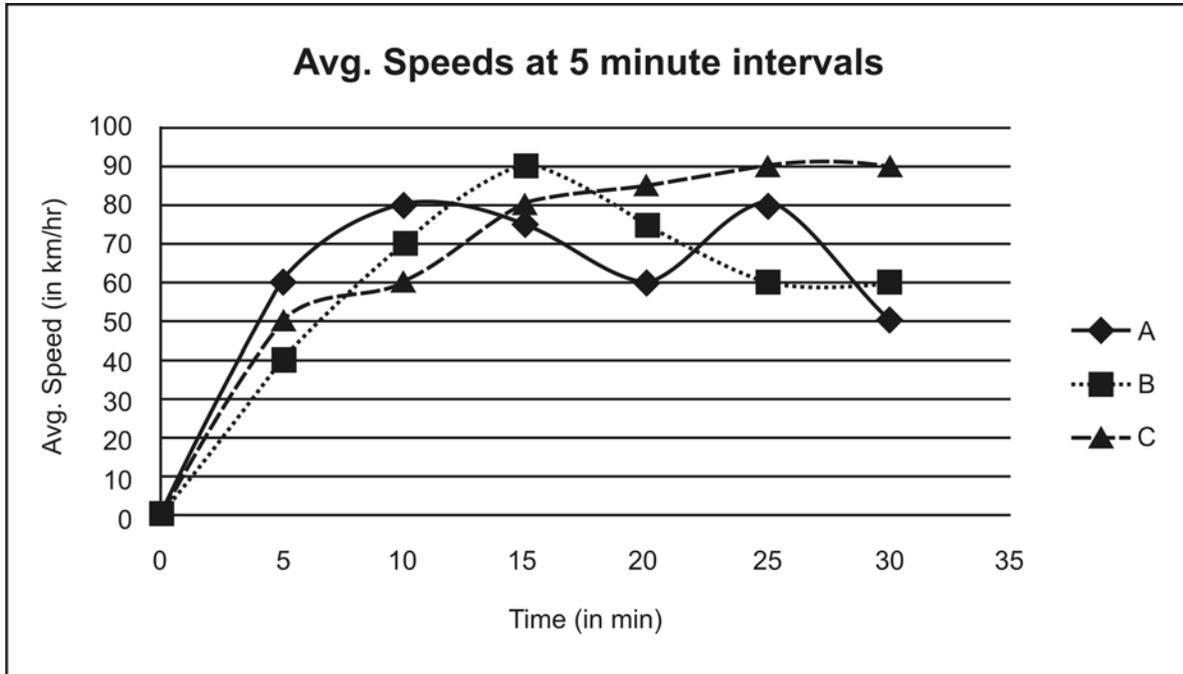


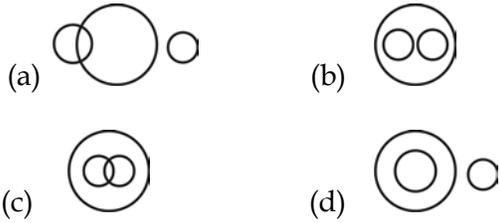
Logical Reasoning

Directions for questions 1 to 3: The following graph shows the speeds of three cars A, B and C during a race for the first 30 minutes. The speeds are shown at an interval of 5 minutes are the average speed of that car for the duration of 5 minutes. e.g. Car A travelled at an average speed of 60 km/hr for the first 5 minutes and at an average speed of 80 km/hr for the next 5 minutes. Analyze the graph and answer the questions that follow.



- Which car has covered the maximum distance till the end of 15 minutes?
 - A
 - B
 - C
 - Both A and B
- What is the approx. distance covered by the car B in the first 30 minutes of the race?
 - 36 km
 - 33 km
 - 30 km
 - Cannot be determined
- Which of the following conclusions can be drawn from the graph?
 - Average speed of the car A in the first 30 minutes is 50 km/hr.
 - Cars A, B and C covered the same distance in the first 30 minutes.
 - The average speed of none of the three cars increased in the last 5 minutes of the first 30 minutes.
 - All the three cars kept on increasing the average speed of their cars for the first 15 minutes.

4. Which of the following diagrams indicate the best relation between dogs, pet animals and animals?



Direction for questions 5 and 6: Ali, Parul, Ravi, Xavier, Sam and Zayed are sitting in a row. Sam and Zayed are in the centre. Ali and Parul are at the ends. Ravi is sitting immediate to the left of Ali.

5. Who is to the right of Parul?
 - (a) Xavier
 - (b) Sam
 - (c) Zayed
 - (d) Ravi
6. Who might be sitting in between Ravi and Sam?
 - (a) Xavier
 - (b) Sam
 - (c) Zayed
 - (d) Ravi
7. Pointing to a girl Kapil said, "She is the daughter of the only sister of my father." How is Kapil related to the girl?
 - (a) Uncle
 - (b) Cousin
 - (c) Father
 - (d) Grandfather

Directions for questions 8 to 12: In an Exhibition seven bikes of different companies - Honda, Suzuki, Kawasaki, Harley, GM, TVS and Bajaj are standing facing east in the following order:

- TVS is next to right of Bajaj.
 - Bajaj is fourth to the right of Suzuki.
 - Honda is between Harley and Kawasaki.
 - Suzuki which is third to the left of Harley is at one end.
8. Which of the bikes are on both the sides of TVS bike?
 - (a) Harley and Honda
 - (b) Honda and Suzuki
 - (c) Bajaj and GM
 - (d) Harley and Bajaj
 9. Which of the following statement is correct?
 - (a) Honda is next left of Harley.
 - (b) Kawasaki is next left of Suzuki.
 - (c) Kawasaki is at one end.
 - (d) Suzuki is next second to the right of Honda.
 10. Which one of the following statements is correct?
 - (a) Bajaj is in between Harley and Suzuki.

- (b) TVS is next left to GM.
- (c) Bajaj is next right of TVS.
- (d) Honda is fourth right of GM.

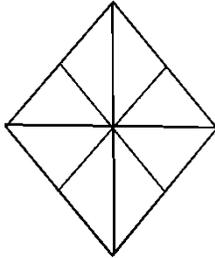
11. Which of the following groups of bikes is to the right of Harley?

- (a) TVS, Bajaj and Honda
- (b) GM, TVS and Bajaj
- (c) Honda, Kawasaki and Suzuki
- (d) Kawasaki, TVS and Bajaj

12. Which one of the following is the correct position of GM?

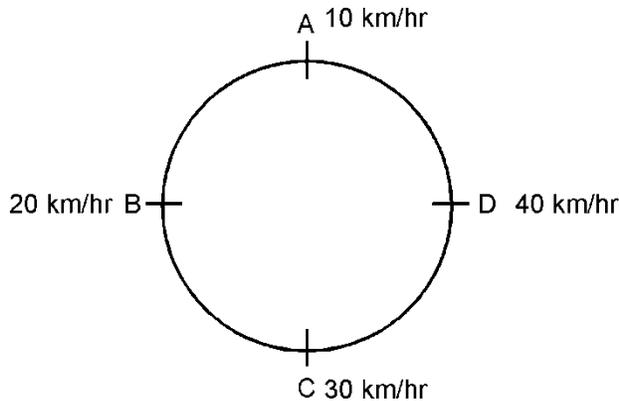
- (a) Next to the left of TVS
- (b) Next to the left of Kawasaki
- (c) Between Kawasaki and Bajaj
- (d) Fourth to the right of Honda.

13. Find the number of triangles in the figure below:



- (a) 8
- (b) 12
- (c) 16
- (d) 20

Direction for question number 14 to 15: Four cars A, B, C and D start from points A, B, C and D respectively at the same time in a circular track in anti-clockwise direction as shown in figure. Answer the questions based in the figure given below:



14. Which of the following statements is/are true?

1. All the cars meet for the first time at point D.
2. The cars A and C meet for the first time at point D.
3. When car A completes its first round, all the cars meet for the first time at point A.

Codes:

- (a) 1 only
- (b) 1 and 2
- (c) 1, 2 and 3
- (d) None of the above

15. Which car will reach the point D the earliest?

- (a) A
- (b) B
- (c) C
- (d) D

16. Ramu correctly remembers that Kallu celebrates his birthday before November but after May. Billu correctly remembers that Kallu treated him on his birthday last year after June. Lallu correctly remembers that the month of Kallu's birthday had only 30 days. In which month of the year, Kallu celebrates his birthday?

- (a) July
- (b) August
- (c) September
- (d) October

17. In the following question, two statements are given followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance from the commonly known facts and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

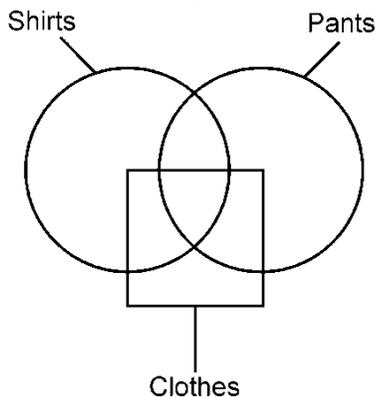
Statements: All flowers are trees.
All trees are leaves.

- Conclusions:** I. All flowers are leaves.
II. All leaves are flowers.
III. All trees are flowers.
IV. Some leaves are flowers.

Codes:

- (a) None follows
- (b) Only II and III follow
- (c) Only I and IV follow
- (d) All follow

18. Which of the following statements is/are true according to the Venn diagram shown below?



- A. Some Shirts are Pants.
- B. Some Pants are Clothes.
- C. All Clothes that are Shirts are Pants.
- D. Some Clothes are Pants but not Shirts.

Codes:

- (a) Only A and B
- (b) Only C
- (c) A, B and D
- (d) All of these

19. Examine the following statements:

1. When my dad is in an irritable mood, I avoid meeting him.
2. My dad is in an irritable mood only when India loses in cricket.
3. If my grades are low, I avoid meeting my dad.

Which one of the following conclusions is valid in the context of the above statements?

- (a) If India loses in cricket, I avoid meeting my dad.
- (b) My dad is in an irritable mood if my grades are low.
- (c) If India loses in cricket, my grades are low.
- (d) None of the above.

Directions for questions 20 to 22: Seven friends A, B, C, D, E, F and G, of which four are women, are going for a tour to Singapore. They belong to either Delhi, Kolkata, Mumbai, Goa or Bangalore. Two of them are Business persons and two of them are Engineers. Others are Lawyer, Doctor and Editor. A is a businesswoman and belongs to Delhi. D and E are twin sisters from Kolkata. B is a male Lawyer and his best friend C is from Mumbai, who is a Doctor. F and G are siblings of same sex living together in Bangalore. Editor does not live in Bangalore and is a female. Both the engineers belong to the same city.

20. Who among the following is definitely a female?

- (a) F
- (b) G
- (c) B
- (d) C

21. Who among the following is the editor?

- (a) D
- (b) E
- (c) Either D or E
- (d) F

22. Who among the following is an Engineer?

- (a) D
- (b) E
- (c) G
- (d) Cannot be determined

23. Consider the following statements.

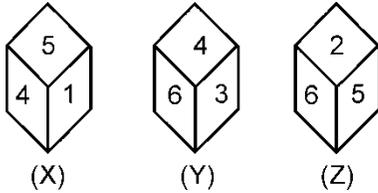
1. All juvenile delinquents are maladjusted individuals.
2. Some juvenile delinquents are products of broken homes.
3. All urchins are products of broken homes.

4. Some urchins are orphans.

Which one of the following conclusions can be drawn from the above statements?

- (a) Some orphans are juvenile delinquents.
- (b) Some urchins are juvenile delinquents.
- (c) Some urchins are maladjusted individuals.
- (d) Some orphans are products of broken homes.

24. Three different positions X, Y and Z of a dice are shown in the figures given below. Which number lies at the bottom face in position X?



- (a) 2
- (b) 3
- (c) 6
- (d) Either 2 or 3

25. Five friends went to a restaurant to have dinner and decided to pay equally the bill. When the bill was presented one among them fell short of his share by Rs 60. So the other friends divided it among themselves and each of them had to pay Rs. 130. What was the amount presented in the bill?

- (a) 610
- (b) 590
- (c) 600
- (d) 575

General Awareness

26. Cash Reserve Ratio (CRR) is commonly used to affect monetary policy. Increase in CRR leads to...

1. Reduction in the number of loans being made by banks
2. Reduction in liquidity
3. Reduction in interest rates
4. Reduction in consumer spending

Codes:

- (a) 1, 2 and 3
- (b) 1, 2 and 4
- (c) 1, 3 and 4
- (d) 2, 3 and 4

27. Match the following:

Device	Converts
A. Battery	I. Sound energy into electrical energy
B. Loudspeaker	II. Chemical energy into electrical energy
C. Battery charger	III. Electrical energy into sound energy
D. Microphone	IV. Electrical energy into chemical energy

Codes:

- (a) A-II; B-III; C-IV; D-I
- (b) A-IV; B-I; C-II; D-III
- (c) A-IV; B-III; C-II; D-I
- (d) A-II; B-I; C-IV; D-III

28. Inflation is the general increase in prices and fall in the purchasing value of money. Which of the following are the reasons for inflation in the economy?

- I. Rising imported raw materials costs
- II. Higher indirect taxes imposed by the government
- III. Increase in non plan expenditure of government
- IV. Depletion of natural resources

Codes:

- (a) I and III (b) II and IV
- (c) I, II and III (d) All of the above

29. Which of the following statements regarding Chenab River are correct?

- 1. The Chenab is the largest tributary of the Indus.
- 2. It is formed by two streams, the Chandra and the Bhaga.
- 3. Both these rivers join at Tandi near Keylong in Himachal Pradesh.
- 4. The world's highest road bridge is being built across river Chenab.

Codes:

- (a) 1, 2 and 3 (b) 1 and 2
- (c) 2, 3 and 4 (d) All of them

30. The Basel Committee on Banking Supervision formulates broad supervisory standards and guidelines and recommends statements of best practice in banking supervision. Which of the following are included in Basel-III norms?

- 1. Basel III norms say that the predominant form of Tier 1 capital must be common shares and retained earnings.
- 2. Basel III proposes to harmonise Tier 2 capital instruments.
- 3. Basel-III proposes to eliminate Tier-3 capital.

Codes:

- (a) Only 1 (b) Only 2 and 3
- (c) All the above (d) None of the above

31. Consider the following statements and select the correct answer:

- (i) Bihar has the highest growth rate in terms of both GDP and per capita income.
- (ii) Kerala has the highest rate of unemployment (both rural and urban).
- (iii) Madhya Pradesh has the highest gross enrolment ratio (GER) (6-13 years).
- (iv) Delhi has the highest percentage households availing banking services.

Codes:

- (a) i, ii, iii only (b) i, iii, iv only
- (c) None of the above (d) All the above

32. Which of the following pair is incorrect?

- | | |
|---|-------------------------------------|
| I. National Afforestation and Eco-Development Board | Ministry of Agriculture |
| II. National River Conservation Directorate | Ministry of Water Resources |
| III. Central Ground Water Board | Ministry of Environment and Forests |

Codes:

- (a) I only
 (b) II and III
 (c) None of the above
 (d) All the above

33. GOI has launched the Crime and Criminal Tracking Network and Systems which aims at creation of a nationwide networking infrastructure for investigation of crime and detection of criminals. The pilot phase of the CCTNS has been launched in...

- (a) Mumbai (b) New Delhi
 (c) Hyderabad (d) Bangalore

34. Broadly an economy is classified into three sectors i.e., Primary, Secondary and Tertiary. Of these, the Secondary sector consist of:

1. Electricity
2. Water supply and construction
3. Storage
4. Mining and quarrying

Select the correct answer from the codes given below:

- (a) 1 and 2 only (b) 1 and 3 only
 (c) 1, 2 and 3 only (d) 2, 3 and 4 only

35. Match the following:

- | List-I | List-II |
|------------------|-------------------|
| A. Dappu Dance | I. Andhra Pradesh |
| B. Chhau Dance | II. Bihar |
| C. Dekhni Dance | III. Goa |
| D. Tippani Dance | IV. Gujarat |

Select the correct answer code from below:

- | | | | | |
|-----|----|----|-----|-----|
| | A | B | C | D |
| (a) | II | I | III | IV |
| (b) | II | I | IV | III |
| (c) | I | II | IV | III |
| (d) | I | II | III | IV |

36. Consider the following statements and select the correct answer:

- (i) Total Sanitation Campaign (TSC) has been renamed as Nirmal Bharat Abhiyan (NBA).
- (ii) Nirmal Bharat Abhiyan is a community based saturation approach.
- (iii) The main aim of Nirmal Bharat Abhiyan is to achieve 100 per cent access to sanitation for all rural households by 2022.

Codes:

- (a) (i), (ii) only
- (b) (i), (iii) only
- (c) (ii), (iii) only
- (d) All the above

37. Which of the following statements are correct about Antyodaya Anna Yojana (AAY)?

- 1. AAY was launched by the Central Government in December 2000.
- 2. Under the scheme the poorest among the BPL families covered under the targeted public distribution system are identified.
- 3. 25 kg of food grains are made available to each eligible family at a highly subsidized rate of Rs. 2 per kg for wheat and Rs.3 per kg for rice.

Codes:

- (a) 1 and 2 only (b) 1 and 3 only
- (c) 2 and 3 only (d) All the above

38. Consider the following statements about the market mechanism:

- 1. It establishes equilibrium in a market on the basis of demand and supply.
- 2. It allocates the resources most efficiently.
- 3. It ensures social justice and equity.

Which of these statements are correct?

- (a) 1 and 2 (b) 2 and 3
- (c) 1 and 3 (d) 1, 2 and 3

39. Consider the following statements and select the correct answer:

- 1. The Saraswati Samman is an annual award for outstanding prose or poetry literary works in any Indian language.
- 2. The award, instituted by the K.K. Birla Foundation, carries a cash component of Rs. 10 lakh, a citation and a plaque.
- 3. Malayalam poetess Sugathakumari has been selected for the Saraswati Samman 2012 for her poetry collection Manalezhuthu (Writing on the Sand).

Codes:

- (a) 1 and 2 (b) 2 and 3
- (c) 1 and 3 (d) 1, 2 and 3

40. Consider the following statements:

- 1. The Attorney General of India is appointed by the President upon the recommendation of the Chief Justice of Supreme Court.
- 2. The Attorney General of India has the right to speak in the Parliament but he can't vote.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2

41. Climate change has become a global environmental problem leading to rise in average global temperature, changes in precipitation, and increase in ocean temperature leading to sea level rise. Which of the following statements is/are correct?
- I. Sea level rises when the ocean gets warm because warmer water expands.
 - II. Melting of the ice sheets increases salinity of the sea due to addition of impurities.
 - III. Sea level rise may lead to contamination of aquifers and agricultural soils.

Codes:

- (a) Only I (b) I and II
- (c) II and III (d) I and III

42. Match the following:

List-I	List-II
A. International Telecom Satellite Organization	I. Geneva
B. International Parliamentary Union	II. Vienna
C. Organization of Economic Cooperation and Development	III. Washington D.C.
D. Organization of Petroleum Exporting Countries	IV. Paris

Codes:

- | | | | | |
|-----|-----|----|-----|-----|
| | A | B | C | D |
| (a) | IV | II | I | III |
| (b) | III | I | IV | II |
| (c) | IV | II | III | I |
| (d) | I | IV | II | III |

43. Match the following Dronacharya Award winners with the sports they coach for.

Coach	Sports
A. B. I. Fernandez	1. Kabaddi
B. Harendra Singh	2. Wrestling
C. Sunil Dabas	3. Hockey
D. Yashvir Singh	4. Boxing

Codes:

- | | | | | |
|-----|---|---|---|---|
| | A | B | C | D |
| (a) | 4 | 3 | 1 | 2 |
| (b) | 4 | 3 | 2 | 1 |
| (c) | 3 | 4 | 1 | 2 |
| (d) | 3 | 4 | 2 | 1 |

44. Consider the following statements about steel and select the correct answer.

1. Carbon steel is a steel in which the main interstitial alloying constituent is carbon in the range of 0.12-2.0%.
2. In carbon steels, the higher carbon content increases the melting point.
3. Stainless steel is a steel alloy with a minimum of 10.5% to 11% chromium.

Codes:

- (a) All the above (b) 1 and 2
(c) 2 and 3 (d) 1 and 3

45. Exchange rate is defined as the rate or price at which one country's currency is exchanged for another country's currency. The reasons for depreciation of currency in India are:

- I. Poor performance of stock market
- II. Red tapism
- III. Growing Trade deficit
- IV. High CRR and SLR

Which of the above are correct?

- (a) I and II
(b) II and III
(c) I, II and III
(d) All the above

46. Which of the following is/are correct in respect of 'Zero Hour' discussion?

1. It is not directed against individual Ministers.
2. It covers questions raised over matters of public importance.

Codes:

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

47. Which of the following can lead to appreciation of the domestic currency?

- (i) Increase in interest rate
- (ii) Increase in per capita income
- (iii) Increase in foreign investment.
- (iv) Increase in income tax revenue.

Codes:

- (a) All the above (b) (i), (ii) and (iii)
(c) (ii), (iii) and (iv) (d) (i), (iii) and (iv)

48. Match the following:

List A (Projects)	List B (River)
A. Salal	I. Betwa
B. Matatila	II. Chenab
C. Jayakwadi	III. Sone
D. Bansagar	IV. Godavari

Codes:

- (a) A-II; B-I; C-IV; D-III
(b) A-I; B-II; C-III; D-IV
(c) A-II; B-I; C-III; D-IV

(d) A-I; B-II; C-IV; D-III

49. Greenhouse gases (GHGs), enshrined in Kyoto Protocol are: CO₂; Methane; Nitrous oxide; Sulphur hexafluoride; Hydrofluorocarbons and Perfluorocarbons. Which of the following are the sources of Hydro-fluoro-carbons and Per-fluoro-carbons?

- I. Air conditioners
- II. Fire retardants
- III. Fertilizers
- IV. Municipal Solid Waste Landfills

Codes:

- (a) Only I
- (b) I, III and IV
- (c) I, II and III
- (d) I and II

50 Match the following:

List A
(Persons)

- A. Naresh Fernandes
- B. Pratibha Ray
- C. Shihab Ghanem
- D. Narendra Kohli

List B
(Prize)

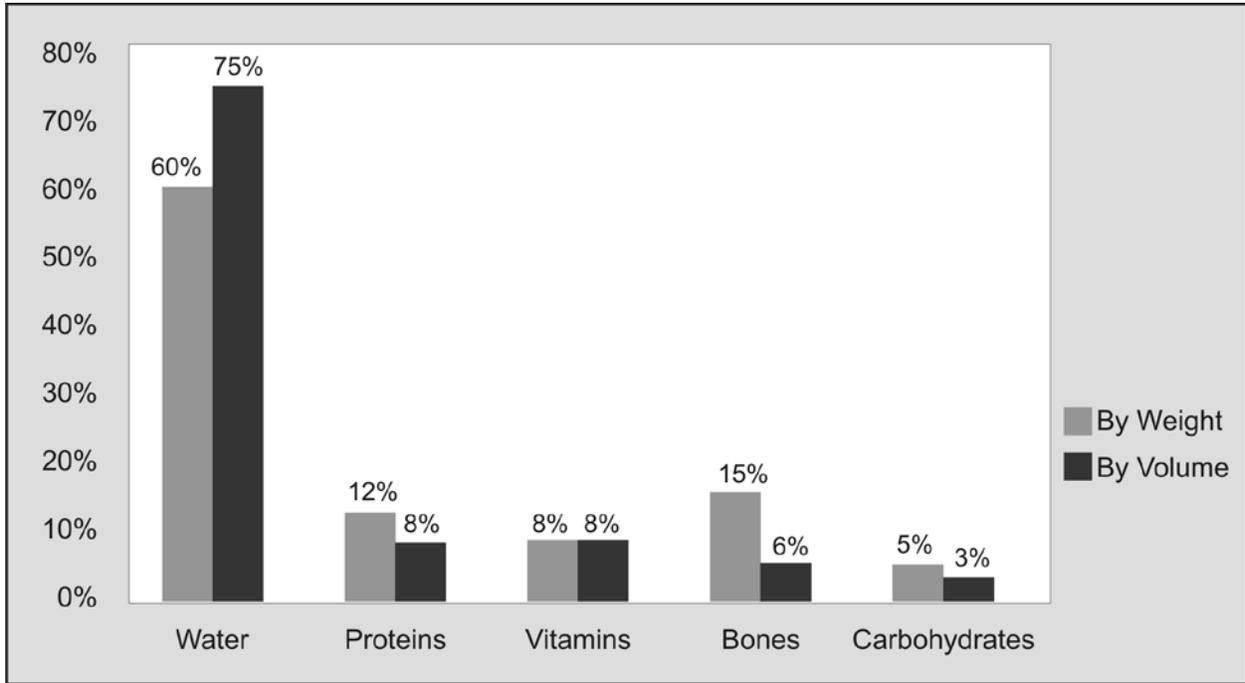
- I. Jnanpith Award
- II. Shakti Bhatt Prize
- III. Vyas Samman
- IV. Tagore Peace Prize

Codes:

- (a) A-II; B-I; C-IV; D-III
- (b) A-I; B-II; C-III; D-IV
- (c) A-I; B-II; C-IV; D-III
- (d) A-II; B-I; C-III; D-IV

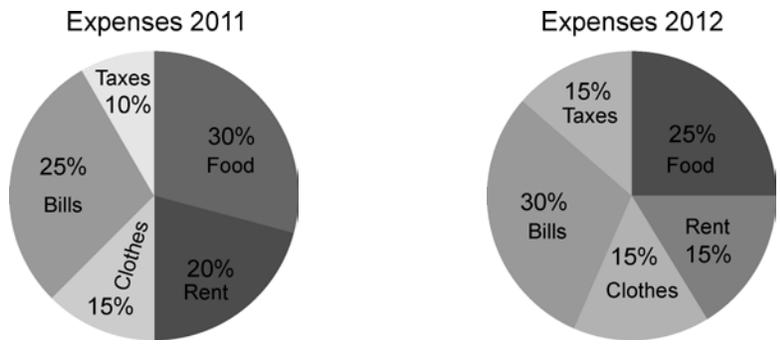
Quantitative Techniques & Data Interpretation

Directions for three items that follow: Following graph gives break up of human body in terms of weight and in terms of volume.



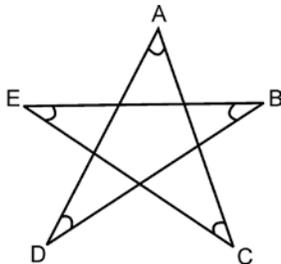
51. Which component of the body is the densest?
 - (a) Bones
 - (b) Carbohydrates
 - (c) Proteins
 - (d) Water
52. Find the ratio of density of water and density of bones.
 - (a) 0.25
 - (b) 0.30
 - (c) 0.32
 - (d) 0.42
53. Find the reduction in the net weight of the body if all the components of the body would have density same as that of water
 - (a) 27.5%
 - (b) 25%
 - (c) 30%
 - (d) 20%
54. Find the smallest number which when divided by 3, 6 or 7 leaves a remainder of 2.
 - (a) 44
 - (b) 62
 - (c) 80
 - (d) 86

Directions for question number 55 to 57: The following graphs show the various expenses of Mr. Kumar in the years 2011 and 2012. The income of Mr. Kumar was Rs 600,000 in 2011.



Note: Income = Expenses + Savings

55. What is the percentage change in the expenses of Mr. Kumar in Food from 2011 to 2012, if his income increased by 15% in the year 2012?
- (a) 5%
 (b) 4.1%
 (c) 6.5%
 (d) Cannot be determined
56. If Mr. Kumar saved Rs 60000 in the year 2011, then what is the difference in the amount spent on Food and Rent by him that year?
- (a) 60000
 (b) 54000
 (c) 56000
 (d) 50000
57. What is the ratio of money spent by him on Bills in 2011 and 2012 if his income and savings remained the same both years?
- (a) 3 : 4
 (b) 4 : 5
 (c) 5 : 6
 (d) Cannot be determined
58. Find sum of angles A, B, C, D & E in the following figure.



- (a) 300° (b) 180°
 (c) 360° (d) 50°
59. A 60 litre milk-water solution contains milk and water in the ratio 4:1. Find the quantity of water to be added to this mixture to decrease milk water ratio to 3:1.

- (a) 4 litres (b) 3 litres
(c) 12 litres (d) 15 litres

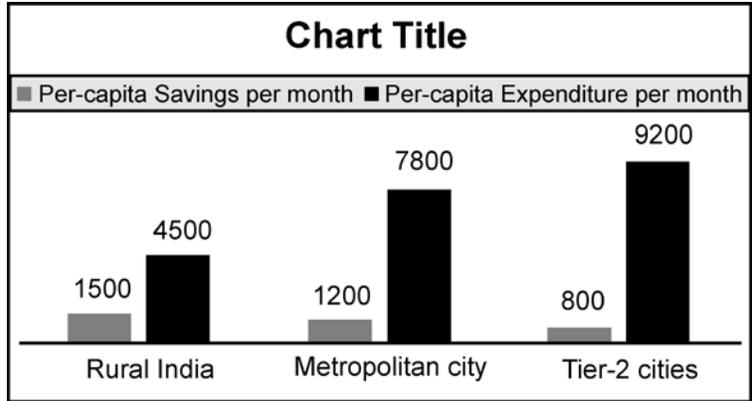
Directions for question number 60 to 63: The following table shows the number of employees, their salary and other information of the various departments of the ABC technologies.

Department	Total Employees	Salary Per hour (Rs)	Working hours per week	Overtime per hour (Rs)
Accounts	43	80	72	50
R&D	55	120	50	100
IT	24	100	56	80
HR	15	110	52	85
Management	20	90	60	75

Each month consists of 4 weeks exactly.

60. The salary per week of an employee of which department is the highest, if there is no overtime done?
(a) Accounts (b) R&D
(c) IT (d) HR
61. What is the total expense incurred by the company on salaries per month of the R&D department if no employee works any overtime?
(a) 1250000 (b) 1425000
(c) 1320000 (d) 1500000
62. What is the difference in the total salaries earned by all HR and Management employees per week if all of them worked for 60 hours per week?
(a) 10000 (b) 12000
(c) 9000 (d) 13500
63. Mahesh, an Accounts employee, needs Rs 7200 in a week. If he works for 6 days that week, then how many hours of overtime per day will he have to work every day that week?
(a) 3.5 hours (b) 4.2 hours
(c) 4.8 hours (d) 5 hours
64. In an examination, there are two sections A and B with five questions in each section. A student needs to attempt exactly eight questions in the exam with at least four questions from section A. In how many ways this paper can be attempted?
(a) 25 (b) 120
(c) 35 (d) 40

Directions for questions 65 to 68: Following graph presents the per-capita income and expenditure of different segments of India. Go through the data given and answer the questions that follow:



65. If tier-2 cities and metropolitan cities form urban India then what is the average per - capita income of Urban India?
- (a) 9,500
 (b) 9,200
 (c) 9,800
 (d) Cannot be determined
66. By what percentage per-capita income of Metropolitan cities is more than per-capita income of Rural India?
- (a) 33.33% (b) 50%
 (c) 66.66% (d) 40%
67. If 25% of rural India are unemployed then what is the average income of other persons of Rural India?
- (a) 8,000
 (b) 7,500
 (c) 4500
 (d) Cannot be determined
68. How much does an average tier-2 city resident saves every year?
- (a) 8% of his annual income
 (b) 96% of his monthly income
 (c) Both (a) and (b) are correct
 (d) Neither of the two statements is correct
69. In an examination, 1100 were boys and 900 were girls. 50% of the boys and 40% of the girls passed the examination. The percentage of candidates that failed is
- (a) 45%
 (b) 45.5%
 (c) 54.5%
 (d) 59.2%
70. If $4^x \times 6^y = 12^{2012}$, then what is the value of $x + y$?
- (a) 2012
 (b) 3018

- (c) 1006
- (d) 503

71. How many five letter words (with or without meaning) can be formed using the letters of the word "MATHEMATICS"?

- (a) 13560
- (b) 6720
- (c) 55440
- (d) None of the above

72. Find the value of $\sqrt{2+3\sqrt{2+3\sqrt{2+3\sqrt{2+3\sqrt{\dots}}}}}$

- (a) $\frac{3+\sqrt{17}}{2}$
- (b) $\frac{3-\sqrt{17}}{2}$
- (c) $\frac{3+\sqrt{17}}{2}$ or $\frac{3-\sqrt{17}}{2}$
- (d) None of the above

73. Sum of n consecutive numbers is 630. Which of the following is not a possible value of n?

- (a) 4
- (b) 5
- (c) 6
- (d) 7

74. Find the smallest possible value of $x^2 + 6x + 40$?

- (a) 9
- (b) 31
- (c) 40
- (d) 49

75. Guttu started from his house towards east. After covering a distance of 4 Km, he turned towards right and then covered a distance of 3 km. What is the direction and shortest distance now from his house?

- (a) 5 Km; south-east
- (b) 5 km; south-west
- (c) 5 km; north-east
- (d) 5 km; north-west

Language Comprehension

Q 76-78 Read the Following passage and answer the questions given below.

When Peter Gelb was appointed the new head of New York's Metropolitan Opera in 2005 he knew he had a huge and difficult challenge ahead. His task was to lure into the theatre a new generation of younger operagoers without unduly alienating the loyal and ageing devotees that currently keep it afloat.

His first and undoubtedly most ambitious response to that challenge has finally come to fruition five years later. The production, a new Rheingold that will eventually pan out to a full cycle of Wagner's *Der Ring des Nibelungen* by 2012 - created for the Met by the Canadian theatrical polymath and Cirque du Soleil director Robert Lepage - kicked off the 2010-11 season last night. And, with a few qualifications, it was a triumph.

The performances were as glorious as was to be expected. Bryn Terfel, making his US debut in his celebrated role of Wotan, the lord of the gods, was brooding and dark. He was powerfully supported by Stephanie Blythe as his wife Fricka. Eric Owens made a skin-crawling Alberich, and Franz-Josef Selig and Hans-Peter König as the giants Fasolt and Fafner loomed over the stage like creatures from Maurice Sendak's *Where the Wild Things Are*.

Lepage was perhaps not an obvious choice for a Ring Cycle, a crucial commission for the Met, which has had financial difficulties recently. He specialises in high-tech wizardry of the Cirque du Soleil variety, the kind that makes your jaw drop in sheer admiration of its cleverness.

That alone made many fans of the Ring nervous, as there were suspicions that he would be too clever by half, allowing his technical brilliance to overshadow the only genius they want to shine out of the stage: Wagner himself.

At times that looked as though it might become a problem. The centrepiece of the production is a rack of 24 planks built out of fibreglass-covered aluminium that can rise and fall powered by hydraulics and can revolve through 360 degrees.

The overall set was so heavy the Met had to reinforce its stage, a massive undertaking that is said to have pushed the overall cost of the production up to \$15m (£9.5m).

Lepage certainly makes the stage do extraordinary things. During the prelude, as the orchestra plays the mysterious and transfixing motif of the Rhine, it comes alive, undulating like the moving waters. As the Rhine daughters appear, the stage lifts itself high into the air and becomes the sea within which they float, replete with video-projected bubbles.

Later, the planks twist and turn into a bridge that leads down into the underworld lair of the Nibelung, or reforms itself into two massive hands upon which the giants stand. It is predictably clever stuff, but at moments it does indeed detract from the music - either by dint of the stage machinery clanking or because of its visual brashness.

But those moments are rare, and for the most part Lepage has been careful to pay homage to the music, keeping the gadgetry low-key and respectful and intelligently enhancing Wagner's mood rather than imposing his own. The production is also surprisingly literal, which will please the traditionalists – Wagner's rainbow motif, for instance, is accompanied by a projection of rainbow colours.

The immaculately dressed first-night audience greeted the production with some very audible boos as well as robust cheers. My guess was the cheers just had the edge, which was a major achievement bearing in mind the Met's notoriously change-averse regular clientele.

The true star of the night though was James Levine, who stood through his first full performance at the conductor's podium for seven months due to a serious back complaint. As he has done so often over the past 40 years at the Met, he inspired a great orchestra to give of its best, culminating in a mesmerising climax.

At the end he had to be virtually dragged onto the stage by Blythe, and looked barely able to walk. But he received the most effusive applause from an audience overjoyed to have him back.

76. Which of the following is not true as per the passage ?

- (a) At times, Lepage's technical wizardry took the audience attention away from the music.
- (b) The overall audience response to the production on its first night was not of unanimous praise.
- (c) Blythe did not want to come to the stage as he was of a self-effacing nature.
- (d) None of the above.

77. Which of the following can be inferred from the passage?

- (a) The Met made a difficult choice in hiring Lepage as he was expensive for the financially troubled Met.
- (b) The Met were worried that Lepage's technical brilliance would overshadow the brilliance of Wagner's creation.
- (c) Lepage had made an effort to be careful and enhance the production with his effects rather than stand out in contrast to it.
- (d) All of the above.

78. Which of the following best describes the author's attitude towards Peter Gelb's effort?

- (a) Skepticism
- (b) Eulogy
- (c) Guarded approval
- (d) Criticizing

(Q. 79-82): In the following paragraph, some blanks have been given (numbered 4-7). Among the choices, find the best option to fit in the blank.

The popularity of rabbits as pets has increased immensely over the last few years. Their value as companion animals has------(4)----- for several reasons. Rabbits make relatively few demands on an individual's or a family's lifestyle. They are quiet and peaceful animals by nature. Their exercise -----(5)----- are few, and they respond beautifully to attention and affection if they are handled frequently with gentleness and love. Rabbits are very intelligent, and can be -----(6)----- very easily. In general, rabbits are -----(7)----- gentle creatures who will fill your world with more love and joy than you could ever imagine.

79. (a) burgeoned (b) vanished (c) descended (d) deprecated
 80. (a) requirements (b) patterns (c) preparations (d) comments
 81. (a) habituated (b) subdued (c) recommended (d) housetrained
 82. (a) vicious (b) determined (c) docile (d) uncultivated.

Q.83-85 Find the word among the options which is synonymous in meaning to the given key word.

83. Gaffe
 (a) Party (b) Blunder (c) Balloon (d) Fool
 84. Bailiff
 (a) Law officer (b) Judge (c) Detective (d) Accountant
 85. Traipse
 (a) Run (b) Walk (c) Steal (d) Affirm

Q. 86-87 Arrange the following sentences logically to make a coherent paragraph and mark the appropriate answer among the options given at the end.

- 86.
- A. The fortieth anniversary of Gamal Abdel Nasser's death has brought renewed speculation about the cause of his death, as well as a deep sense of nostalgia for the lost values he represented and advocated.
 B. Rumours have long circulated that the Egyptian leader died as a result of foul play and not a heart attack, as was officially declared.
 C. Mohammed Hassanein Heikal, Nasser's close adviser, recently stirred muddy waters by mentioning the cup of coffee that Nasser drank three days before his death.
 D. The famous cup of coffee was prepared by none other than former Egyptian president Anwar Sadat.

- (a) CDBA (b) BACD (c) ACBD (d) ABCD

87.

- A. The effect on the nervous system explains why some find themselves unable to eat or sleep after a break-up.
- B. And, the more rejected one feels, the slower one's heart rate gets, says the study.
- C. Researchers have found that the human brain uses some of the same regions to process physical and emotional pain – so getting dumped is not just mentally upsetting, it can also upset one's body, the Daily Mail reported.
- D. There's a saying that no one ever died from a broken heart, but a new study claims it can do a lot more damage than you think – romantic rejection can make one's heart stop momentarily.

- (a) CABD (b) DCAB (c) DBCA (d) DCAB

Q. 88-92 Read the following passage and answer the question that follows:

The anger, antagonism, outrage and collective soul searching which the country witnessed in the wake of a young girl's brutal gang rape in Delhi could only get magnified by her death in a hospital in Singapore – a place, where she would have once dreamt to serve as a doctor being a medical student. The protests started in Delhi where the shrill and anger of the Indians who were in deep slumber until recently, could then be heard from every '*galli*', '*nukkad*' and '*muhalla*.'

The protests in major cities across the country observed men, women and children screaming for justice and an end to the violence on women. Many others in the social and conventional media have added their commentary to the chorus. This isn't necessarily the view of the majority of Indians, but certainly represents, at the very least, a vocal minority that is giving vent to deeply held frustrations.

But in a country with an abysmally low rate of convictions for rape and other crimes against women, (26% last year, down from 46% in the 1970s) it seems to be pointless to fixate on ratcheting up the penalty further. Consider that out of 635 cases of rape reported in Delhi this past year only one has led to a conviction. In a country of 124 Crore Indians, the countrymen raised their voice for just one incident. It's perhaps understandable that people, frustrated by a failed and unresponsive system, are looking for novel and creative solutions to tackle the problem of violence in our society.

As the Indian Republic heads into its 64th year, we seem to be caught between an illiberal, insensitive government-political class and a rampaging mob demanding instant solutions, with only a thin line separating the two. The gang rape ought to have been understood as a complex socio-political issue, resulting as much from bad policing as from entrenched notions of female purity and honour.

The irony which is intended to be raised through this article is, whether Delhi – the country's capital should now be called as Rape Capital or Rage Capital?

88. According to the author, the people of the country got themselves involved in the protest because:
- (a) The situation in the country became intolerable
 - (b) They countrymen got a chance to express their frustration which got generated in them over the years through a number of incidents
 - (c) The women in the country were getting assaulted
 - (d) None of these
89. The word 'abysmally' in the passage can be replaced by:
- a. Badly
 - b. Superbly
 - c. Dreadfully
 - d. Splendidly
90. The author of the passage seem to be:
- a. True Indian
 - b. Worried about the future of his country's capital
 - c. Frustrated with the political system in the city of Delhi
 - d. All of the above
91. According to the author, the girl would have wanted to be in the hospital in Singapore to:
- a. Heal her wounds
 - b. Quick recovery
 - c. Learn Medical Science
 - d. Serve the people as a doctor being from the same domain
92. The message which the men, women and children wanted to convey through this protest was:
- a. The accuser should be hanged
 - b. There should be peace in the country
 - c. There should be an end to violence on woment
 - d. None of these

Q.93-95. Among the following sentences, find the grammatically correct sentence.

93. (a) The strawberries does not taste very good.
(b) The strawberries do not taste very good.
(c) The strawberries are not tasting a very good.

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- (d) The strawberries that are not tasting very good.
94. (a) He always came to class lately.
(b) He will always come to class late.
(c) He always comes to class lately.
(d) He always comes late to class.
95. (a) The boss with all his team have reached the office.
(b) The boss and all his team has reached the office.
(c) The boss and his team have reached the office.
(d) The boss as well as his team have reached the office.

Q 96-98 Read the Following passage and answer the questions given below.

The International Labour Organisation (ILO) has warned of growing social unrest because it fears global employment will not now recover until 2015.

This is two years later than its earlier estimate that the labour market would rebound to pre-crisis levels by 2013. About 22 million new jobs are needed – 14 million in rich countries and 8 million in developing nations.

The United Nations work agency today warned of a long "labour market recession" and noted that social unrest related to the crisis had already been reported in at least 25 countries, including some recovering emerging economies.

Crisis-hit Spain faced its first general strike in eight years this week as unions protested against the government's austerity measures and labour reforms. The strike on Wednesday coincided with protests in Greece, Portugal, Ireland, Slovenia and Lithuania, as well as demonstrations in Brussels by tens of thousands of workers from across Europe as part of a European day of action against public spending cuts.

"Fairness must be the compass guiding us out of the crisis," said ILO director general Juan Somavia. "People can understand and accept difficult choices, if they perceive that all share in the burden of pain. Governments should not have to choose between the demands of financial markets and the needs of their citizens. Financial and social stability must come together. Otherwise, not only the global economy but also social cohesion will be at risk."

Raymond Torres, lead author of the ILO's annual World of Work report, published today, warned governments against withdrawing fiscal stimulus measures while the economic recovery was still weak.

Torres said there were two main reasons for the bleaker outlook facing many countries: "The first is that fiscal stimulus measures that were critical in averting a deeper crisis and helped jump-start the economy are now being withdrawn in countries where recovery, if any, is still

too weak," he said. "The second, and more fundamental factor is that the root causes of the crisis have not been properly tackled."

The ILO said the global economy had started growing again, with encouraging signs of employment recovery, especially in some emerging economies in Asia and Latin America. But it added: "Despite these significant gains ... new clouds have emerged on the employment horizon and the prospects have worsened significantly in many countries."

Since the crisis started in 2007, some 30-35 million jobs have been lost worldwide. The ILO forecasts that global unemployment will hit 213 million this year, a rate of 6.5%. For the United States, the number of jobs still needed to regain pre-crisis levels is 6.9 million.

Many countries that experienced employment growth at the end of 2009 are now seeing the jobs recovery weaken. Even among people with jobs, satisfaction at work has deteriorated significantly.

"The longer the labour market recession, the greater the difficulties for jobseekers to obtain new employment," the ILO report said. "In the 35 countries for which data exists, nearly 40% of jobseekers have been without work for more than one year and therefore run significant risks of demoralisation, loss of self-esteem and mental health problems. Importantly, young people are disproportionately hit by unemployment."

The ILO recommends three policies for a jobs-led recovery:

- Active labour market policies including work-sharing that target vulnerable groups such as young people, and training.
- A closer link between wages and productivity gains in surplus countries to boost demand and job creation.
- Financial sector reform to ensure savings are channelled to productive investment and the creation of more stable jobs.

96. Which of the following is not a contributing factor to prolonging the labour market recession?

- (a) Fiscal stimulus measures have been withdrawn in some countries.
- (b) Work satisfaction levels have dropped significantly.
- (c) Root causes of the crisis have not been tackled properly.
- (d) The employment horizon is going to witness new problems.

97. Which of the following measures would be in line with the views of the ILO Director general?

- (a) Meet the needs of people.

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- (b) In case of social unrest , do away with fiscal measures temporarily.
- (c) Educate people about the need for measures of austerity in the crisis.
- (d) Suppress social unrest by the force of law.

98. The tone of the passage is:

- (a) Narrative
- (b) Descriptive
- (c) Foreboding
- (d) Cynical.

Q. 99-100 Make a coherent paragraph from the following disarranged set of sentences.

99.

1. The term Rajput in the form of a caste or varna became popular only after the advent of the Muslims in India.

- A. The Rajput is a deviated form of the Sanskrit word, Rajputra.
- B. Hieun-Tsang while giving description of kings, uses the term kshatriya and not rajputra.
- C. The term rajputra also comes in the Kadambari and the Harsha charit of Vanabhata.
- D. In ancient times, the Rajputra was used from Kshatriya princes or members of a ruling class, and not for a specila caste.

6. This term, which was earlier used for princes only, began to be used for military classes and small landlords in the early medieval period.

- (a) ABCD
- (b) ADCB
- (c) BCDA
- (d) DCBA

100.

1. In this crucial hour Akbar kept his nerve and led the campaign to Kabul on 18th February, 1581.

- A. The treacherous nobles lijke Shah Mansoor, Md. Yasdi, etc. who had supported Mirza were publicly executed.
- B. Akbar entrusted the governship of Kabul to his cousin and sister of Mirza, Bakhtunisha Begum and returned to Agra.
- C. In 1585, when Mirza Md. Died, Man Singh was appointed as governor and thus Kabul became a part of Mughal Empire.
- D. Mirza ran away from Kabul, hearing the news of Akbar's advance.

6. In 1585, Akbar moved to North-West Frontier and stayed there until 1598. This 14 years of stay in this region proved crucial for Mughal impression and consolidation in this region.

- (a) DBAC
- (b) BDAC
- (c) CADB
- (d) CBDA

Answers:

1. (a)
2. (b)
3. (c)
4. (c)
5. (a)
6. (c)
7. (b)
8. (c)
9. (a)
10. (b)
11. (b)
12. (d)
13. (c)
14. (d)
15. (c)
16. (c)
17. (c)
18. (c)
19. (d)
20. (d)
21. (c)
22. (c)
23. (d)
24. (b)
25. (d)
26. (b)
27. (a)
28. (d)
29. (a)
30. (c)
31. (a)

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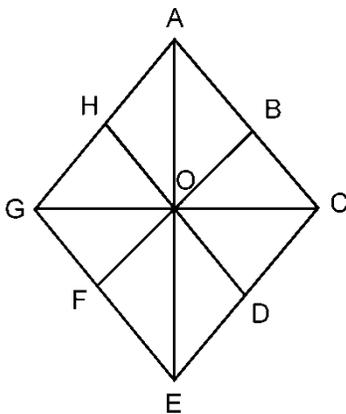
32. (d)
33. (b)
34. (a)
35. (d)
36. (d)
37. (a)
38. (a)
39. (b)
40. (b)
41. (d)
42. (b)
43. (a)
44. (d)
45. (d)
46. (c)
47. (b)
48. (a)
49. (d)
50. (a)
51. (a)
52. (c)
53. (d)
54. (a)
55. (d)
56. (b)
57. (c)
58. (b)
59. (a)
60. (b)
61. (c)
62. (b)
63. (c)
64. (c)
65. (d)

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- 66. (b)
- 67. (a)
- 68. (a)
- 69. (c)
- 70. (b)
- 71. (a)
- 72. (a)
- 73. (c)
- 74. (b)
- 75. (a)
- 76. (c)
- 77. (d)
- 78. (b)
- 79. (c)
- 80. (b)
- 81. (d)
- 82. (d)
- 83. (b)
- 84. (a)
- 85. (b)
- 86. (d)
- 87. (c)
- 88. (b)
- 89. (c)
- 90. (d)
- 91. (d)
- 92. (c)
- 93. (b)
- 94. (d)
- 95. (c)
- 96. (b)
- 97. (c)
- 98. (c)
- 99. (a)
- 100 (c)

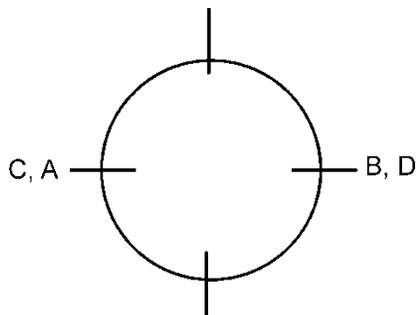
Solutions:

1. Distance covered by Car A = $(60 + 80 + 75) \times 5 / 60 = 17.9$ km
 Distance covered by Car B = $(40 + 70 + 90) \times 5 / 60 = 16.67$ km
 Distance covered by Car C = $(50 + 60 + 80) \times 5 / 60 = 15.8$ km
 So, the distance covered by Car A in 15 minutes is the maximum.
2. Distance covered by car B in 30 minutes = $(40 + 70 + 90 + 75 + 60 + 60) \times 5 / 60 = 32.9 = 33$ km approx.
3. Conclusion (a) is incorrect as the avg. speed of the car A in the last 5 minutes of the first 30 minutes is 50 km/hr not for the whole 30 minutes. Conclusions (b) and (d) are incorrect. Conclusion (c) is correct as the average speeds of all the three cars have either decreased or remained constant.
4. All dogs and pet animals are animals, while some dogs are pet animals.
5. Sitting arrangement is either 'Parul, Xavier, Sam, Zayed, Ravi, Ali' or 'Parul, Xavier, Zayed, Sam, Ravi, Ali'.
6. Only Zayed has a possibility to sit in middle of Syam and Ravi.
7. The girl is daughter of Kapil's father's sister.
12. order is (with face towards the page):
 Suzuki- Kawasaki-Honda-Harley-Bajaj-TVS-GM
13. The following triangles are in figures-
 AOB, BOC, COD, DOE, EOF, FOG, GOH, HOA, AOG, COA, EOC, GOE, ACG, EGC, AEG & AEC

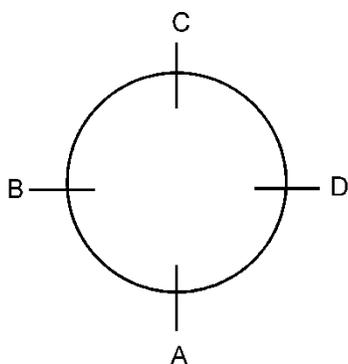


14. Let the circumference of circular track be 40 km. These are the following position of cars in every hour.

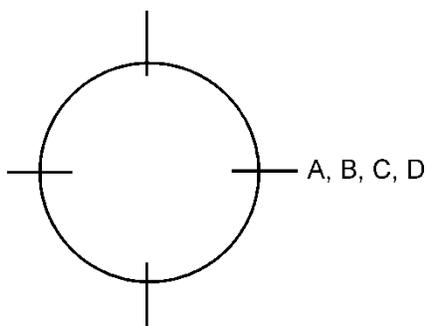
1st hour.



2nd hour.



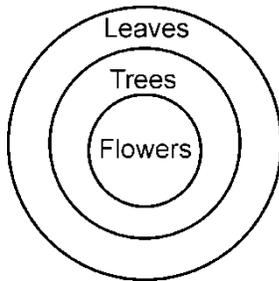
3rd hour.



So all the cars will meet at D for first time.

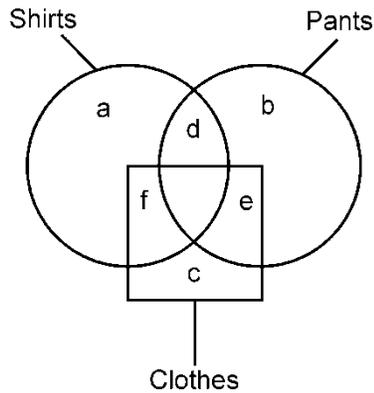
15. Cars C will reach to D the earliest.
16. According to Ramu, possibilities for birthday of Kallu - June, July, Aug, Sep, Oct.
 According to Billu, possibilities of birthday for Kallu - July, Aug, Sep, Oct.
 According to Lallu, Kallu has birthday in month having 30 days so in the possible months only September has 30 days
 So Kallu has his birthday in September.

17.



It is clear from the above diagram, that statement I & IV follow.

18.



region 'd' shows some shirts are pants.

region 'e' shows some pants are clothes.

region 'f' shows some clothes are shirts but not pants.

so statement D is correct.

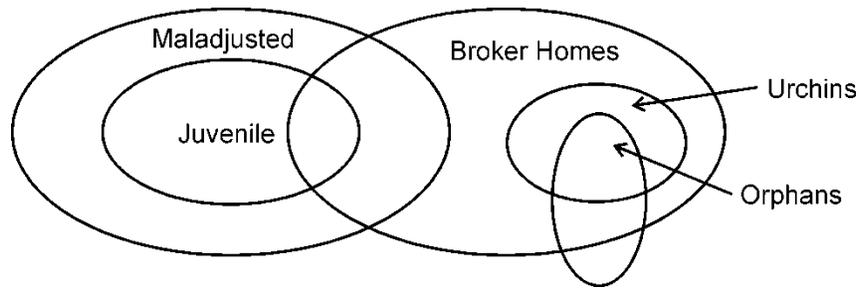
There is no region which satisfy statement C.

So option (c) is correct.

Solution set for 20 to 22:

Person	Gender	City	Profession
A	F	Delhi	Business
B	M	Goa	Lawyer
C	F	Mumbai	Doctor
D	F	Kolkata	Editor/Business
E	F	Kolkata	Business/Editor
F	M	Bangalore	Engineer
G	M	Bangalore	Engineer

23.



Clearly only (d) is correct.

Hence (d)

24. From positions X and Y we conclude that 1, 5, 6 and 3 lie adjacent to 4. Therefore, 2 must lie opposite 4. From positions Y and Z we conclude that 4, 3, 2 and 5 lie adjacent to 6. Therefore, 1 must lie opposite 6. Thus, 2 lies opposite 4, 1 lies opposite 6 and consequently 5 lies opposite 3.

As analysed above, the number on the face opposite 5 is 3. In position X, since 5 lies on the top, therefore 3 must lie at the bottom face.

25. Since, Rs. 60 was divided among the four friends, each had to pay initially = $130 - (60/4) = \text{Rs. } 115$.

So, total bill = $115 \times 5 = \text{Rs. } 575$.

26. If CRR is increased, the effective worth of bank on which it can make transactions is decreased. Hence, to earn profits, banks have to increase the rate of interest.

29. The world's highest railway bridge is being built across river Chenab.

31. Himachal Pradesh (89.1 per cent) has the highest percentage households availing of banking services while Assam (44.1 per cent) is the lowest followed by Bihar (44.4 per cent).

32. National Afforestation and Eco-Development Board and National River Conservation Directorate are under Ministry of Environment and Forests and Central Ground Water Board is under Ministry of Water Resources.

34. Broadly an economy is classified into three sector- (1) Primary sector : Agriculture and allied activities like forestry, fishing and dairying and mining and quarrying, (2) Secondary sector : Manufacturing, electricity, gas, water supply and construction, (3) Tertiary sector : Trade, Transport, Storage, Communications, financial services and community, social and personal services.

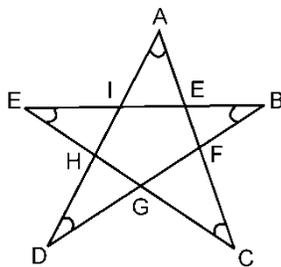
37. Twenty five kilograms (kg) of food grains were used to be made available to each eligible family at a highly subsidized rate of Rs. 2 per kg for wheat and Rs.3 per kg for rice. This quantity has been enhanced from 25 to 35 kg with effect from April, 2002.

39. The Saraswati Samman is an annual award for outstanding prose or poetry literary works in only those Indian languages that are listed in Schedule VIII of the Constitution of India.

40. The proposal for appointment of Law Officers viz. Attorney General, Solicitor General, Additional Solicitor General is generally moved at the, level of Joint secretary/Law

Secretary and after obtaining the approval of the Minister of Law & Justice, the proposal is sent to the Appointments Committee of the Cabinet for its approval. On the recommendation of cabinet the President appoints AG.

- 41. Melting of the ice sheets decreases salinity of the sea due to addition of freshwater.
- 44. As the carbon percentage content rises, steel has the ability to become harder and stronger through heat treating, however it becomes less ductile. In carbon steels, the higher carbon content lowers the melting point.
- 47. Increase in tax revenue has no role in appreciation.
- 51. density = weight/ volume
Bones = 2.5, carbohydrates = 1.66, proteins = 1.5, water = 0.8
- 52. ratio = density of water/ density of bones = (60%/75%)/(15%/6%) = .32
- 53. having same weight as of water means, having same density as of water. Density of water is 0.8, now just multiply volume of each body part with density of water and add it. It will give weight of body.
- 54. Number is of the form of $3a + 2$, $6b + 2$ & $7c + 2$ so required number is of the form (LCM of 3, 6 & 7) + 2 = $42 + 2 = 44$
- 55. Since the savings of Mr. Kumar in both the years are not mentioned, so his total expenses and hence the food expenses cannot be determined.
- 56. His total expenses = $600000 - 60000 = 540000$
Difference in food and rent = 10% of the expenses = Rs 54000.
- 57. Ratio = $25 : 30 = 5 : 6$.
- 58.



$\angle A + \angle D = \angle AFB$ (exterior angle property)....(1)

$\angle C + \angle E = \angle CEB$ (exterior angle property)....(2)

In ΔBEF

$\angle B + \angle E + \angle F = 180$ (sum of angle of triangle)

from (i) & (2)

$\angle A + \angle B + \angle C + \angle D + \angle E = 180$

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59. Initial water is 12 litre & milk is 48 liter. Milk will remain 48 litre but water contents need to be increased to 16 litre to make it a 3:1 ratio. Hence 4 litre of water need to be added.
60. Salary of Account department = $80 \times 72 = 5760$
 Salary of R & D department = $120 \times 50 = 6000$
 Salary of IT department = $100 \times 56 = 5600$
 Salary of HR department = $110 \times 52 = 5720$
 Salary of management = $90 \times 60 = 5400$
 So, Salary per week per employee is maximum for R & D department.
61. Total expense = $55 \times 120 \times 50 \times 4 = \text{Rs } 1320000$.
62. Total salary of all the employees of HR working 52 hours + 8 hours overtime = $15 \times (110 \times 52 + 85 \times 8) = \text{Rs } 96000$.
 Total salary of all the employees of Management working 60 hours = $20 \times 90 \times 60 = \text{Rs } 108000$.
 Difference = Rs 12000.
63. Salary earned by Mahesh working 72 hours = Rs 5760.
 Extra money needed = $7200 - 5760 = \text{Rs } 1440$.
 He gets Rs 50 per hour of overtime. So, overtime needed = $1440/50 = 28.8$ hours.
 Overtime per day = $28.8/6 = 4.8$ hours.
64. Student can do 8 questions either by attempting 4 questions from Section-A & 4 questions from Section-B or 5 questions from Section-A & 3 questions from Section-B.
 So number of ways he can attempt the questions:
 $= {}^5C_4 \times {}^3C_4 + {}^5C_3 \times {}^5C_3$
 $= 5 \times 5 + 1 \times 10$
 $= 35$
 Hence (c)
65. The exact population of metropolitan cities & Tier-2 cities is not given so we cannot find their total income and cannot find average income.
 Hence (d)
66. Per capita income of rural India = $4500 + 1500 = 6000$
 Per capita income of Metropolitan cities = $7800 + 1200 = 9000$
 Required % = $\frac{9000 - 6000}{6000} \times 100$
 $= 50\%$
 Hence (b)
67. Let the total population of rural India be X.
 as 25% of rural India is unemployed

So, only 75% of rural India is employed i.e. 0.75X is employed.

$$\begin{aligned} \text{Total income of rural India} &= 6000 X \\ \text{Average income of employed person} &= \frac{6000X}{0.75X} \\ &= 8000 \end{aligned}$$

Hence (a)

68. Total income in a month in tier-2 city = 800+9200 = 10000
 Annual income of tier-2 city = 12×10000 = 12000
 Monthly saving in tier-2 city = 800
 Annual saving in tier-2 city = 12×800=9600

$$\begin{aligned} \text{\% of annual saving} &= \frac{96000}{120000} \times 100 \\ &= 8\% \end{aligned} \dots\dots\dots(1)$$

$$\begin{aligned} \text{Also, annual saving as \% of monthly income} &= \frac{9600}{10000} \times 100 \\ &= 96\% \end{aligned} \dots\dots\dots(2)$$

From (1) and (2)

Saving is 8% of annual income or 96% of monthly income.

Hence (c)

69. 50% boys + 40% girls = 50% (1100) + 40% (900) = 550 + 360
 = 910.

$$\text{Failed candidates} = 2000 - 910 = 1090.$$

$$\text{Required percentage} = 1090/2000 = 54.5\%.$$

70. $4^x \times 6^y = 12^{2012} \Rightarrow 2^{2x+y} \times 3^y = 2^{4024} \times 3^{2012} \Rightarrow y = 2012, \quad 2x + y = 4024$
 $\Rightarrow x = 1006.$ Hence, $x + y = 3018$

71. There are 2 M, 2 A, 2 T and 5 Single alphabets in the word MATHEMATICS. There are three cases for making a 5 letter word.

Case - 1: If all the letters are unique. Then, the number of words = ${}^8C_5 \times 5! = 6720$

Case - 2: If only one letter is repeated. Then, the number of words = $3 \times {}^7C_3 \times \frac{5!}{2!} = 6300$

Case - 3: If two letters are repeated. Then, the number of words = $3 \times 6 \times \frac{5!}{2! \times 2!} = 540$

Total no. of words = 6720 + 6300 + 540 = 13560

72. Let $x = \sqrt{2 + 3\sqrt{2 + 3\sqrt{2 + \dots}}}$

$$x^2 - 2 = 3\sqrt{2 + 3\sqrt{2 + \dots}}$$

$$\frac{x^2 - 2}{3} = x \quad \Rightarrow x^2 - 3x - 2 = 0$$

$$x = \frac{3 \pm \sqrt{17}}{2}$$

$$\text{So, } x = \frac{3 + \sqrt{17}}{2} \text{ as } x \text{ cannot be negative}$$

73. If n is odd then the sum of n consecutive nos. will be divisible by n and if n is even then the sum of n consecutive nos. will not be divisible by n . Here, 630 is divisible by 5, 6 and 7. Hence, n can be 4, 5 and 7 but cannot be 6 as 630 should not be divisible by 6.
74. The value of the equation will be minimum when $x^2 + 6x$ is minimum.

$$\text{Hence, } \frac{d}{dx}(x^2 + 6x) = 0$$

$$\Rightarrow 2x + 6 = 0 \quad \Rightarrow x = -3$$

$$\text{For } x = -3, x^2 + 6x + 40 = 9 - 18 + 40 = 31$$

75. He started in east direction and then took a right to south direction. Thus, he will reach a point 5 Km from starting point in south east direction