeare received little formal education' means that he was not highly educated but he knew quite a few things so we can say that scholars agree that he was familiar with works of classical authors.

39.d 'Staunch' means very strong which even come close to being unique so we can say as a staunch defender, he had few equals.

40.c The sentence intends to convey that we get ideas suddenly and then we adapt these ideas into our behaviour.

41.c The subject of the sentence is 'state' which is singular, hence the verb should also be singular i.e., is instead of are.

42.b Replace is by was.

43.d If you like something, you have a **liking** for it.

44.a Replace less by fewer. Persons can be counted.

45.d Replace for by of.

46.c Crucial means important, opposite of crucial is trivial which means unimportant.

47.a Annoyed means to be very irritated, opposite word would be happy.

48.c Wilted means dried up, exhausted, opposite word is flourished.

49.b Wistful is to feel sad, opposite is happy.

50.a Grave is serious, important, opposite word is unimportant.

51.c $x \times y \times z = xyz$

$1.1x \times 1.2y \times 1.5z = 1.98xyz$

Percentage change = $\frac{1.98xyz - xyz}{xyz} \times 100 = 98\%$

52.c Required Percentage = $\left[\frac{40}{(40 + 100)} \times 100 \right] \% = 28\frac{4}{7}\%$

53.b Suppose, man's income is Rs.100 it means according to the question he spends Rs.75 and saves Rs.25. After increment his income is Rs.120 and saving remain same that is Rs.25 it means expenditure is now Rs.95.

% increase = $\frac{95 - 75}{75} \times 100 = \frac{20}{75} \times 100 = 26.66\%$

54.d Let M.P. is Rs.x

S.P. = M.P. \times 0.9 {with 10% discount}

C. P. \times 1.1 = S. P. = M. P. \times 0.9 ... (i)

$1.1 \times$ C. P. - C. P. = 900 {He gains Rs. 900 per machine}

C. P. = Rs. 9000

M.P. \times 0.9 = C. P. \times 1.1 {According to equation no (i)}

M.P. = Rs. 11,000

55.a Let C.P. of each table be Rs.1

C.P. of 20 tables = Rs.20

S.P. of 20 tables = Rs.15

Loss% = $\frac{5}{20} \times 100 = 25\%$

56.b Given that the C.P. for the importer is Rs. 200

His S.P. = Rs. $\frac{90}{100} \times 200 =$ Rs. 180

This is the C.P. for the distributor

\therefore The S.P. for the distributor

= Rs. $\frac{91}{100} \times 180 =$ Rs. 163.8

This S.P. is the C.P. for the retailer

\therefore S.P. of the retailer

= Rs. $\frac{108}{100} \times 163.8 =$ Rs. 176.9

\therefore Cumulative loss

= Rs. 200 - Rs. 176.9 = Rs. 23.1

57.a Price \times Consumption = Expenditure

$P' C = 0.9P' (C + 10) = 500$

By solving, we can get $P =$ Rs. $\frac{50}{9}$

Hence, reduced price is Rs.5

58.a Let C.P. of each table be Rs.1

C.P. of 20 tables = Rs.20

S.P. of 15 tables = Rs.15

Profit % = $\frac{5}{15} \times 100 = 33\frac{1}{3}$

59.b Suppose 10 lt of milk cost = Rs.100

{Rate = Rs.10/lt}

S.P. would be Rs. 120 for 20% gain

{Rate = Rs. 12 / lt}

10% water means now amount of milk is 11 lt and its S.P.

would be = 11 \times 12 = Rs. 132

\therefore Profit increases = $\frac{32 - 20}{20} \times 100 = 60\%$

60.c Let Ramesh's salary is Rs. x.

\therefore 20% increase in the salary means his new salary is

Rs. $\frac{120}{100} x =$ Rs. $\frac{6x}{5}$

Since the expenditure becomes 30% of the salary.

\therefore Saving = Rs. $\left[\frac{70}{100} - \frac{6x}{5} \right] = 700$

or x = Rs. 833.33

61.a $\frac{14}{25} = 0.56, \frac{57}{100} = 0.57, \frac{49}{86} = 0.569, \frac{3}{5} = 0.60$

$\therefore .60 > .57 > .569 > .56$ or $\frac{3}{5} > \frac{57}{100} > \frac{49}{86} > \frac{14}{25}$

62.b Let incomes of A and B be 3x and 2y respectively

Let expenditures of A and B be 5y and 3y respectively

For A savings will be $3x - 5y = 2000$

and for B savings will be $2x - 3y = 2000$

On solving two equations we get x = 4000 and y = 2000

Income of A = $3x = 12000$

And income of B = $2x = 8000$

63.b Calculate share of each person in terms of D

According to question $C = \frac{2}{3}D, B = \frac{2}{3}C$

i.e. $B = \frac{4}{9}D, A = \frac{2}{3}B$

i.e. $A = \frac{8}{27}D$

So, A : B : C : D = 8 : 12 : 18 : 27

So, A's share will be $1300 \times \frac{8}{65} = 160$

64.c Since the profit is shared according to the ratio of investment.

∴ Investment of A : Investment of B : Investment of C
 = 16000 × 3 + 11000 × 9 : 12000 × 3 + 17000 × 9 : 21000 × 6
 = 147000 : 189000 : 126000
 = 7 : 9 : 6

∴ The share of B exceeds that of C by $9x - 6x = 3x$

or $3 \times \frac{26400}{22} = \text{Rs. } 3600$

65.d Mean Price × 1.25 = 1.75

Mean Price = $1.75 / 1.25 = 1.4$

$$\frac{\text{Quantity of cheaper}}{\text{Quantity of dearer}} = \frac{\text{C.P. of Dearer} - \text{Mean Price}}{\text{Mean Price} - \text{C.P. of Cheaper}}$$

We have, $\frac{\text{Quantity of cheaper}}{\text{Quantity of dearer}} = \frac{1.8 - 1.4}{1.4 - 1.2} = \frac{2}{1}$

$$\frac{\text{Quantity of dearer}}{\text{Quantity of cheaper}} = \frac{1}{2}$$

66.b Let the capacity of the bucket is L litres.

Now, milk in the bucket is $\frac{4}{5}L$ litres.

After topping up, water in the bucket is $\frac{1}{5}L$ litres.

Now, ratio of milk and water in the bucket is 4 : 1.

When 5 litres of mixture is taken out, milk and water is taken out as per the ratio of their presence.

∴ Quantity of milk taken out = 4 litres

and quantity of water taken out = 1 litre

Remaining milk in the bucket = $\left(\frac{4}{5}L - 4\right)$ litres

Remaining water in the bucket is $\left(\frac{1}{5}L - 1\right)$ litres

Now, 5 litres of water is added in the bucket, as a result water becomes $\left(\frac{1}{5}L - 1 + 5\right)$ litres

Now, the ratio of milk and water in the vessel is 3 : 2.

$$\frac{\frac{4}{5}L - 4}{\frac{1}{5}L + 4} = \frac{3}{2} \text{ or } L = 20 \text{ litres.}$$

67.c According to the formula.

$$\frac{\text{Final quantity of oxygen after } n\text{th operation.}}{\text{Initial quantity of oxygen}} = \left[\frac{8-y}{8}\right]^n$$

$$\text{or } \frac{\frac{9}{16} \times 8}{\frac{100}{16} \times 8} = \left[\frac{8-y}{8}\right]^2 \text{ or } \frac{9}{16} = \left[\frac{8-y}{8}\right]^2$$

On taking square root, we have

$$\frac{3}{4} = \frac{8-y}{8}$$

or $24 = 32 - 4y$ or $4y = 8$ or $y = 2$ litres

68.b At 7.30 a.m., 'A' express is at 50 km from Ahmedabad.

At the same time, 'B' express is at 20 km from Baroda.

Hence, distance between the trains at 7.30 a.m. is 30 km.

Relative speed = $50 + 40 = 90$ km/hr

Hence, time left = $\frac{30}{90} = \frac{1}{3}$ hr = 20 min.

69.c The ratio of speeds of Arun and Barun is 3 : 4.

Therefore, to travel the same distance, the times taken will be in the ratio 4 : 3. Let Arun take time t. Therefore, Barun takes t - 2 as he started 2 hours after Arun.

$\frac{t}{t-2} = \frac{4}{3} \Rightarrow t = 8$. Therefore Arun takes 8 hours. Now Kiranmala will take half that time as her speed is twice of Arun's speed. Therefore, she will take 4 hours for the same distance. Therefore, she should start 4 hours after Arun.

70.b Let the train be at a distance y from A. Let the length of the tunnel AB be 8x. Therefore, the cat is at 3x from A. Now both the conditions given in the questions assume same time scenario. Therefore, the ratio of the speeds of the cat and the train will be equal to the ratio of the distances traveled by them.

The ratio = $\frac{y}{3x} = \frac{y+8x}{5x} \Rightarrow y = 12x$. Therefore, of speeds =

$$\frac{y}{3x} = 4 : 1.$$

71.d At 8:00 am. the distance between the minute hand and the hour hand is 240° . It takes the minute hand $\frac{240}{11} = \frac{480}{11} = 43\frac{7}{11}$ min to catch up with the hour hand.

Therefore, at $43\frac{7}{11}$ minutes past 8:00, the two hands are together. At 2:00 pm, the distance between minute hand and hour hand is 60° . Therefore, the total relative distance is needs to travel = 240° with respect to the hour hand.

∴ Therefore, time taken = $\frac{240}{11} = \frac{480}{11} = 43\frac{7}{11}$ min. Therefore,

at $43\frac{7}{11}$ minutes past 2 : 00, the two hands are 180° apart. Therefore, the total time taken for the trip = time taken

from 8 : $43\frac{7}{11}$ to 2 : $43\frac{7}{11}$ = 6 hours.

72.a Let work W = 120 units. (LCM of 20, 30 and 8

X's 1 days work = 6 units

Y's day work = 4 units

(X + Y + Z)'s 1 day work = 15 units.

So Z's 1 day work = $15 - (6 + 4) = 5$ units

In 8 days Z would have completed 5 units / day $x = 8$ days = 40 units of work.

Since Z does $\frac{40}{120} = \frac{1}{3}$ rd of the work, he will receive $\frac{1}{3}$ rd of

the money, which is $\frac{1}{3} \times 5550 = \text{Rs. } 1850$.

73.b The work to be done = Capacity of reservoir = W = 30 litres

1st Minute = > inlet pipe opened = > 5l filled

2nd Minute = > inlet pipe closed; outlet pipe opened = > 4l emptied

In 2 minutes (5 litres - 4 litres =) 1l is filled into the reservoir. It takes 2 minutes to fill 1l => it takes 50 minutes to fill 25 litres into the tank.

In the 51st minute inlet pipe is opened and the tank is filled.

74.a They take 9 hrs when moving in same direction, relative speed is 3 km/hr. However if they move in opposite direction then relative speed is 9 km/hr.

Let x and y be the speed then $x + y = 9$ and $x - y = 3$, solving we get $x = 6$, $y = 3$ so they likely speed of thief is 3 km/hr.

75.c Suppose they meet after $(200 + x)$ m. Chaman starts running when Mohan has already run 200 m. Now if Mohan runs x km, Chaman will run $2x$ km.

So we have $200 + x = 2x$ or $x = 200$.

Thus, they will meet at $200 + 200 = 400$ m from the starting point.

76.b Knowing that speed downstream is $B + R$ and speed upstream is $B - R$, and time spend is 6 hours both way, we have

$$6(B + R) + 6(B - R) = 24$$

$$\Rightarrow 12B = 24 \Rightarrow B = 2 \text{ kmph}$$

Also distance left to be covered to reach starting point is $6(B + R) - 6(B - R) = 12R = 12$ km

Thus time taken to reach the top

$$= \frac{12}{B - R} = \frac{12}{1} = 12 \text{ hours.}$$

77.b Probability that only one of them is selected = (prob. that brother is selected) \times (prob. that sister is not selected) + (Prob. that brother is not selected) \times (Prob. that sister is selected)

$$= \frac{1}{5} \times \frac{2}{3} + \frac{4}{5} \times \frac{1}{3} = \frac{2}{5}$$

78.d Probability of getting 6 at the top once = $\frac{1}{6}$

Probability of getting 6 at the top three times

$$= \frac{1}{6} \times \frac{1}{6} \times \frac{1}{6} = \frac{1}{216}$$

\therefore Probability of no getting 6 at he top any time

$$= 1 - \frac{1}{216} = \frac{215}{216}$$

79.a He can answer 5 questions in following ways :

Ist 5	Last 3	Ways
2	3	${}^5C_2 \times {}^3C_3 = \frac{5 \times 4}{2} \times 1 = 10$
3	2	${}^5C_3 \times {}^3C_2 = \frac{5 \times 4}{2} \times 3 = 30$
4	1	${}^5C_4 \times {}^3C_1 = 5 \times 3 = 15$

Hence total ways = $10 + 30 + 15 = 55$.

80.c The possible outcomes are as follows :

5H, 5T, (H, 4T), (T, 4H), (2H, 3T) (3H, 2T),

i.e. 6 outcomes in all.

Therefore the probability that head appears an odd

number of times = $\frac{3}{6} = \frac{1}{2}$ (In only three outcomes out of the six outcomes, head appears an odd number of times).

81.b Probability of sending the correct material is $\frac{4}{5}$.

Probability of the material not being damaged in transit is $\frac{1}{4}$.

Probability that there is no short shipment = $\frac{2}{3}$

\therefore Required probability = $\frac{4}{5} \times \frac{1}{4} \times \frac{2}{3} = \frac{2}{15}$.

82.b For each book, 0 or 1 or 2 copies can be selected.

Hence, the required number of ways = $3^8 - 1$

(At least 1 book has to be selected)

83.c After arranging 3 and 4 particular guests, the remaining number of people is 9.

To arrange on first table we require 5 members. They can be selected in 9C_5 ways.

So, the arrangements around the first circular table = ${}^9C_5 \times 7!$

To arrange on the second table, we require 4 members. They can be selected in 4C_4 ways.

So, the arrangement around the second circular table = ${}^4C_4 \times 7!$

\therefore Hence, required arrangements is = ${}^9C_5 \times (7!) \times {}^4C_4 \times$

$$(7!) = {}^9C_5 (7!)^2 = \frac{9!(7!)^2}{4!5!}$$

84.c The answer is ${}^{10}C_2 \times {}^{11}C_1 + {}^{11}C_2 \times {}^{10}C_1 = 45 \times 11 + 55 \times 10 = 1045$.

85.d Considering all the five vowels as one letter then we have $8 - 5 + 1 = 4$ letters. We can arrange these 4 letters in $4!$ ways. But we can also arrange vowels among themselves in $5!$ ways.

$\therefore n(E) = 4! \times 5!$

Hence, Required Probability

$$= \frac{4! \times 5!}{8!}$$

$$= \frac{2 \times 3 \times 4}{6 \times 7 \times 8} = \frac{1}{14}$$

86.c Since the number is divisible by 5. It has to end in either a 5 or a 0.

Take each of these cases separately.

Case 1 : If it ends in a 5, the 1st, 2nd, 3rd places could be filled in 8, 8 and 7 ways respectively.

Hence, the numbers of 4-digit numbers with distinctly different digits and ending in a 5 is $8 \times 8 \times 7 = 448$.

Case 2 : If the number ends in a 0, the 1st, 2nd, 3rd places could be filled in 9, 8 and 7 ways respectively. Hence, the total number of such numbers possible is $9 \times 8 \times 7 = 504$. So total number of 4-digit numbers divisible by 5 and having distinctly different digits is $448 + 504 = 952$.

87.d One person between two brothers can be selected in 20 ways remaining 19 persons can be arranged in $19!$ ways. Two brothers can also change their positions.

So total number of ways = ${}^{22}C_1 \times 19! \times 2 = 2 \times 20!$

88.c Since the numbering is done.

\therefore 9 girls can sit in $9!$ ways.

Now when the girls be seated, there are nine spaces between them.

\therefore 9 boys can sit in $9!$ ways.

\therefore Total numbers of ways = $9! \times 9!$

89.c Ten years ago average of four members was 24 years. Presently average age of six members is 24.

Let the present age of eldest and youngest child is x and y respectively.

$$\frac{136 + x + y}{6} = 24$$

or $x + y = 8 \dots(i)$

$x - y = 2 \dots(ii)$

On solving, $x = 5$ years

and $y = 3$ years

∴ Youngest child is of 3 years.

90.c Let 6th reading be x, then 7th reading = x + 3, 8th reading = x + 8

So, we have

$$\frac{18.6 \times 2 + 21.2 \times 3 + x + x + 3 + x + 8}{8} = 24.3$$

$$3x + 37.2 + 63.6 + 11 = 24.3 \times 8$$

$$3x + 111.8 = 194.4$$

$$3x = 82.6$$

$$x = 27.53$$

i.e. 27.6 approximately

91.c Let x be the average age of 11 players, and y be the average of the reserve players

$$\frac{(11x + 2y - 17 - 20)}{11} = x - \frac{2}{12}, \text{ or } y = \frac{211}{12}$$

⇒ 17 years 7 months.

92.a let the number of students who passed be x and number of students who failed is 120 - x

$$x \times 39 + (120 - x) \times 15 = 120 \times 35$$

$$\Rightarrow x = 100$$

Directions for Solution 93 to 95: Let each person be denoted by the first letter of his / her name.

93.d Give that B is not selected.

From (v) D must be selected.

From (ii), neither of E and F is selected

From (vi), between G and H either both are to be selected or both are not to be selected.

∴ Three can be selected from A, C, G and H in the following two ways.

∴ The possible teams are:

G H D A

G H D C

94.d If C is selected then a team can be selected in the following ways.

(1) C, D, A, B (2) C, B, G, H (3) C, F, A, B (4) C, D, G, H

∴ Hence, no one must be selected if C is selected into the team.

95.d As Farheen is to be selected from (iv) Hakim must not be selected and from (ii), none of Dhruva and Eshwar can be selected

From (vi) Goutam must not be selected.

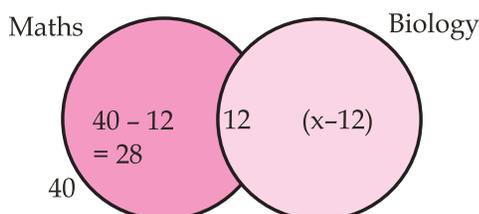
Hence, only in one way the team can be selected. i.e. A, B, C, F

96.b If the total distance is 6d, the average speed will be

$$\frac{6d}{\frac{3d}{40} + \frac{2d}{50} + \frac{d}{60}} = \frac{6d \times 600}{45d + 24d + 16d}$$

$$= \frac{3600}{79} = 45.57 \text{ kmph}$$

97.c Using, Venn diagram, we have



Let x students took Biology

∴ x - 12 look only Maths.

$$\therefore 28 + 12 + x - 12 = 50$$

$$\text{or } x = 22.$$

∴ Students who took only Biology

$$= 22 - 12 = 10$$

Directions for Solutions 98 to 100:

From (1) and (4) Mohan brought Bhel-Poori, Amar brought Manchurian.

From (3) Vishnu did not bring Dosa.

From (4) Vishnu brought neither Pav-Bhaji nor Utttam.

From (5) and (6) Vishnu did not bring Burger or Dam-Aloo.

∴ Vishnu did not bring Pav-Bhaji, Burger, Utttam, Dosa, Manchurian, Bhel-Poori or Dam-Aloo.

∴ Vishnu brought dish Pizza.

From (1) and (6), None among Akash, Ram, Shankar and Ganesh brought Pav-Bhaji.

∴ Kishan brought Pav-Bhaji and Akash brought Dam-Aloo. Shankar brought Dosa and Ram Ganesh brought Burger and Utttam in any order.

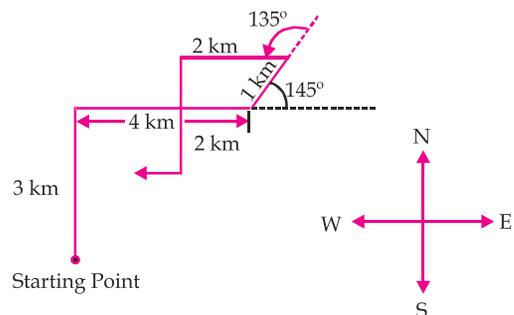
Boy	Dish
Akash	Dam-Aloo
Amar	Manchurian
Vishnu	Pizza
Ram	Burger/Utttam
Mohan	Bhel-Poori
Kishan	Pav-Bhaji
Shankar	Dosa
Ganesh	Burger/Utttam

98.a Akash brought the dish Dam-Aloo.

99.d Kishan - Pav-Bhaji is the correct combination.

100.d Either Ram or Ganesh brought the dish Utttam.

101.c



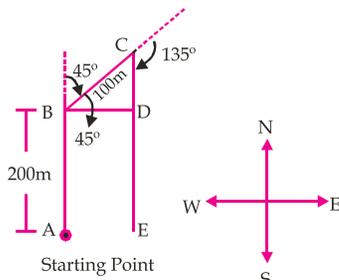
102.d From the figure we can see that total distance covered by Ram is

$$= AB + BC + CD + DE$$

$$= 200 \text{ m} + 100 \text{ m} + BC \sin 45^\circ + 200 \text{ m}$$

$$= 500 + \frac{100}{\sqrt{2}}$$

$$\text{or } 100 \left(5 + \frac{1}{\sqrt{2}} \right) \text{ m}$$



103.d Interchanging symbols we get

$$40 + 120 - 80 \times 40 \div 20$$

$$\text{or } 40 + 120 - 80 \times 2$$

$$\text{or } 40 + 120 - 160$$

$$\text{or } 160 - 160 = 0$$

104.c 16C 16A 16D 16B 16

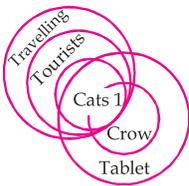
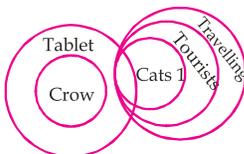
$$= 16 \times 16 + 16 \div 16 - 16$$

$$\text{or } 16 \times 16 + \frac{16}{16} - 16$$

$$= 256 + 1 - 16$$

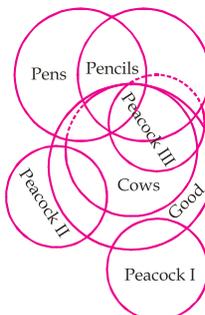
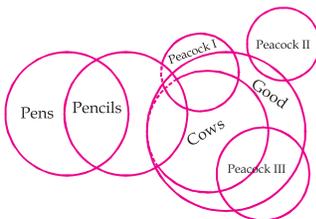
$$= 241$$

105.d



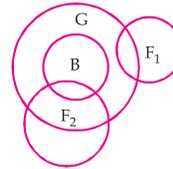
Looking at the figures we can conclude that either I or II follows

106.b



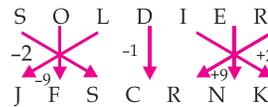
From the figures we can conclude that either III or IV follows

107.c

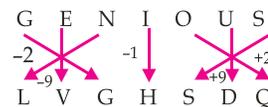


From the figure we can conclude that only IV follows

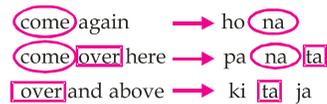
108.d



Similarly,



109.a



Code for 'here' is 'pa'.

Directions for solution 110: On careful observation of the given input line of words and numbers and various steps of rearrangement, we find that in the first step one word, which comes first in the dictionary, is rearranged and in the second step, one number, the highest among the given numbers, is rearranged. These two steps are repeated alternately. In the last step all the words are rearranged in alphabetical order and all the numbers are rearranged in descending order.

110.c Input:

Marksheet hour for 17 artistic 84 27 40

Step I:

Artistic marksheet hour for 17 84 27 40

Step II:

Artistic 84 marksheet hour for 17 27 40

111.d Directions for solution: On careful observation of the given input line of words and numbers and various steps of rearrangements, we find that the numbers are reversed and then arranged in ascending order as per the first number.

Input:

323 456 623 341 229 842

When reversed, we get 323 654 326 143 922 248, Now, arranging these number in ascending order we get

Step I:

341 323 456 623 229 842

Step II:

341 842 323 456 623 229

Step III:

341 842 323 623 456 229

112.c 2, 6, 42

$$2^2 + 2 = 6$$

$$6^2 + 6 = 42$$

$$42^2 + 42 = 1806$$

113.b The series follows the rule of

$$3 \times 2 + 2^2 = 10$$

$$10 \times 2 + 3^2 = 29$$

$$29 \times 2 + 4^2 = 74$$

$$\therefore 74 \times 2 + 5^2 = 173$$

114.a The series follows the rule of
 $10 \times 2 - 20 = 80$
 $80 \times 2 - 40 = 120$
 $120 \times 2 - 60 = 2340$
 $\therefore 2340 \times 2 - 80 = 4600$

115.c Solution of the problem lies in either I or II. I will reduce the burden on the exchequer whereas II will reduce the burden on consumers.

116.d Both I and II are not advisable because these two are not the right way to tackle the situation.

117.d The problem can be reduced if the situation of law and order gets improved. I is impractical. Hence, I is not advisable. II can't reduce the problem if the situation of law and order is not under control.

118.b From the advertisement, it is obvious that the advertiser must be assuming II. Hence, II is implicit. I goes rather against the statement. Hence, I is not implicit.

119.a I is implicit because whenever a scheme is announced, it is assumed that people will welcome it. II is not implicit. Had fear been there on the mind of the govt., it would have refrained from introducing such a scheme.

120.b When one applies for leave, one assumes that it would be granted. Hence I is not implicit. But Assumption II is implicit because only then the period of "two years" assumes meaning.

121.d Both the arguments do not hold any water as both of them are based on an impractical approach.

122.d Simply saying that a thing can be abused is a simplistic argument. This applies to everything and is hence weak unless you specify the reason for abuse. Hence I is weak. II is weak because it is just not true.

123.a I is strong because it is undesirable to obstruct the development of talent. II is not strong because it is not true. II is weak as it is vague.

124.b Changes in wind pattern have caused increase in temperature.

125.c Both are independent causes.

126.d From the figure we can say that there are 12 people belonging to in such category.

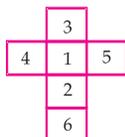
127.d From the figure we can say that there are 70 people who like painting and driving.

128.b In each step the CW-end element shifts to the opposite corner, the central element becomes CW-end element, the second element becomes CW-end element, the second from CW end shifts one side ACW and a new element appears at the centre. The elements get in turns replaced by new ones in alternate steps.

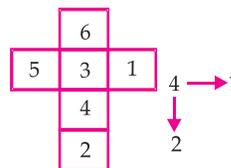
129.b In figure (b), the arrow is in clockwise direction.

130.b **131.d**

132.b From the figure, it is clear that number 3 will be opposite to number 2.

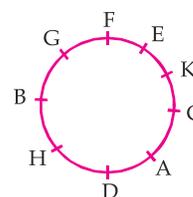


133.a From the figure, we see that number 4 has numbers 5, 3, 1 and 2 on the adjacent surfaces and number 6 opposite to it. Comparing the position of dice no. (iii) with this figure, we observe that number 1 will replace (?).



134.b 16 cubes from the second layer from the bottom will not have any red face.

Directions for solution: 135 to 137:



135.d E is third to the left of B.

136. b G is to immediate right of F.

137. d F is sitting between G and E.

Directions for solutions 138 and 139: As given that the names of brothers and sisters do not begin with the same letter and Pawan Gagan are not Sita or Suman's brothers, Pawan cannot be the brother of Purwa and hence he is the brother of Rashmi

Now we have that Gagan cannot be the brother of Sita, Suman or Rashmi. Therefore, Gagan is the brother of Purwa. As given that Sita is not Roshan's sister and Rashmi and Purwa can also not be the sister's of Roshan (from above conclusions), Roshan is the brother of Suman. Amar will have to be the brother of Sita as this is the only valid combination left. Therefore, we have this table finally.

Brother	Sister
Pawan	Rashmi
Gagan	Purwa
Roshan	Suman
Amar	Sita

138.d

139.b

Directions for solutions 140 and 141: Check out the numbers that have four factors and try to understand, e.g. $6 - 1, 2, 3, 6$. Note that in case of 1, 2, 4, 8, $a = 2$ (not 4), which is prime. Note that a and b will always be prime.

Therefore, $a \cdot b = N$

Therefore, $a \cdot a \cdot b = a \cdot N$

140.a

141.d

Directions for solutions 142 and 143: Srilanka and Pakistan will have same number of Gold medal as won by India, because the difference of gold medal between 1st and 4th is only 1.

Therefore, the ranking is governed by Silver medals, and Pakistan should have won less silver medals than Srilanka,

but higher than India, in order to rank between them.

Hence,

142.a 2nd, 3rd and 4th placed countries have won the same number of gold medals. The number is 7.

143.c Pakistan should have won more number of silver medals than won by India. Minimum number is 5.

144.c Since minimum strike rate is to be calculated, worst case scenario is taken into account.

Maximum Runs he scored in the last 9 balls, $4 \times 6 + 3 \times 3 = 33$ runs.

Therefore, remaining 24 runs were scored in 70 balls. In other words, he has to score at least 24 runs in 70 balls in order to score 57 runs in 79 balls. Thus minimum strike

$$\text{rate} = \frac{24}{70} = 34.28\%$$

145.d Statement 1 is clearly the author's opinion hence judgement - J.

Statement 2 is a fact that is verifiable (Have parents, teachers, attributed to Harry Potter children's interest in reading?) - F

Statement 3 is judgement since they express the author's opinion ('not quite so straight forward a success story') - J. Statement 4 is a fact since it is a statistics - F.

JFJF

146.d Statement 1 is the author's opinion - hence judgement - J.

Statement 2 is a fact since the scientists loss of popularity is verifiable - F.

Statement 3 is a fact - F.

Statement 4 is a fact - his achieving the world first is verifiable - I.

JFFF

147.b

148.c

149.d

150.d

151.a The author is not in favour of destroying any monuments. He only talks of moving such monuments which have political agenda behind them to be moved to museums along with the explanatory text panels so that people can see them in the right context. Rest of the sentences given in the other options are what author strongly believes in.

152.d The main concern of the passage is not how monuments and museums are destroyed so options (a) and (c) are incorrect. Saddam and Nero were mentioned only as examples. The entire passage is about dangerous iconoclasm is and why it is unjustified.

153.c In paragraph 3 it is clearly mentioned that Saddam Hussein got this new landmark built to attract the attention of Pope John Paul II.

154.a The author never said that Iconoclasm can be justified. He rather seems to be completely against it. Saddam Hussein has only been mentioned in context of the house of Abraham and from this passage we can not make out that he did many other wrong things. In the last paragraph, the author does mention the role archaeologists can play protection of cultural property.

155.a Iconoclasm means destroying images which reflect society's beliefs in culture or religion and it is normally

done for religious and political motives.

156.c In the first paragraph, it has been clearly mentioned that Utilitarianism focuses on greatest good for greatest number while Kant focuses on respect for human dignity and moral rights.

157.d The author talks about all the three types of ethics in paragraph two of the passage.

158.c The main concern of the author seems to be the guiding principles and values for leading a better life. The questions that have been asked or addressed in the passage all point towards it. Hence the passage belongs to spirituality.

159.b In the second para, the author mentions, 'in the last decade, dozens of ethics centers and programs' have sprung up'. while according to option (b), they have closed down.

160.c Both of these have been clearly given in paragraph in paragraph 2.

161.b In the fourth Para, the author mentions "as china has the second largest economy and likely to overtake America".

162.a The author has used word like private equity firms, acquisitions, Global investments which indicates that the author is an economist. As the passage also mentions economic growth and development which clearly indicates that the passage is written by an economist.

163.b The author Mentions this in Para 4 last line "About a fifth of globalthan twice the level ten years"

164.c As the author mentions in para 5. 'China has the Worlds Second Largest Economy'.

165.b As mentioned in the passage Para 2 line 2 and 3 that the book examined the "Irish property bubble, how it inflated and deflated, and seduced politicians".

166.d As all the options a, b and c are mentioned in para 3

167.a Dark or dim

168.c When the luck of the Irish Ran Out

169.b Mentioned in Para 4 that Beteille took his first degrees before proceeding to Delhi.

170.a Mentioned in Para 7 last lines. As the author says that there are still some place in India where one can get descent education in engineering or medicine or Law.

171.d As options a, b and c are mentioned in Last Para.

172.a As "plagiarism" means to copy.

173.c Mentioned in Para 3 "When the mind is silent there is Inner and Outer Happiness"

174.a Mentioned in para 5 "that the habit of constant thinking futile thoughts"

175.b As Options a, c and d are mentioned in the passage.

176.d "IT" in the line refers to mind.

177.b Mentioned in last para.

178.c Mentioned in Para 2.

179.d Mentioned in Last Para.

180.b The tone of the Author is Explanatory.

181.c Mentioned in para 1 the chemical Phenylhydrazine is the chemical in brain responsible for attraction.

182.c Mentioned in Line 1. As options a, b and d are not mentioned.

183.c Mentioned in Line 7.

184.a As Enigma means Mysterious.

185.c The author talks of marathons in a rather sarcastic

tone so we can not infer that we should or should not run marathons to create awareness. The passage advocates the usage of jute bags and the author is strongly against using more calories than required.

186.a The main emphasis of the author is how to save energy so that we can save environment and earth.

187.b Author does begin the passage by mentioning the energy consumed in the past and the energy consumed in the present. He does not seem to be concerned about what did our ancestors did to spoil the environment.

188.c As per the passage we should use jute bags because they can be used for a long duration as compared to plastic bags which have to be discarded in a less than a week.

189.d Rest of the statements are actually the opposite of what has been stated in the passage. The author in deed suggests that we can do a lot towards sustainable development without compromising on our comfort.

190.d As options b and c both are mentioned in Para 1.

191.c The options a, b and d are not mentioned anywhere in the passage and are incomplete. So C is the right answer.

192.d Mentioned in Para 2 line 5 and 6.

193.b As the Author says in Para1 "But it sometimes seems to me that they have only replaced violence with Finance"

194.b As the author mentions the positivity of the religion Buddhism in the passage.

195.d None of the statements are true according to the passage.

196.b As the author says this in Para 1.

197.d All the options are mentioned in the Passage.

198.a Directly given in the passage " But not all the sunlight is absorbed by the Earth "

199.c Given in the passage " he energy for heating the Earth comes almost exclusively from sunlight "

200.b Directly given in the passage " he average reflectivity, or albedo, of the Earth, as measured directly from satellites and indirectly from Earthshine reflected off the dark side of the Moon, is about 35 percent "

201.d Let r be the remainder. Then $34041 - r$ and $32506 - r$ are perfectly divisible by n. Hence, their difference should also be divisible by the same.

$(34041) - r) - (32506 - r) = 1535$, which is divisible by only 307.

202.d N can be written either $(54 + 1)^3 + (18 - 1)^3 - 72^3$ or $(51 + 4)^3 + 17^3 - (68 + 4)^3$.

The first form is divisible by 3, and the second by 17.

$$\mathbf{203.b} \quad \frac{(7^3)^{28}}{342} = \frac{(342+1)^{28}}{342}$$

This equation will give us '1' as remainder.

204.c The time taken by the red spots on all three wheels to simultaneously touch the ground again will be equal to the LCM of the times taken by the three wheels to complete one revolution. The first wheel completes 60 revolutions per minute. This means that to complete one revolution, it

takes $\left(\frac{60}{60}\right) = 1$ s. The second wheel completes 36 revolutions

per minute. So to complete one revolution, it takes $\frac{60}{36} = \frac{5}{3}$ s.

Similarly, the third wheel takes $\frac{60}{24} = \frac{5}{2}$ s to complete one

revolution. Hence LCM of $1, \frac{5}{3}, \frac{5}{2} = \frac{\text{LCM}(1,5,5)}{\text{HCF}(1,3,2)} = \frac{5}{1} = 5$ s.

205.c We know that if $\log_a x = y$, then $x = a^y$. So comparing this form with our equation, we can get $\log_7 (x^2 - x + 37) = 2^1 = 2$ and furthermore from this, we can say that $(x^2 - x + 37) = 7^2 = 49$. Thus, we have the equation : $x^2 - x - 12 = 0$. The solutions of this equations are, $x = 4$ or $x = -3$. The value that satisfies the given answer choices is $x = 4$.

206.b $7^{3^2} = 7^9$ and $(7^3)^2 = 7^6$. Since $7^9 > 7^6 \Rightarrow 7^{3^2} > (7^3)^2$.

$$\mathbf{207.a} \quad p = \frac{\sqrt{8} + \sqrt{7}}{\sqrt{8} - \sqrt{7}} = \frac{(\sqrt{8} + \sqrt{7})(\sqrt{8} + \sqrt{7})}{(\sqrt{8} - \sqrt{7})(\sqrt{8} + \sqrt{7})}$$

$$= (\sqrt{8} + \sqrt{7})^2 = 15 + 2\sqrt{56}$$

$$\text{Similarly, } q = (\sqrt{8} - \sqrt{7})^2 = 15 - 2\sqrt{56}$$

$$p^2 + pq + q^2 =$$

$$(15 + 2\sqrt{56})^2 + (15)^2 - (2\sqrt{56})^2 + (15 - 2\sqrt{56})^2$$

$$= 675 + 224 = 899$$

208.a The number of numbers prime to and less than 900

$$= 900 \left(1 - \frac{1}{2}\right) \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{5}\right) = 240$$

209.a The divisors of 360 are 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 18, 20, 24, 30, 36, 40, 45, 60, 72, 90, 120, 180 and 360. We can see that $360 = 1 \times 360 = 2 \times 180 = 3 \times 120 = \dots = 18 \times 20$.

$$\text{Therefore, } \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{180} + \frac{1}{360}$$

$$\Rightarrow \frac{360}{360} + \frac{180}{360} + \frac{120}{360} + \dots + \frac{2}{360} + \frac{1}{360}$$

$$= \frac{1 + 2 + 3 + 4 + 5 \dots + 180 + 360}{360} = \frac{1170}{360} = 3.25$$

210.c $\therefore 2^{3^{45}} > 2^{3^{54}}$

Now all even powers of 3 are of the form $4n + 1$

\therefore Last digit of first term is 2 also all odd powers of 3 are of the form $4n + 3$

\therefore Last digit of the term is 8

[By cyclicity of last digit]

Thus, the last digit of expression is $2 - 8 = 4$.

211.c $87^{474} = 87^{472} \times 87^2 = (87^4)^{118} \times 87^2 = (69 \times 69)^{118} \times 69$

(The last two digits of 87^2 are 69) $= 61^{118} \times 69 = 81 \times 89 = 89$.

212.a Suppose (r + 1)th term involves x^{32} in the expansion of $\left(x^4 - \frac{1}{x^3}\right)$

$$\text{Now, } T_{r+1} = {}^{15}C_r (x^4)^{15-r} \left(-\frac{1}{x^3}\right)^r = (-1)^r {}^{15}C_r x^{60-7r}$$

For this term to contain x^{32} , we must have

$$60 - 7r = 32 \quad r = 4.$$

So, (4 + 1) th i.e., 5th term contains x^{32} .

Putting r = 4 in (i), we get

$$T_5 = (-1)^4 {}^{15}C_4 x^{(60-28)} = {}^{15}C_4 x^{32}.$$

\therefore Coefficient of $x^{32} = {}^{15}C_4 = 1365$.

213.c $(212)_b = (128)_{b+2} \quad 2b^2 + b + 2 = (b + 2)^2 + 2(b+2) + 8$

$$\Rightarrow b^2 - 5b - 14 = 0 \quad b = 7$$

$$\therefore a = (212)_7 = 2 \times 7^2 + 1 \times 7^1 + 2 \times 7^0 = 107$$

$$\therefore a + b = 107 + 7 = 114$$

214.b $\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha} = \frac{\alpha^3 + \beta^3}{\alpha\beta} = \frac{(\alpha + \beta)^3 - 3\alpha\beta(\alpha + \beta)}{\alpha\beta}$

$$= \frac{\left(\frac{-b}{a}\right)^3 - 3\left(\frac{c}{a}\right)\left(\frac{-b}{a}\right) \left[\left(\frac{-b}{a}\right)^3 + 3\left(\frac{bc}{a^2}\right)\right]}{\frac{c}{a}} = \frac{\left(\frac{c}{a}\right)}{\left(\frac{c}{a}\right)}$$

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

215.b Assume that the person bought x oranges for Rs. 70.

Hence price of each orange is $\frac{70}{x}$. If he bought 4 more oranges for Rs. 70, the price of each orange would be $\frac{70}{x+4}$ which is 2 less than $\frac{70}{x}$.

Hence $\frac{70}{x+4} = \frac{70}{x} - 2 \Rightarrow \frac{70}{x} - \frac{70}{x+4} = 2$;

$$\frac{70(x+4) - 70x}{x(x+4)} = 2$$

$$x^2 + 4x - 140 = 0$$

$$(x + 14)(x - 10) = 0$$

Hence, $x = -14$ or $x = 10$.

Since the number of oranges bought cannot be -ve, x cannot be -14, so $x = 10$. Hence 10 oranges were bought originally.

216.c Let the strength be x . The number of students who play basketball = 8

The number of students who play football

$$= x - 8 = 7\sqrt{x}$$

$$\Rightarrow x - 8 = 7\sqrt{x}$$

$$(x - 8)^2 = 49x; x^2 - 65x + 64 = 0 \quad x = 64 \text{ or } 1$$

217.d $x^2 - 5x - 14 \leq 0$

$$x^2 - 7x + 2 - 14 \leq 0$$

$$x(x - 7) + 2(x - 7) \leq 0$$

$$(x + 2)(x - 7) \leq 0$$

So $-2 \leq x \leq 7$

[Because if $(x - a)(x - b)$ then the value of x lies from a to b]

218.c

$$\begin{aligned} 2x - 5 < 3x & \left| \begin{array}{l} 4 - \frac{x}{3} < \frac{2x}{5} - 6 \\ \Rightarrow x > -5 \end{array} \right. \\ \Rightarrow 4 + 6 < \frac{2x}{5} + \frac{x}{3} \\ \Rightarrow \frac{11x}{15} > 10 \\ \Rightarrow x > \frac{150}{11} \\ \Rightarrow x > 13\frac{7}{11} \end{aligned}$$

by both the results we can see $x > 13\frac{7}{11}$.

219.a Here, $5^x \times (\sqrt{32})^{\frac{x}{x+3}} = 50$

$$\Rightarrow 5^x \times 2^{\frac{5x}{2x+6}} = 5^2 \times 2^1$$

Equating the power of 2 or 5 from both sides, we get $x = 2$ or,

$$\frac{5^x}{2x+6} = 1 \Rightarrow 5^x = 2x+6 \Rightarrow x = 2$$

220.a Here, $\log_5 \log_3 (\sqrt{x+3} + \sqrt{x}) = 0$

$$\Rightarrow \log_3 (\sqrt{x+3} + \sqrt{x}) = 5^0 = 1$$

$$\Rightarrow \sqrt{x+3} + \sqrt{x} = 3^1 = 3$$

$$\Rightarrow \sqrt{(x+3)} = 3 - \sqrt{x}$$

$$\Rightarrow x+3 = 9 + x - 6\sqrt{x}$$

$$\Rightarrow 6\sqrt{x} = 6$$

$$\Rightarrow \sqrt{x} = 1$$

$$\Rightarrow x = 1$$

221.b Given; $|x - |x - 2|| = 6$.

When $x < 2$, $|x - 2| = -(x - 2)$

$$\therefore |x - (-(x-2))| = 6 \quad (2x - 2)$$

$$x - 1 = \pm 3$$

$$x = 4 \text{ or } -2$$

since $x < 2$; so $x = -2$ is the only solution.

when $x > 2$ the equation is not true.

222.b $f(x) + f(y) = \log\left(\frac{1+x}{1-x}\right) + \log\left(\frac{1+y}{1-y}\right)$

$$= \log\left[\frac{(1+x)(1+y)}{(1-x)(1-y)}\right] = \log\left[\frac{1+x+y+xy}{1+xy-x-y}\right]$$

$$= \log\left(\frac{1+xy+x+y}{1+xy-(x+y)}\right) = \log\left(\frac{1+\frac{x+y}{1+xy}}{1-\frac{x+y}{1+xy}}\right)$$

$$= f\left(\frac{x+y}{1+xy}\right)$$

223.c For $y = f(x)$ to be defined, $|x| - x > 0$, or, $+x > x$.

It is true only if $x < 0$. So, the domain is $-\infty < x < 0$.

224.d Statement I alone is not sufficient. Some numbers are greater than 0 are prime like 2, 3, 13, 17. Some numbers greater than 0 are composite, like 4, 6, 12, 14.

Statement II alone is not sufficient. When a number divided by 2 has no remainder, that number is even. But there is one even prime number i.e., 2. Therefore, Statement II alone is not sufficient because the answer could be yes or no. Even if we use the data from both the statement together then also we are not sure about the value of c , hence (d) is the correct choice.

225.a From statement I we get the possible values of a , b and c as 4, 2 and 1 not necessarily in same order but we can

calculate the value of $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$.

Statement II gives sum of $a + c = 3$ we can say $b = 4$ but we can not calculate values of a and c .

So, information is not sufficient.

226.d Since the colour of non-red bricks and there weights are not known we cannot calculate the values. Hence, (d) is the correct choice.

227.d Since we don't know whether A and B have 2 or 5 as factor we cannot calculate the number of zeroes in $A \times B$. For example if $A = 3000$ and $B = 200$, $A \times B = 600000$. But if

A = 5000, then B = 200. then $A \times B = 1000000$. So we cannot be sure. Hence, (d) is the correct choice.

228.d Let the ten's and unit's digit be x and y respectively.

- I. $x + y = 7$.
- II. $(10x + y) - (10y + x) = 9 \Rightarrow x - y = 1$
- III. $x - y = 1$

Thus, I and II as well as I and III give the answer.

229.a I. $A + M + F = 62$.

II. $(A - 5) = \frac{1}{5}(F - 5)$.

III. $(A - 2) + (F - 2) = 36$.

From II and III, we will get A and F.

Putting these values in I, we get M.

Thus, all I, II and III are required to get the answer.

230.d Let the M.P. be Rs. x.

I. C.P. = 85% of Rs. x

= Rs. $\left(x \times \frac{85}{100}\right) = \text{Rs. } \frac{17x}{20}$

II. S.P. = Rs. 3,060.

III. 102% of x = 3,060

$\Rightarrow x = \left(3060 \times \frac{100}{102}\right) = \text{Rs. } 3,000$.

\therefore C.P. = Rs. $\frac{17x}{20} = \text{Rs. } \left(\frac{17}{20} \times 3000\right) = \text{Rs. } 2,550$

So, again = RS. (3060 - 2550)

= Rs. 510.

Thus all I, II and III are required to get answer.

231.d I. P's investment = Rs. (80000 × 6 + 60000 × 6) = Rs. 84,000 for 12 months.

II. & III.

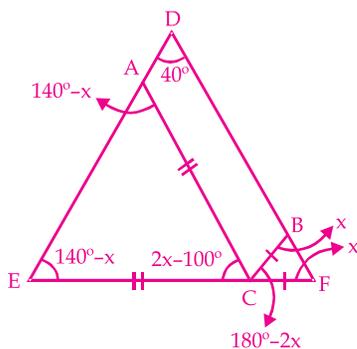
Q's investment = 80% of Rs. 60000 for 8 months

= Rs. (48000 × 8) for 12 months

= 3840000: 38400 = 35 : 16.

But, the total profit is not given, so data is inadequate.

232.c



$2x - 100^\circ + \angle ACB + 180^\circ - 2x = 180^\circ$ and

$\angle ACB + 80^\circ = 180^\circ \Rightarrow \angle ACB = 180^\circ - 80^\circ$

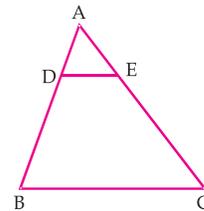
$\therefore \angle ACB = 100^\circ$

233.b The radius of the circle is 6.5 cm. hence, its diameter = 13 cm. And therefore AB = 13 cm. Since the diameter of a circle subtends 90° at the circumference, $\angle ACB = 90^\circ$.

Hence, is a right-angled triangle with AC = 5, AB = 13. So, CB should be equal to 12 cm (as 5 - 12 - 13 form a Pythagorean triplet). Hence, the area of the triangle

$= \frac{1}{2} \times AC \times CB = \frac{1}{2} \times 5 \times 12 = 30 \text{ sq. cm.}$

234.b

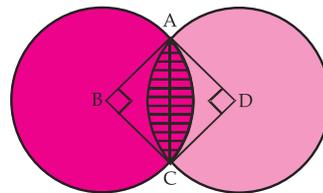


$\frac{\text{Area } \triangle ADE}{\text{Area } \triangle ABC} = \frac{AD^2}{AB^2} = \frac{1}{16} \Rightarrow \frac{\text{Area WDBCE}}{\text{Area } \triangle ABC} = \frac{15}{16}$

$\Rightarrow \text{Area } \triangle ABC = 45 \times \frac{16}{15} = 48$

$\Rightarrow \text{Area } \triangle ADE = \frac{48}{16} = 3$

235.b



$\triangle ACB$

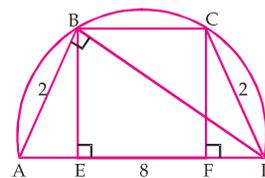
Shared area = $2 \times (\text{area of sector ADC} - \text{area of } \triangle ADC)$

$= 2 \times \left(\frac{\pi}{4} \times 1^2 - \frac{1}{2} \times 1 \times 1\right)$

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

Hence, option (b)

236.b Finding area of DABD



$\frac{1}{2} AB \times BD = \frac{1}{2} AD \times BE$

So, $BE = \frac{(\sqrt{15})}{2}$

Hence $AE = \frac{1}{2}$

Now, $BC = EF = 8 - \left(\frac{1}{2} + \frac{1}{2}\right) = 7$

237.c Total area = $14 \times 14 = 196 \text{ m}^2$

Grazed area = $\left(\frac{\pi \times r^2}{4}\right) \times 4$

$= \pi r^2 = 22 \times 7 (r = 7) = 154 \text{ m}^2$

Ungrazed area is less than $(196 - 154 =) 42\text{m}^2$, for which there is only one option.

238.d Assume total weight to be 100 kg then

Total weight of bones = $.2 \times 100 = 20\text{kg}$.

Total weight of skin $.1 \times 100 = 20\text{kg}$.

Total weight of body = 100 kg.

So, the required percentage is 70%

239.d Since we do not know how much protein is contributing in muscles and in bones, there fore it cannot be determined.

240.a Let $x\%$ of proteins of human body is equivalent to the weight of its skin; $x\%$ of 24 =

$$\frac{x}{100} \times 24 = 10; x = \frac{10 \times 100}{24} \% x = 41.66\%$$

241.b $\left(\frac{10.5}{290}\right) \times 100 = 3.6\%$

242.d Country's GDP that has gone into defence = 2% of 290000 crore = 5.8 thousand crore.

Let $10.5 = k \times 5.8$ $k = 1.8$

243.c GDP for educational spending as a percentage of GDP (in 2006) must not exceed 6.5%

= Rs. 3200 crore.

$\therefore 6.5\%$ of (GDP in 2006)

= Rs. 3200 crore.

$$\therefore \text{GDP in 2006} = \frac{3200 \times 100}{6.5}$$

= 49.23 thousand crore.

244.d Cannot be determined because we don't know about which year they are asking.

245.b Total Bajaj bikes sold till data are = 500,000

Number of bikes more than a year old

= $10\% + 10\% + 70\% = 90\%$

Now 90% of 500,000 = 450,000

246.d Cannot be determined, as comparison of products market-wise is not given.

247.a Total Magazine circulated of Business world = 2500 + 3000 + 3200 = 8700

Total cost of publishing Business World = 500 + 2000 + 2300 = 4800

So, average cost of publishing Business world =

$$\frac{8,700}{4,800} = \text{Rs.}1.812$$

248.a Total India Today circulation = 1800 + 4000 + 4900 = 10,700

Total cost of publishing India Today = 800 + 1400 + 1800 = Rs. 4000

So, average cost of publishing India Today = $10700/4000 = \text{Rs.} 2.675$

Total outlook circulation = 4500 + 6000 + 6900 = 17400

Total cost of publishing outlook = 2300 + 3000 + 3300 = Rs. 8600

So, average cost of publishing outlook = $17400/8600 = \text{Rs.} 2.02$.

Total Business World circulation = 2500 + 3000 + 3200 = 8700

Total cost of publishing Business World = 500 + 200 + 2300 = Rs. 4800

So, average cost of publishing Business World =

$$\frac{8,700}{4,800} = \text{Rs.}1.812$$

Total Forbes circulation = 2000 + 2700 + 3100 = 7800

Total cost of publishing Forbes = 1500 + 1700 + 2800 = Rs. 6000

$$\text{So, average cost of publishing Forbes} = \frac{7,800}{6,000} = \text{Rs.}1.3$$

So the highest cost of publishing of a magazines is of India Today.

Directions for solutions 249 and 250: Soumya ate three cookies, so total cookies left when Soumya came = $4 \times 3 = 12$.

Similarly, when Sneha came total cookies present = $12 \times 4 = 48$.

Total cookies present when Swarna came = $48 \times 2 = 96$.

Total number cookies received by Shweta i.e., total cookies given by Uncle Prem = $(4/3) \times 96 = 128$ 249. c

Total cookies obtained by Sneha = $(48/4) + (12/4) = (12 + 3) = 15$.

250.c Total cookies obtained by Swarna = $(96/4) + (48/4) + (12/4) = (24 + 12 + 3) = 39$.

Answer Key

1	d	2	b	3	a	4	c	5	c
6	d	7	c	8	a	9	b	10	a
11	b	12	d	13	d	14	a	15	d
16	b	17	c	18	d	19	b	20	a
21	c	22	c	23	a	24	d	25	a
26	a	27	c	28	d	29	c	30	c
31	b	32	a	33	b	34	d	35	c
36	b	37	d	38	d	39	d	40	c
41	c	42	b	43	d	44	a	45	d
46	c	47	a	48	c	49	b	50	a
51	c	52	c	53	b	54	d	55	a
56	b	57	a	58	a	59	b	60	c
61	a	62	b	63	b	64	c	65	d
66	b	67	c	68	b	69	c	70	b
71	d	72	a	73	b	74	a	75	c
76	b	77	b	78	d	79	a	80	c
81	b	82	b	83	c	84	c	85	d
86	c	87	d	88	c	89	c	90	c
91	c	92	a	93	d	94	d	95	d
96	b	97	c	98	a	99	d	100	d
101	c	102	d	103	d	104	c	105	d
106	d	107	c	108	d	109	a	110	c
111	d	112	c	113	b	114	a	115	c
116	d	117	d	118	b	119	a	120	b
121	d	122	d	123	a	124	b	125	c
126	d	127	d	128	b	129	b	130	b
131	d	132	b	133	a	134	b	135	d
136	b	137	d	138	d	139	b	140	a
141	d	142	a	143	c	144	c	145	d
146	d	147	b	148	c	149	d	150	d
151	a	152	d	153	c	154	a	155	a
156	c	157	d	158	c	159	b	160	c
161	b	162	a	163	b	164	c	165	b
166	d	167	a	168	c	169	b	170	a
171	d	172	a	173	c	174	a	175	b
176	d	177	b	178	c	179	d	180	b
181	c	182	c	183	c	184	a	185	c
186	a	187	b	188	c	189	d	190	d
191	c	192	d	193	b	194	b	195	d
196	b	197	d	198	a	199	c	200	b
201	d	202	d	203	b	204	c	205	c
206	b	207	a	208	a	209	a	210	c
211	c	212	a	213	c	214	b	215	b
216	c	217	d	218	c	219	a	220	a
221	b	222	b	223	c	224	d	225	a
226	d	227	d	228	d	229	a	230	d
231	d	232	c	233	b	234	b	235	b
236	b	237	c	238	d	239	d	240	a
241	b	242	d	243	c	244	d	245	b
246	d	247	a	248	a	249	c	250	c