

## General Intelligence and Reasoning

1. Introducing a man, a woman said "His mother is the only daughter of my father" .How is the man related to the woman?
- (1) Son
  - (2) Father
  - (3) Brother
  - (4) Uncle

**Directions for Questions 2 to 7:** Select the related word/letters/number from the given alternatives.

2. BLOCKED:YOLXPVW::?OZFMMXS

- (1) LABOURS
- (2) LAUNNCH
- (3) DEBATES
- (4) RESULTS

3. 12:72::8:?

- (1) 36
- (2) 32
- (3) 38
- (4) 40

4. FIG:EGHJFH::BIN:?

- (1) ACJHMO
- (2) CAHJMOC
- (3) CAJHOM
- (4) ACHJMO

5. 6:42::7:?

- (1) 48
- (2) 40
- (3) 56
- (4) 52

6. Garbage:House::Gangue:?

- (1) Factory
- (2) Drugs
- (3) Office
- (4) One

7. DBU:EEZ::CJH:?

- (1) DMN
- (2) DNM
- (3) DNN
- (4) DMM

**Directions for Questions 8 to 13:** Find the odd word/letters/number from the given alternatives.

- 8.

- (1) Lawyer
- (2) Collector
- (3) Mayor
- (4) Governor

9.

- (1) Acute
- (2) Parallel
- (3) Right
- (4) Obtuse

10.

- (1) 50
- (2) 120
- (3) 37
- (4) 145

11.

- (1) B S
- (2) E V
- (3) D X
- (4) I Z

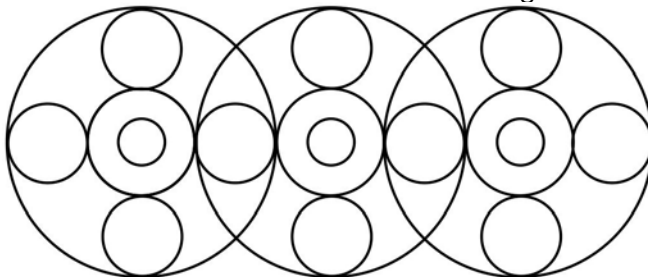
12.

- (1) OKHA
- (2) PERU
- (3) ERKU
- (4) ANDI

13.

- (1) 200
- (2) 191
- (3) 808
- (4) 1331

14. Find out the number of circles in the figure



- (1) 18
- (2) 20
- (3) 16
- (4) 19

**Directions for Questions 15 to 17:** Which one set of letters/numbers when sequentially placed at the gaps in the given letter series shall complete it?

15. SH\_ELAS\_EELA\_HEELASHEE\_A

- (1) HHSS
- (2) EEHS
- (3) ELHA
- (4) EHSL

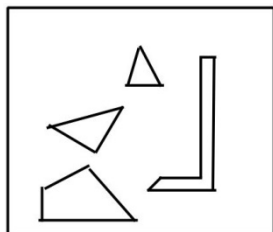
16. 12\_41\_34123\_\_234

- (1) 3212
- (2) 2134
- (3) 3241
- (4) 1432

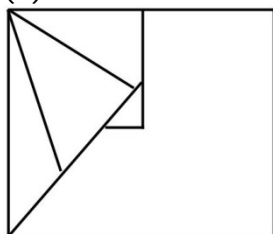
17. \_ \_ aba \_ \_ ba \_ ab

- (1) abbbb
- (2) baabb
- (3) bbaba
- (4) abbab

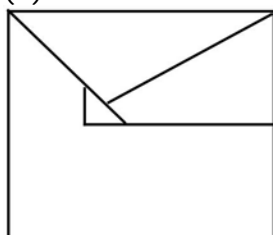
18. From the given figures, select the one in which the figures given in the question are hidden/embedded.



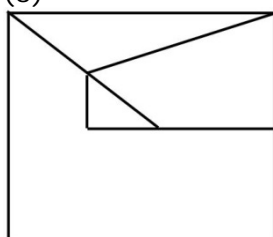
(1)



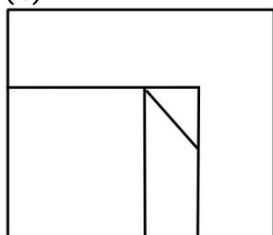
(2)



(3)



(4)



19. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices be represented first by its row and next by its column. e.g. 'A' can be represented by 01, 14 etc. and 'M' can be represented by 56, 68 etc. Similarly, you have identify the set for the word 'EAGLE'.

MATRIX-I					
	0	1	2	3	4
0	P	A	G	R	Z
1	G	R	Z	P	A
2	Z	P	A	G	R
3	A	G	R	Z	P
4	R	Z	P	A	G

MATRIX-II					
	5	6	7	8	9
5	E	M	L	N	O
6	L	E	O	M	N
7	O	N	E	L	M
8	N	O	M	E	L
9	M	L	N	O	E

- (1) 88, 22, 31, 89, 76  
 (2) 66, 43, 44, 79, 88  
 (3) 99, 01, 44, 96, 77  
 (4) 55, 14, 11, 78, 66

20. In a certain code, FRACTION is written as FNAITCOR. How is QUANTITATIVE written in that code?  
 (1) QTNVIAITETU  
 (2) QIATAETUTNVI  
 (3) QTEATUIAVITN  
 (4) QEAITATITNVU

21. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?



(1)



(2)



(3)



(4)



22. Find the number that is common for all of the clue's given below:

- (a) Virgo
- (b) Volleyball
- (c) A highest scoring shot of a particular sport
- (1) 8
- (2) 4
- (3) 2
- (4) 6

23. Study the diagram given below and answer questions.

The Qualified and experienced doctors working in villages are represented by:



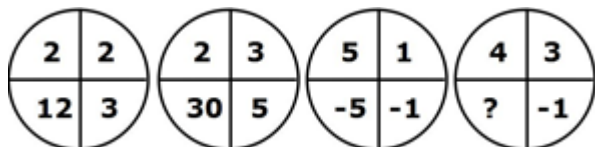
- (1) 4
- (2) 5
- (3) 2
- (4) 6

24. In a certain coding system APPLE stands for ETTPI. What is the code for 'DELHI'?

- (1) COMND
- (2) ZAHDE
- (3) HIPLM
- (4) COPLM

**Directions for Questions 25 to 29:** Select the missing number from the given responses.

25.



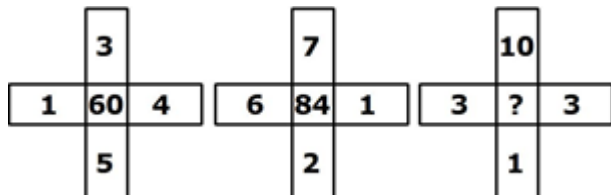
- (1) 12
- (2) 7
- (3) -12
- (4) 9

26.

I	40	32	72	12
II	30	24	54	9
III	54	?	90	15

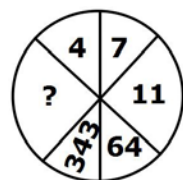
- (1) 49
- (2) 36
- (3) 46
- (4) 48

27.



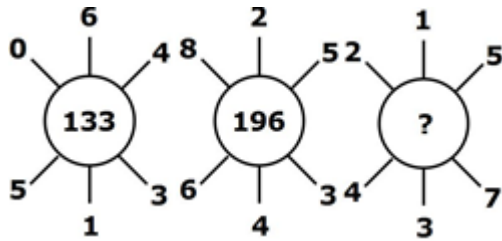
- (1) 16
- (2) 12
- (3) 90
- (4) 48

28.



- (1) 1332
- (2) 1321
- (3) 1231
- (4) 1331

29.



- (1) 535
- (2) 451
- (3) 702
- (4) 154

30. Name a single letter, which can be deleted from the body of the following words to form entirely new words?

HOST POST COST LOST STOP

- (1) H
- (2) P
- (3) S
- (4) O

**Directions for Questions 31 to 32:** One or two statements is given followed by two conclusions/assumptions, I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions/assumptions can definitely be drawn from the given statement.

31. **Statements:**

No rod is pod  
No pod is flexible

**Inference:**

- I. No rod is flexible
- II. Some pods are flexible
- (1) Both of them follows
- (2) Only inference I follows
- (3) Only inference II follows
- (4) Neither of the follows

32. **Statements:**

A good book even if costly is sold out in no time.

**Assumptions:**

- I. Some books are better than others
- II. All good books are costly
- (1) Only I follows
- (2) Both I and II follows
- (3) Neither I nor II follows
- (4) Only II follows

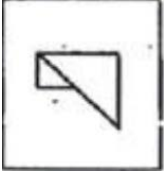
33. If CUSTOM is written as UCTSMO then how PARENT will be written in the same code?

- (1) TNERAP
- (2) RAPTNE
- (3) ERAPTN
- (4) APERTN

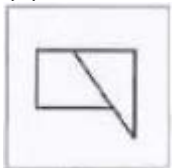
34. In the question one part of the problem figure is subtracted. Select the option that shows the correct shape by the subtraction.



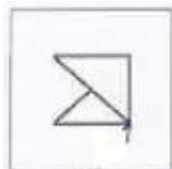
(1)



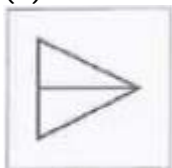
(2)



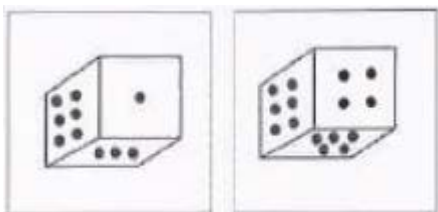
(3)



(4)



35. Two position of dice are shown below. When three is at the top what number will be at the bottom.



(1) 5

(2) 1

(3) 4

(4) 2

36. If 'air' is called 'green' is called 'blue'. 'blue' is called 'sky', 'sky' is called 'water' and water is called 'Pink' then what is the color of clear sky?

(1) Yellow

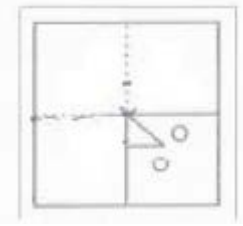
(2) Water

(3) Sky

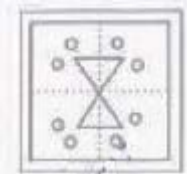
(4) Blue



37. A piece of paper is folded and cut as shown below in the questions figures. From the given answer figures, indicate how it will appear when opened.



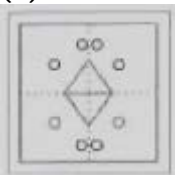
(1)



(2)



(3)



(4)

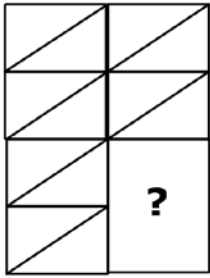


38. If the words are organized in reverse order of what they appear in dictionary, which word will come in the third place.

- (1) Occulist
- (2) Odium
- (3) Odious
- (4) Ordeum

**Directions for Questions 39 to 40:** Which figure will complete the pattern in the question figure?

39.



(1)



(2)



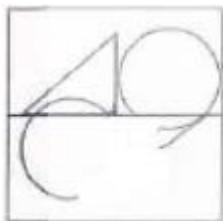
(3)



(4)



40.



(1)



(2)



(3)



(4)



**Directions for Questions 41 to 42:** Identify the diagram that best represents the relationship among classes given below.

41. Vegetables, Potatoes, Eatables

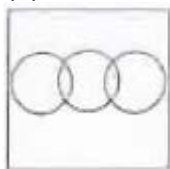
(1)



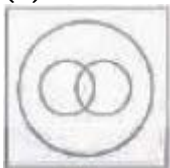
(2)



(3)



(4)



42. Christians, Catholics, Pope

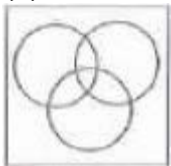
(1)



(2)



(3)



(4)



43. Veena and Veera both start from a point towards North. Veena turns to left after walking 10 K.m. Veera turns to right after walking the same distance. Veena waits for some time and then walks another 5 Km. Whereas Veenu walks only 3 Km. They both then return towards south and walk 15 km. forward. How far is Veena from Veera?

(1) 12 Km

(2) 10 Km

(3) 8 Km

(4) 15 Km

44. Find the missing number?

2,5,10,17,26,\_\_\_

(1) 36

(2) 49

(3) 37

(4) 47

45. To identify the correct response from the given premises stated according to following symbols.

'A' stands, for not less than ( $\nless$ )

'B' stands for not equal to ( $\neq$ )

'C' stands for not greater than ( $\ngtr$ )

'D' stands for greater than ( $>$ )

'E' stands for less than ( $<$ )

'F' stands for equal to ( $=$ )

Premises: 4YF3x and 3xF6Z

(1) 2YF3Z

(2) 4YB5Z

(3) 2YD3Z

(4) 2YE3Z

46. Ravi is walking in the East direction. After covering a distance of one kilometre, he turns  $45^\circ$  right and then  $90^\circ$  left. In which direction is he now?

- (1) North
- (2) West
- (3) North West
- (4) North East

47. Which of the following jumbled words is not an animal?

- (1) LATHPEEN
- (2) TICRECK
- (3) FEFEOC
- (4) TAR

48. Arrange the following words as per order in the dictionary

- 1. Hale
  - 2. Hake
  - 3. Halt
  - 4. Hamlet
  - 5. Ham
- (1) 1, 3, 5, 2, 4
  - (2) 2, 1, 3, 5, 4
  - (3) 2, 1, 4, 3, 5
  - (4) 2, 3, 5, 4, 1

49. If '+' means 'x', '-' means ' $\div$ ', 'x' means '-' and ' $\div$ ' means '+', then what will be the value of  $16 \div 64 - 8 \times 4 + 2$ ?

- (1) 12
- (2) 24
- (3) 16
- (4) 18

50. From the given alternative words, select the word which cannot be formed using the letters of the given word

'BOOKBINDING'

- (1) BONDING
- (2) DOING
- (3) DIGGING
- (4) DINING

## General Awareness

51. A Computer executes Programs in the sequence of:
- (1) Decode, Fetch, Execute
  - (2) Execute, Fetch, Decode
  - (3) Fetch, Decode, Execute
  - (4) Store, Fetch, Execute
52. What is 'Reformation'?
- (1) Revival of classical
  - (2) The revolt against
  - (3) Rise of absolute monarchy
  - (4) Change in attitude of man
53. Which of the following particles has the dual nature of particle wave?
- (1) Neutron
  - (2) Electron
  - (3) Meson
  - (4) Proton
54. SIDBI stands for:
- (1) Small Industries Development Banker
  - (2) Small Industrial Designed
  - (3) Small Innovations Development Bankers
  - (4) Small Industries Development Bank of India
55. The metal ion present in vitamin B12 is:
- (1) nickel
  - (2) cobalt
  - (3) iron
  - (4) zinc
56. Swaraj is my birth right and I shall have it. This was advocated by:
- (1) Mahatma Gandhi
  - (2) Lal Lajpat Rai
  - (3) Sardar Patel
  - (4) Lokmanya Tilak
57. Which of the following is called the Light house of the Mediterranean?
- (1) Stromboli of Sicily
  - (2) Mount pelee of West Indies
  - (3) Paracutin of Mexico
  - (4) Vesuvius of Italy
58. Who of the following has given the term rhizosphere?
- (1) Alexopolus
  - (2) Garret
  - (3) None of the given options
  - (4) Hiltner
59. Which one among the following is the maximum consumer of water in India?
- (1) Textile
  - (2) Engineering
  - (3) Paper and Pulp
  - (4) Thermal Power

60. Which of the following options correctly explains the term 'heat budget'?
- (1) It is the amount of heat which the surface of earth receives from the sun
  - (2) It is the radiation from the earth in the form of long waves
  - (3) It is a mode of transfer of heat through matter by molecular activity
  - (4) It is the balance between incoming and outgoing radiation
61. Burns caused by steam are much more severe than those caused by boiling water because?
- (1) A steam pierces through the pores of body quickly
  - (2) Temperature of steam is higher
  - (3) Steam is gas and engulfs the body quickly
  - (4) Steam has more latent heat
62. The layer of atmosphere close to the earth's surface is called
- (1) Exosphere
  - (2) Ionosphere
  - (3) Stratosphere
  - (4) Troposphere
63. Reverse transcriptase was discovered by:
- (1) Beadle and Tatum
  - (2) Watson and Crick
  - (3) Temin and Baltimore
  - (4) Har Govind Khorana
64. Gandhiji's Famous Quit India Movement call to the British was given in:
- (1) 1940
  - (2) 1942
  - (3) 1941
  - (4) 1943
65. Ultra purification of a metal is done by:
- (1) Smelting
  - (2) Leaching
  - (3) Zone melting
  - (4) Slagging
66. Which among the following is the sweetest sugar?
- (1) Lactose
  - (2) Maltose
  - (3) Glucose
  - (4) Fructose
67. Which one of the following elements is most abundant in the earth's crust?
- (1) Oxygen
  - (2) Sulphur
  - (3) Silicon
  - (4) Carbon
68. The salary and perquisites of the prime minister of India are decided by the
- (1) Constitution
  - (2) Cabinet
  - (3) Parliament
  - (4) President
69. Microbial degradation of nitrates into atmosphere nitrogen is known as:
- (1) Ammonification
  - (2) Denitrification
  - (3) Putrefaction
  - (4) Nitrication



70. Which of the following is in the ascending order of Data hierarchy?

- (1) Bit – Byte – Record – Field – Database – File
- (2) Byte – Bit – File – Record – Database – Filed
- (3) Bit – Byte – Field – Record – File – Database
- (4) Field – Byte – Bit – Record – File – Database

71. The best milch breed in the world is:

- (1) Deoni
- (2) Holstein – Friesian
- (3) Sindhi
- (4) Chittagong

72. In which year was the Indian National Congress formed:

- (1) 1901
- (2) 1835
- (3) 1875
- (4) 1885

73. Bangladesh was created in-

- (1) 1973
- (2) 1970
- (3) 1972
- (4) 1971

74. Raja Ram Mohan Roy was the founder of

- (1) Brahmo Samaj
- (2) Prathna Samaj
- (3) Ram Krishna Mission
- (4) Arya Samaj

75. Pulses are obtained from the family:

- (1) Liliaceae
- (2) Fungi
- (3) Cycadaceae
- (4) Leguminosae

76. Who was the Indian women president of the United Nations General Assembly?

- (1) Marget Thatcher
- (2) Golda Mayer
- (3) Sarojini Naidu
- (4) Vijaya Lakshmi Pandit

77. The one rupee note bears the signature of:

- (1) Governor, RBI
- (2) None of these
- (3) Finance Minister
- (4) Secretary, Ministry of Finance

78. What is the currency of Saudi Arabia?

- (1) Riyal
- (2) Pound
- (3) Ringgit
- (4) Renminbi

79. RBI was nationalised in:

- (1) 1951
- (2) 1947
- (3) 1935
- (4) 1949

80. Which among the following is a folk dance of India?

- (1) Kathakali
- (2) Mohiniattam
- (3) Manipuri
- (4) Garba

81. NABARD stands for

- (1) National Business for Accounting and Reviewing Development
- (2) National Bank for Agriculture and Rural Development
- (3) National Bank for Aeronautics and Radar Development
- (4) National Bureau for Air and Roads Transport Development

82. Surplus budget is recommended during:

- (1) Depression
- (2) Boom
- (3) War
- (4) Famines

83. Who was the first Speaker of the Lok Sabha?

- (1) B. R. Ambedkar
- (2) G. V. Mavalankar
- (3) N. Sanjeev Reddy
- (4) Dr. S. P. Mukerjee

84. What is the plural voting system?

- (1) All the citizens cast three votes each
- (2) Eligible voter exercises one vote and some voters with specific qualifications cast more than one vote
- (3) Only the higher officials cast more than one votes
- (4) Candidates themselves cast more than one vote

85. Which of the following plant shows chloroplast dimorphism?

- (1) Sugarcane
- (2) Sugar beet
- (3) Rice
- (4) Wheat

86. Day and Night are equal at the:

- (1) Prime Meridian
- (2) Poles
- (3) Equator
- (4) Antarctic

87. Economic profit or normal profit is the same as:

- (1) Accounting profit
- (2) Optimum profit
- (3) Net profit
- (4) Maximum profit

88. Evergreen type Forests are found in:

- (1) Mediterranean region
- (2) Monsoon climatic area
- (3) Desert region
- (4) Equatorial region

89. The gene which exhibits multiple effects is known as:

- (1) Pleiotropy
- (2) Pseudogene
- (3) Polygene
- (4) Complementary

90. The ash-grey soils of high-latitude coniferous forests are known as:
- (1) Grey-Brown Soils
  - (2) Red and Yellow soils
  - (3) Tundra soils
  - (4) Podsoles
91. Radio activity was discovered by:
- (1) Curie
  - (2) Becquerel
  - (3) Soddy
  - (4) Rutherford
92. Muddy water is treated with alum in purification process, it is termed as:
- (1) Absorption
  - (2) Adsorption
  - (3) Coagulation
  - (4) Emulsification
93. An enzyme produced by HIV that allows the integration of HIV DNA into the host cell's DNA is:
- (1) DNA gyrase
  - (2) Ligase
  - (3) Integrase
  - (4) Helicase
94. Voting is
- (1) The unit of area who constitute a unit for electing representative
  - (2) The process by which voters exercise their right to vote
  - (3) The process of selecting representatives
  - (4) Universal adult franchise
95. The two specific heats of gases are related by:
- (1)  $C_p/C_v = R$
  - (2)  $C_p - C_v = RJ$
  - (3)  $C_p - C_v = R/J$
  - (4)  $C_p + C_v = RJ$
96. Who initiated the movement to form the Indian National Congress:
- (1) Annie Besant
  - (2) A. O. Hume
  - (3) W. C. Banerjee
  - (4) Gandhi ji
97. A good way to conserve our water resources:
- (1) Rain water harvesting
  - (2) Encouragement of natural regeneration of vegetation
  - (3) Sustainable water utilization
  - (4) All of the options mentioned here
98. Constitutional Monarchy means:
- (1) The king is elected by the people
  - (2) The king interprets the constitution
  - (3) The king writes the constitution
  - (4) The writes exercise power as granted by constitution
99. What is popular sovereignty?
- (1) Sovereignty of the legal
  - (2) Sovereignty of the head of state
  - (3) Sovereignty of the people
  - (4) Sovereignty of people's representative

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  - (2) Boom
  - (3) War
  - (4) Famines
83. Who was the first Speaker of the Lok Sabha?
- (1) B. R. Ambedkar
  - (2) G. V. Mavalankar
  - (3) N. Sanjeev Reddy
  - (4) Dr. S. P. Mukerjee
84. What is the plural voting system?
- (1) All the citizens cast three votes each
  - (2) Eligible voter exercises one vote and some voters with specific qualifications cast more than one vote
  - (3) Only the higher officials cast more than one votes
  - (4) Candidates themselves cast more than one vote
85. Which of the following plant shows chloroplast dimorphism?
- (1) Sugarcane
  - (2) Sugar beet
  - (3) Rice
  - (4) Wheat
86. Day and Night are equal at the:
- (1) Prime Meridian
  - (2) Poles
  - (3) Equator
  - (4) Antarctic
87. Economic profit or normal profit is the same as:
- (1) Accounting profit
  - (2) Optimum profit
  - (3) Net profit
  - (4) Maximum profit
88. Evergreen type Forests are found in:
- (1) Mediterranean region
  - (2) Monsoon climatic area
  - (3) Desert region
  - (4) Equatorial region
89. The gene which exhibits multiple effects is known as:
- (1) Pleiotropy
  - (2) Pseudogene
  - (3) Polygene
  - (4) Complementary

## Quantitative Aptitude

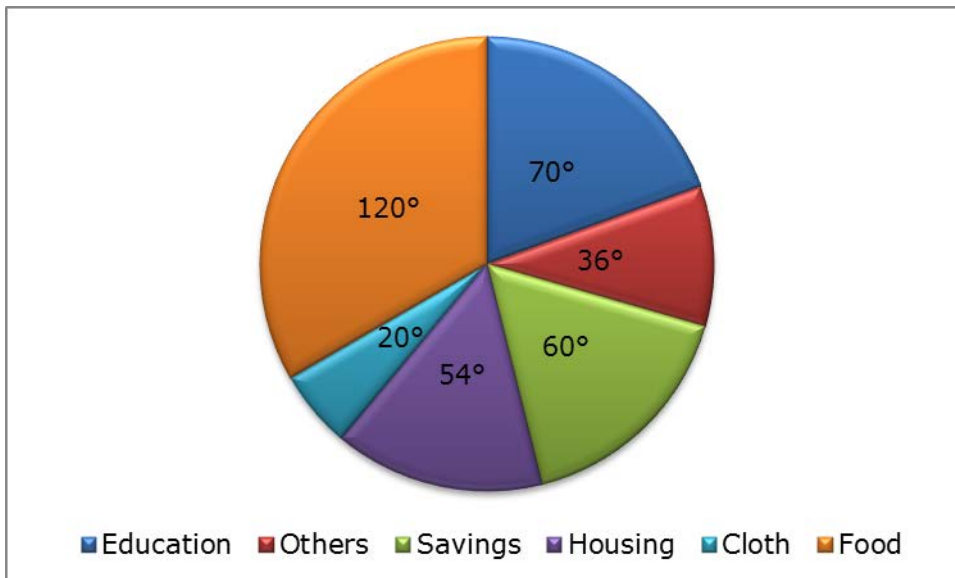
101. Let  $C_1$  and  $C_2$  be the inscribed and circumscribed circles of a triangle with sides 3cm, 4cm and 5cm then area of  $C_1$  is area of  $C_2$

- (1)  $9/16$
- (2)  $9/25$
- (3)  $4/25$
- (4)  $16/25$

102.  $x = \frac{1}{\sqrt{2} + 1}$  then  $(x + 1)$  equals to

- (1) 2
- (2)  $\sqrt{2} - 1$
- (3)  $\sqrt{2} + 1$
- (4)  $\sqrt{2}$

**Directions for Questions 103 to 105:** The pie-chart given here shows expenditure incurred by a family on various items and their savings. Study the chart and answer the questions based on the pie-chart



103. If the monthly income is Rs. 36000 then the yearly savings is:

- (1) Rs. 72000
- (2) Rs. 60000
- (3) Rs. 74000
- (4) Rs. 70000

104. If the expenditure on education is Rs. 1600 more than that of housing then the expenditure on food is:

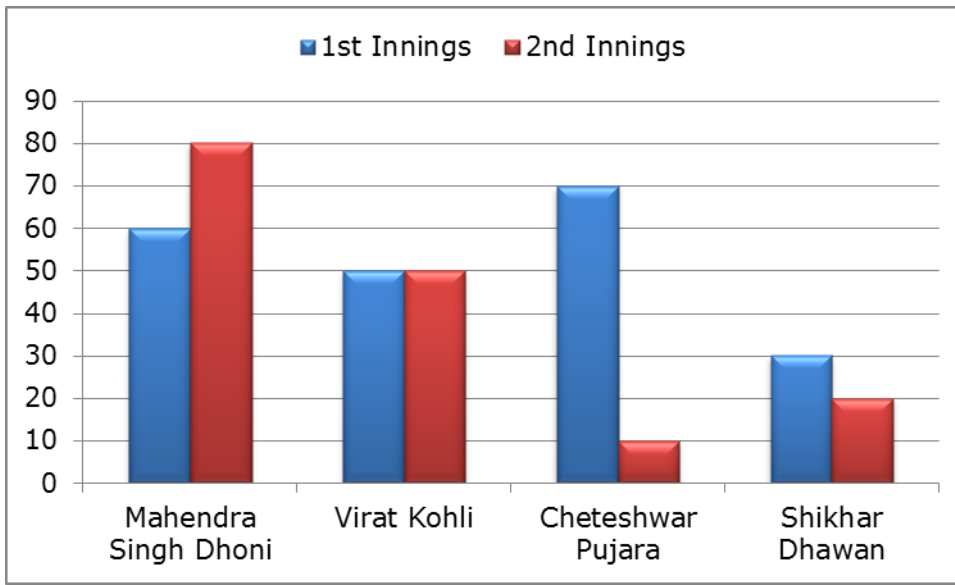
- (1) Rs. 6000
- (2) Rs. 12000
- (3) Rs. 7000
- (4) Rs. 3333

105. The ratio of expenditure on food to savings is

- (1) 2:1
- (2) 3:1
- (3) 3:2
- (4) 10:9

106. The average marks obtained by a student in 6 subjects is 88. On subsequent verification it was found that the marks obtained by him in a subject was wrongly copied as 86 instead of 68. The correct average of the marks obtained by him is
- (1) 85
  - (2) 87
  - (3) 84
  - (4) 86

**Directions for Questions 107 to 110:** Given here a multiple bar diagram of the scores of four players in two innings. Study the diagram and answer the questions.



107. The average run of two innings of the player who scored highest in average is:
- (1) 75
  - (2) 85
  - (3) 80
  - (4) 70
108. The average run in two innings of the player who has scored minimum at the second innings is:
- (1) 50
  - (2) 60
  - (3) 40
  - (4) 30
109. The average score in second innings contributed by the four players?
- (1) 30
  - (2) 60
  - (3) 40
  - (4) 50
110. The total scores in the first innings contributed by the four players is:
- (1) 220
  - (2) 200
  - (3) 210
  - (4) 190
111. If the volume of a sphere is numerically equal to its surface area then its diameter is:
- (1) 4 units
  - (2) 2 units
  - (3) 3 units
  - (4) 6 units

112. A train runs at an average speed of 75 km/hr. If the distance to be uncovered is 1050 kms. How long, will the train take to cover it?
- (1) 13 hrs
  - (2) 12 hrs
  - (3) 14 hrs
  - (4) 15 hrs
113. G is the centroid of  $\triangle ABC$ . The medians AD and BE intersect at right angles. If the lengths of AD and BE are 9 cm and 12 cm respectively, then the length of AB (in cm) is?
- (1) 10
  - (2) 10.5
  - (3) 93
  - (4) 11
114. The minimum value of  $2\sin^2 \theta + 3\cos^2 \theta$  is
- (1) 1
  - (2) 3
  - (3) 2
  - (4) 4
115. If the three angles of a triangle are equal, then it is called:
- (1) scalene
  - (2) isosceles
  - (3) right angled
  - (4) equilateral
116. If the number of vertices, edges and faces of a rectangular parallelepiped are denoted by v, e and f respectively, the value of  $(v - e + f)$  is
- (1) 3
  - (2) 2
  - (3) 1
  - (4) 0
117. 5 persons live in a tent. If each person requires  $16\text{m}^2$  of floor area and  $100\text{m}^3$  space for air then the height of the cone of smallest size to accommodate these persons would be?
- (1) 18.75 m
  - (2) 16 m
  - (3) 10.25 m
  - (4) 20 m
118. If the altitude of an equilateral triangle is  $12\sqrt{3}$  cm, then its area would be:
- (1)  $12\text{ cm}^2$
  - (2)  $72\text{ cm}^2$
  - (3)  $36\sqrt{3}\text{ cm}^2$
  - (4)  $144\sqrt{3}\text{ cm}^2$
119. The difference between successive discounts of 40% followed by 30% and 45% followed by 20% on the marked price of an article is Rs. 12. The marked price of the article is:
- (1) Rs. 400
  - (2) Rs. 200
  - (3) Rs. 800
  - (4) Rs. 600
120. The area of the triangle formed by the graphs of the equations  $x = 0$ ,  $2x + 3y - 6 = 0$  and  $x + y = 3$  is:
- (1) 3 sq. unit
  - (2)  $1\frac{1}{2}$  sq. unit
  - (3) 1 sq. unit
  - (4)  $4\frac{1}{2}$  sq. unit

121. Among the equations

$x + 2y + 9 = 0$ ;  $5x - 4 = 0$ ;  $2y - 13 = 0$ ;  $2x - 3y = 0$ , the equation of the straight line passing through origin is

- (1)  $2x - 3y = 0$
- (2)  $5x - 4 = 0$
- (3)  $x + 2y + 9 = 0$
- (4)  $2y - 13 = 0$

122. The HCF of  $x^8 - 1$  and  $x^4 + 2x^3 - 2x - 1$  is:

- (1)  $x^2 + 1$
- (2)  $x + 1$
- (3)  $x^2 - 1$
- (4)  $x - 1$

123. The least number which when divided by 6, 9, 12, 15, 18 leaves the same remainder 2 in each case is:

- (1) 178
- (2) 182
- (3) 176
- (4) 180

124. Internal bisectors of  $\angle Q$  and  $\angle R$  of  $\Delta PQR$  intersect at O, If  $\angle ROQ = 96^\circ$  then the value of  $\angle RPQ$  is?

- (1)  $12^\circ$
- (2)  $6^\circ$
- (3)  $36^\circ$
- (4)  $24^\circ$

125. A certain sum will amount to Rs. 12,100 in 2 years at 10% per annum of compound interest, interest being compounded annually. The sum is-

- (1) Rs. 12000
- (2) Rs. 6000
- (3) Rs. 8000
- (4) Rs. 10000

126. A's 2 days' work is equal to B's 3 days' work, if A can complete the work in 8 days then to complete the work B will take:

- (1) 14 days
- (2) 15 days
- (3) 16 days
- (4) 12 days

127. If the measure of three angles of a triangle are in the ratio 2:3:5, then the triangle is:

- (1) Equilateral
- (2) Isosceles
- (3) Obtuse angled
- (4) Right angled

128. What must be added to each terms of the ratio 2:5 so that it may equal to 5: 6?

- (1) 12
- (2) 78
- (3) 65
- (4) 13

129. If the sum and difference of two angles are  $\frac{22}{9}$  radian and  $36^\circ$  respectively, then the value of smaller angle in degree taking the value of  $\pi$  as  $\frac{22}{7}$  is:

- (1)  $60^\circ$
- (2)  $48^\circ$
- (3)  $52^\circ$
- (4)  $56^\circ$



130. 4 men and 6 women complete a work in 8 days, 2 men and 9 women also complete in 8 days.  
The number of days 18 women complete the work is:

- (1)  $4 \frac{2}{3}$  days
- (2)  $5 \frac{2}{3}$  days
- (3)  $4 \frac{1}{3}$  days
- (4)  $5 \frac{1}{3}$  days

131. If  $\frac{x^{24} + 1}{x^{12}} = 7$  then the value of  $\frac{x^{72} + 1}{x^{36}}$

- (1) 432
- (2) 433
- (3) 343
- (4) 322

132. If  $5x + 9y = 5$  and  $125x^3 + 729y^3 = 120$  then the value of the product of x and y is

- (1) 135
- (2)  $1/135$
- (3)  $1/9$
- (4) 45

133. If 4 men or 8 women can do a piece of work in 45 days, in how many days can 6 men and 12 women do the same piece of work?

- (1) 45 days
- (2) 20 days
- (3) 15 days
- (4) 30 days

134. The value of  $\sin^2 22^\circ + \sin^2 68^\circ + \cot^2 30^\circ$  is

- (1)  $3/4$
- (2) 4
- (3)  $5/4$
- (4) 3

135. Find a simple discount equivalent to a discount series of 10%, 20% and 25%

- (1) 45%
- (2) 55%
- (3) 52%
- (4) 46%

136. If  $\theta$  be acute angle and  $\tan (4\theta - 50^\circ) = \cot (50^\circ - \theta)$ , then the value of  $\theta$  in degrees is:

- (1) 30
- (2) 40
- (3) 20
- (4) 50

137. Cost price of 100 books is equal to the selling price of 60 books. The gain or loss percentage will be:

- (1)  $66 \frac{2}{3}\%$
- (2)  $66 \frac{1}{4}\%$
- (3) 66%
- (4)  $66 \frac{3}{4}\%$

138. If  $5 \sin \theta = 3$ , the numerical value of

$$\frac{\sec \theta - \tan \theta}{\sec \theta + \tan \theta}$$

- (1)  $\frac{1}{3}$
- (2)  $\frac{1}{2}$
- (3)  $\frac{1}{4}$
- (4)  $\frac{1}{5}$

139. If  $\frac{3}{4}$  of a number is 7 more than  $\frac{1}{6}$  of the number, then  $\frac{5}{3}$  of the number is:

- (1) 15
- (2) 18
- (3) 12
- (4) 20

140. What is the arithmetic mean of first 20 odd natural numbers?

- (1) 17
- (2) 19
- (3) 22
- (4) 20

141. A kite is flying at the height of 75m from the ground. The String makes an angle  $\theta$  (where  $\cot \theta = \frac{8}{15}$ ) with the level ground. Assuming that there is no slack in the string, the length of the string is equal to:

- (1) 75m
- (2) 85m
- (3) 40m
- (4) 63m

142. If a person travels from a point L towards east for 12 km and then travels 5km towards north and reaches a point M, then shortest distance from L to M is:

- (1) 14
- (2) 12
- (3) 17
- (4) 13

143. In an examination, a student must get 36% marks to pass. A student who gets 190 marks failed by 35 marks. The total marks in that examination is:

- (1) 500
- (2) 625
- (3) 810
- (4) 450

144. A train 180 mts long is running at a speed of 90 km/h. How long will it take to pass a post?

- (1) 8.2 sec
- (2) 7.8 sec
- (3) 8 sec
- (4) 7.2 sec

145. An article which is marked at Rs. 975 is sold for Rs. 897. The % discount is?

- (1) 6%
- (2) 10%
- (3) 12%
- (4) 8%

146. If  $\sec \theta + \tan \theta = p$ , ( $p \neq 0$ ) then  $\sec \theta$  is equal to

- (1)  $(p + \frac{1}{p})$ ,  $p \neq 0$
- (2)  $\frac{1}{2} (1 + \frac{1}{p})$ ,  $p \neq 0$
- (3)  $2 (p - \frac{1}{p})$ ,  $p \neq 0$
- (4)  $(p - \frac{1}{p})$ ,  $p \neq 0$

147. If  $p = 99$  then the value of  $p(p^2+3p+3)$

- (1) 999999
- (2) 988899
- (3) 989898
- (4) 998889

148. If  $x = 2$  then the value of  $x^3 + 27x^2 + 243x + 631$

- (1) 1233
- (2) 1231
- (3) 1321
- (4) 1211

149. If D, E and F are the mid points of BC, CA and AB respectively of the  $\Delta ABC$  then the ratio of area of the parallelogram DEFB and area of the trapezium CAFD is:

- (1) 1:3
- (2) 1:2
- (3) 3:4
- (4) 2:3

150. If A and B are in the ratio 4:5 and the difference of their squares is 81, what is the value of A?

- (1) 36
- (2) 15
- (3) 45
- (4) 12

## English Comprehension

**Directions for Questions 151 to 155:** Sentences given with blanks to be filled in with an appropriate word(s) . Four alternatives are suggested for each question. Choose the correct alternative out of the four and indicate it by blackening the appropriate circle in the Answer Sheet

151. When the morning \_\_\_\_\_ the murder was discovered.

- (1) came
- (2) happened
- (3) arrived
- (4) occurred

152. The smell of the Sea called \_\_\_\_\_ memories of her childhood.

- (1) on
- (2) back
- (3) up
- (4) for

153. He has the full facts \_\_\_\_\_ but is deliberately hiding them.

- (1) under his sleeves
- (2) upon his sleeves,
- (3) up his sleeve
- (4) in his sleeves

154. The appearance of the city \_\_\_\_\_ day by day.

- (1) could change
- (2) changed
- (3) had changed
- (4) is changing

155. The police fired on the mob when they \_\_\_\_\_

- (1) turned noisy
- (2) turned violent
- (3) became abusive
- (4) fizzled out

**Directions for Questions 156 to 158:** Out of the four alternatives, choose the one which best expresses the meaning of the given word and mark it in the Answer Sheet.

156. BOARD

- (1) Frame
- (2) Lodging
- (3) Food
- (4) Furniture

157. PERUSE

- (1) Follow
- (2) Argue
- (3) Reduce
- (4) Read

158. SPUME

- (1) foam
- (2) Lava
- (3) poison
- (4) spit

**Directions for Questions 159 to 163:** You have a passage with 5 questions following. Read the passages carefully and choose the best answer to each question out of the four alternatives and mark it by blackening the appropriate circle in the Answer Sheet.

**PASSAGE**

True, it is the function of the army to maintain law and order in abnormal times. But in normal times there is another force that compels citizens to obey law and to act with due regard to the rights of others. The force also protects the lives and properties of law abiding men. Laws are made to secure the personal safety of its subjects and to prevent murder and crimes of violence. They are made to secure the property of the citizens against theft and damage and to protect the rights of communities and castes to carry out their customs and ceremonies, so long as they do not conflict with the rights of others. Now the good citizen, of his own free will obeys these laws and he takes care that everything he does is done with due regard to the rights and wellbeing of others.

But the bad citizen is only restrained from breaking these laws by fear of the consequence of his actions. And the necessary steps to compel the bad citizen to act as a good citizen are taken by this force. The supreme control of law and order in a State is in the hands of a Minister, who is responsible to the State Assembly and acts through the Inspector General of Police.

159. The expression "customs and ceremonies" means:

- (1) habits and traditions
- (2) fairs and festivals
- (3) superstitions and formalities
- (4) usual practices and religious rites

160. "They are made to secure the property of citizens against theft and damage" means that the law:

- (1) Safeguards people's possessions against being stolen or lost
- (2) Initiates process against offenders of law
- (3) Helps in recovering the stolen property citizen
- (4) Assists the citizens whose property has been stolen or destroyed.

161. Which one the following statement is implied in the passage?

- (1) The police hardly succeed in converting bad citizens into good ones.
- (2) Criminals, who flout the law, are seldom brought to book
- (3) Peaceful citizens seldom violate the law
- (4) The police check the citizens, whether they are good or bad, from violating the law

162. According to the writer, which one of the following is not the responsibility of the police?

- (1) To check violent Activities of citizens.
- (2) To maintain peace during extraordinary circumstances.
- (3) To protect the privileges of all citizens.
- (4) To ensure peace among citizens by safeguarding individual rights.

163. Which of the following statements is not implied in the passage?

- (1) Law protects those who respect it.
- (2) A criminal is deterred from committing crimes only for fear of the law
- (3) The forces of law help to transform irresponsible citizens into responsible ones
- (4) Law ensures people's religious and social rights absolutely and unconditionally.

**Directions for Questions 164 to 173:** A sentence, a part of the sentence is underlined. Below are given alternatives to the underlined part which may improve the sentence. Choose the correct alternative. In case no improvement is needed choose "No Improvement", Mark your answer in the answer sheet.

164. He does not laugh, nor he smiles

- (1) nor he does smile
- (2) No improvement
- (3) neither he does smile
- (4) nor does he smile.

165. If I will get an opportunity, I shall attend the seminar.

- (1) get
- (2) No Improvement
- (3) shall get
- (4) got

166. The others shook their heads and made vague noises of approval

- (1) nodded
- (2) No Improvement
- (3) turned around
- (4) hung

167. The world is being faced with a crisis

- (1) No Improvement
- (2) facing
- (3) confronted
- (4) in front of

168. She insisted on she was innocent.

- (1) No Improvement
- (2) insisted on that
- (3) insisted that
- (4) insisted with

169. She could not help but laugh.

- (1) but laughing
- (2) No Improvement
- (3) laughter
- (4) laughing

170. I took my mother some grapes when she was in hospital

- (1) I took some grapes for my mother
- (2) No Improvement
- (3) I took for my mother some grapes
- (4) I brought my mother some grapes.

171. We met yesterday, haven't we?

- (1) isn't it?
- (2) No Improvement
- (3) didn't we?
- (4) hadn't we?

172. Both the teams played the game fairly.

- (1) played fairly the game
- (2) No Improvement
- (3) fairly played the game
- (4) played a fair game

173. You must endure what you cannot cure.

- (1) suffer
- (2) No Improvement
- (3) prevail
- (4) accept

**Directions for Questions 174 to 176:** Choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

174. Vacillation  
(1) inoculation  
(2) relief  
(3) steadfastness  
(4) remorse

175. Placid  
(1) dull  
(2) stormy  
(3) urgent  
(4) moving

176. Effeminacy  
(1) manliness  
(2) boorishness  
(3) aggressiveness  
(4) attractiveness

**Directions for Questions 177 to 181:** Some parts of the sentences have errors and some are correct. Find out which part of a sentence has an error and blacken the circle corresponding to the appropriate correct option. If a sentence is free from error, blacken the circle corresponding to "No Error" option in the Answer Sheet.

177. A bird in the tree is worth two in the bush.  
(1) No error  
(2) two in the bush.  
(3) is worth  
(4) A bird in the tree
178. It is not advisable to take heavy luggages while on a journey  
(1) while on a journey  
(2) to take heavy luggages  
(3) it is not advisable  
(4) No error
179. Just outside my house are a playground for school boys and girls  
(1) for school boys and girls  
(2) are a playground  
(3) No error  
(4) Just outside my house
180. He can be a basketball player since he is tall like a mule.  
(1) No error  
(2) He can be  
(3) he is tall like a mule  
(4) a basketball player since
181. Who do you think I met?  
(1) Who  
(2) I met?  
(3) No error  
(4) do you think

**Directions for Questions 182 to 188:** Out of the four alternatives, choose the one which can be substituted for the given words/sentences and indicate it by blackening the appropriate circle in the Answer Sheet

182. Of one's own free will.

- (1) obligatory
- (2) mandatory
- (3) voluntary
- (4) compulsory

183. One who runs away from justice or the law.

- (1) Fugitive
- (2) Thief
- (3) Criminal
- (4) Smuggler

184. One who is skilful

- (1) disciplined
- (2) different
- (3) diligent
- (4) dexterous

185. One who is too careless to plan for the future.

- (1) impotent
- (2) improvident
- (3) impractical
- (4) imprudent

186. A person who deserves all praise.

- (1) despicable
- (2) detestable
- (3) laudable
- (4) lovable

187. One who has long experience

- (1) expert
- (2) novice
- (3) practitioner
- (4) veteran

188. A study of ancient things.

- (1) Physiology
- (2) Archaeology
- (3) Ethnology
- (4) Zoology

**Directions for Questions 189 to 190:** Four words are given in each question, out of which only one word is correctly spelt. Find the correctly spelt word and mark your answer in the Answer Sheet.

189.

- (1) Diffussion
- (2) Deffusion
- (3) Diffusion
- (4) Defusion

190.

- (1) Circumlocation
- (2) Circumlocution
- (3) Circmlocution
- (4) Circumlocutien



**Directions for Questions 191 to 195:** Four alternatives are given for the Idiom/Phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the Idiom/Phrase and mark it in the Answer Sheet.

191. Unless you make amends for the loss, nobody is prepared to excuse you.  
(1) improve  
(2) pay debt  
(3) confess  
(4) compensate
192. Instead of keeping his promise of helping me with office work, he just left me high and dry.  
(1) left me feeling like a fool.  
(2) left me in a state of anger.  
(3) left me without a drop of water  
(4) left me alone to do the work.
193. Amit said to Rekha, "Don't make a mountain out of a molehill."  
(1) attempt an impossible task  
(2) start looking for molehills in mountains.  
(3) create problems  
(4) exaggerate a minor problem
194. Before the report reached the authority, the media spilled the beans.  
(1) dropped the charges  
(2) hinted at the consequences  
(3) revealed the secret information  
(4) spilled the content of the package.
195. His friend turned out to be snake in the grass.  
(1) cowardly and brutal  
(2) low and mean  
(3) a hidden enemy  
(4) an unreliable and deceitful person.

**Directions for Questions 196 to 200:** You have a passage with 5 questions following Read the passages carefully and choose the best answer to each question out of the four alternatives and mark it by blackening the appropriate circle in the Answer Sheet.

**PASSAGE**

Journalist argue over functions of a newspaper, I feel that a provincial paper's purpose is not only to present and project the news objectively and imaginatively, but to help its readers to express themselves more effectively, canalizing their aspirations, making more articulate their demands. A newspaper should reflect the community it serves- warts and all. When the mirror is held to society it reveals neglect, injustice, ignorance or complacency. It should help to eradicate them. It would be pretentious to think that a newspaper can change the course of world affairs but at the local limit it can exert influence, it can probe, it can help get things done. The individual's voice must not be stifled. Instead, the readers should be encouraged to express their opinions, fears, hopes, and or their grievances on this platform.

196. How can the readers air their grievances?  
(1) By being complacent.  
(2) By supporting the local newspaper.  
(3) By writing to journalists  
(4) By writing to their local newspapers
197. What is the main purpose of a newspaper?  
(1) Project news objectively and imaginatively.  
(2) To present facts in a blunt way  
(3) Exert influence on the individuals  
(4) Encourage the readers to be pretentious.

198. The expression "warts and all" in the passage means:

- (1) hopes and fears
- (2) the reader's grievances
- (3) with no attempt to conceal blemishes and inadequacies
- (4) the community's and problems

199. How can a newspaper influence local affairs?

- (1) By probing into the ills of society and rallying support for change.
- (2) By encouraging the readers to accept their grievances.
- (3) By focusing on world affairs
- (4) By influencing public opinion through half-truths.

200. If this passage the writer highlights the fact that:

- (1) A newspaper should reflect the community it serves.
- (2) A newspaper should only concentrate on local affairs.
- (3) Journalists differ in their opinion on the function of a newspaper.
- (4) Newspaper can eradicate injustice.

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## Solutions:

1. 1

The only daughter of the woman's father is the woman herself. The woman is the mother of the man she is pointing to. Hence the person is his son.

2. 2

In the code, A becomes Z; B becomes Y; C becomes X; D becomes W and so on.  
So the code for OZFMMXS is LAUNNCH.

3. 2

$12^2/2=72$   
Similarly,  $8^2/2=32$

4. 4

F lies between E and G, I lies between H and J, G lies between F and H.  
Hence the code is EGHJFH  
Similarly BIN can be coded as ACHJMO

5. 3

$6^2+6 = 42$ . Similarly,  $7^2+7 = 56$

6. 1

Gangue is the commercially worthless material that surrounds, or is closely mixed with a wanted mineral in an ore deposit. It is separated from ore in industry. Hence it is a waste generated from factory during the process.

7. 4

$D+1 = E$ ,  $B+3 = E$ ,  $U+5 = Z$   
Similarly,  $C+1 = D$ ,  $J+3 = M$  and  $H+5 = M$   
Thus, CJH : DMM

8. 1

Rest all are persons who control a region, while a lawyer is a person who practices law.

9. 2

All others indicate type of angles.

10. 3

37 is a prime number but rest all are composite.

11. 3

$B - 2$ ,  $S - 19$   
 $E - 5$ ,  $V - 22$   
 $I - 9$ ,  $Z - 26$   
Difference is 17  
But  $D - 4$ ,  $X - 24$ , difference is 20.

12. 2

All other words start and end with a vowel.

13. 4

1331 is the cube of 11. But rest are not cubes of any natural number.

14. 4

Every big circle has 4 circles at corners and two concentric circles at the centre. Hence  $1+2+4 = 7$  circles.  
Hence in 3 big circles, we have  $7 \times 3 = 21$  circles.  
But one circle is common between circle 1 and circle 2 and one between circle 2 and circle 3.  
Hence total =  $21-2 = 19$  circles

15. 4

The word SHEELA is repeated over four times.

16. 3

The sequence 1234 is repeated over four times.

17. 4

The sequence ab is repeated over six times.

18. 2

The figure in the question has an L shape, one right triangle, one acute triangle and a quadrilateral having a right angle. Figure 2 has all these. Figure 3 looks close but on careful observation we may see that it has an obtuse triangle instead of acute triangle.

19. 3

From the matrix, we have E = 55, 66, 77, 88, 99

A = 01, 14, 22, 30, 43

G = 02, 10, 23, 31, 44

L = 57, 65, 78, 89, 96

Only the option 99, 01, 44, 96, 77 has the codes of the letters in the same sequence.

20. 4

The letters at odd positions remain unaltered while the one at even positions get reversed.

**F R A C T I O N**  $\Rightarrow$  **F N A I T C O R**

Similarly, **Q U A N T I T A T I V E**  $\Rightarrow$  **Q E A I T A T I T N V U**

21. 4

Since the mirror is vertical, the image will be flipped along the y-axis. So options 1 and 3 are discarded. In option 2, we see that the fins are too big. But in reflection there is no magnification. Thus option 4 is the correct answer as it gives the correct mirror image.

22. 4

Virgo is the sixth zodiac sign, there are six players in a volleyball team and 6 runs is the highest scoring shot of cricket.

23. 2

The area denoted by 5 has all three figures overlapping, hence is the required portion.

24. 3

Every letter is shifted by 4.

A becomes E, P becomes T, and so on.

Thus, DELHI  $\Rightarrow$  HIPLM

25. 3

1<sup>st</sup> figure:  $12 = 2 \times 2 \times 3$

2<sup>nd</sup> figure:  $30 = 2 \times 3 \times 5$

3<sup>rd</sup> figure:  $-5 = 5 \times 1 \times -1$

4<sup>th</sup> figure:  $-12 = 4 \times 3 \times -1$

26. 2

In every row, the First and Second number add up to form the Third Number.

$40 + 32 = 72$ ,  $30 + 24 = 54$

Similarly,  $54 + 36 = 90$ . Hence answer is 36

27. 3

The number at the center is product of all the numbers surrounding it.

Hence  $10 \times 3 \times 3 \times 1 = 90$

28. 4

The number and its cube are at opposite sectors:

$$4^3 = 64$$

$$7^3 = 343 \Rightarrow 11^3 = 1331$$

29. 4

The numbers are added and then multiplied by 7 to get the number at the centre.

$$(0+6+4+5+1+3) = 19 \times 7 = 133$$

$$(8+2+5+3+4+6) = 28 \times 7 = 196$$

$$(2+1+5+7+3+4) = 22 \times 7 = 154$$

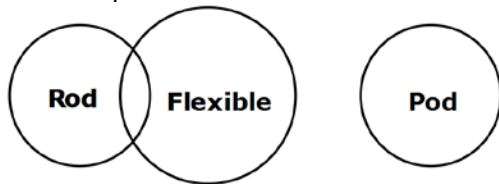
30. 3

If we remove the letter 'S' from each of the given words, we get the new words as HOT, POT, COT, LOT and TOP, all of which are meaningful words.

31. 4

As per given conditions some rods can be flexible. Hence Inference – I is ruled out.

Also no pods are flexible. Hence Inference – II is also ruled out.



32. 3

The statement does not compare any books. Hence we cannot assume that some books are better than others.

33. 4

$$CU \ ST \ OM \Rightarrow UC \ TS \ MO$$

C U becomes U C

S T becomes T S

O M becomes M O

Similarly, PARENT becomes APERTN

34. 1

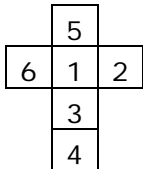
If we subtract the quadrilateral, one small triangle and the big triangle are left. Figure 1 is the required figure.

35. 1

1, 3, 4 and 5 are adjacent to 6. Hence the number opposite to 6 is 2.

Now, drawing the cube in open format, 1 and 3 are adjacent to each other, so are 4 and 5.

Thus we see that 3 is opposite 5.

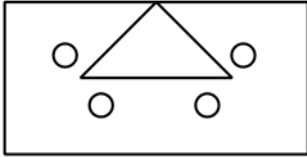


36. 3

The color of clear sky is 'blue', but 'blue' is called 'sky'. Hence, 'sky' is the answer.

37. 1

After the first unfold to left, we'll get a triangle pointing the centre and two circles each surrounding its other two vertices.



After unfolding upward, we get two inverted triangles meeting at the center and eight small circles.

The figure is shown in option 1.

38. 3

The order of the words is ordeum, odium, odious, occulist.

Hence, 'odious' is at the 3<sup>rd</sup> place.

39. 1

Every rectangular block has a 'Z' shape inscribed in it. We have two missing blocks. Hence the two rectangles have one 'Z' each one on the top of the other. Option 1 represents the correct figure.

40. 1

The missing figure should complete the circle at the bottom left, the circle at top right and the triangle at the bottom right. Option 1 is the only such figure.

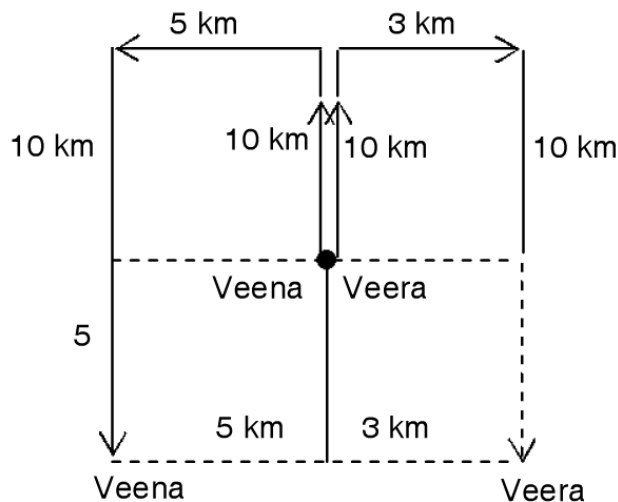
41. 1

All potatoes are vegetables and all vegetables are eatables.

42. 2

All Popes are Catholics and all Catholics are Christians

43. 3



As shown, Distance between Veena and Veera is  $5 + 3 = 8$  Km.

44. 3

The pattern is:

$$1^2 + 1 = 2$$

$$2^2 + 1 = 5$$

.

.

$$6^2 + 1 = 37$$

45. 1

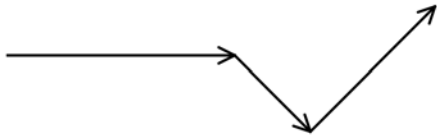
Given,  $4Y = 3x$  and  $3x = 6Z$

Hence,  $4Y = 6Z$

Or  $2Y = 3Z$

i.e, 2YF3Z

46. 4



We can see from the figure that he now is facing north east.

47. 3

LATHPEEN - ELEPHANT

TICRECK - CRICKET

FEFEOC - COFFEE

TAR - RAT

Hence option 3.

48. 2

The order is hake, hale, halt, ham, hamlet, thus 21354.

49. 3

Given expression becomes

$$16 + 64 \div 8 - 4 \times 2$$

$$\Rightarrow 16 + 8 - 8 = 16$$

50. 3

The word Digging cannot be formed as there are three G's present in it while the given word has only one.

51. 3

An instruction cycle (sometimes called fetch-decode-execute cycle) is the basic operation cycle of a computer. It is the process by which a computer retrieves a program instruction from its memory, determines what actions the instruction requires, and carries out those actions. This cycle is repeated continuously by the central processing unit (CPU), from bootup to when the computer is shut down.

52. 2

Reformation is the revolt against something or someone by removing or correcting faults, problems, etc.

53. 2

In 1905, it was Einstein who suggested the concept of light having a dual nature; particle and wave nature. In a similar way, Louise de Broglie suggested that electron also exhibits a dual nature. Broglie also got Physics Noble Prize for his this theory.

54. 4

Small Industries Development Bank of India is an independent financial institution aimed to aid the growth and development of micro, small and medium-scale enterprises (MS was incorporated initially as a wholly owned subsidiary of Industrial Development Bank of India. Currently the ownership is held by 33 Government of India owned / controlled institutions.

55. 2

B12 is the most chemically complex of all the vitamins. The structure of B12 is based on a corrin ring, which is similar to the porphyrin ring found in heme, chlorophyll, and cytochrome. The central metal ion is cobalt.

56. 4

Tilak was one of the first and strongest advocates of "Swaraj" (self-rule) and a strong radical in Indian consciousness. He is known for his quote "Swarajya is my birthright and I shall have it."

57. 1

Stromboli is a small island in the Tyrrhenian Sea, off the north coast of Sicily, containing one of the three active volcanoes in Italy. The volcano has erupted many times and is constantly active with minor eruptions, often visible from many points on the island and from the surrounding sea, giving rise to the island's nickname "Lighthouse of the Mediterranean".

58. 4

Lorenz Hiltner is recognized as the first scientist to coin the term "rhizosphere" in 1904.

59. 4

Thermal power plants are the maximum consumer of water in India (87.8%).

60. 4

The global heat budget is the balance between incoming and outgoing solar radiation. Incoming solar energy varies at different times of year and for different locations across the globe.

61. 4

Steam at 100° C or more has more latent heat of vapourisation than water at the same temperature.

62. 4

The troposphere is the lowest portion of Earth's atmosphere. It contains approximately 75% of the atmosphere's mass and 99% of its water vapour and aerosols.

63. 3

Howard Martin Temin was a U.S. geneticist and virologist. He discovered reverse transcriptase in the 1970s at the University of Wisconsin–Madison, for which he shared the 1975 Nobel Prize in Physiology or Medicine with Renato Dulbecco and David Baltimore.

64. 2

The Quit India Movement was a civil disobedience movement launched by Mohandas Karamchand Gandhi on 8 August 1942, during World War II, demanding an end to British Rule of India.

65. 3

Zone melting, any of a group of techniques used to purify an element or a compound or control its composition by melting a short region (i.e., zone) and causing this liquid zone to travel slowly through a relatively long ingot, or charge, of the solid.

66. 4

Sweetness of the given sugars taking sucrose as reference:

Name	Type of compound	Sweetness
Lactose	Disaccharide	0.16
Maltose	Disaccharide	0.33 – 0.45
Glucose	Monosaccharide	0.74 – 0.8
Fructose	Monosaccharide	1.17 – 1.75

67. 1

Most of the earth's crust, or outer layer, is made up of eight elements. Oxygen tops the list in terms of abundance, with the planet's shell being composed of almost 47% of this non-metallic chemical element.



68. 3  
By Article 75 of the constitution of India, remuneration of the prime minister as well as other ministers are to be decided by the Parliament and is renewed from time to time.
69. 2  
Denitrification is a microbially facilitated process of nitrate reduction (performed by a large group of heterotrophic facultative anaerobic bacteria) that may ultimately produce molecular nitrogen (N<sub>2</sub>) through a series of intermediate gaseous nitrogen oxide products. This respiratory process reduces oxidized forms of nitrogen in response to the oxidation of an electron donor such as organic matter.
70. 3  
Bit means binary digit: 0 or 1.  
Byte is a group of 8 bits.  
A field is the elementary entity in a database.  
A collection of fields is called record, a collection of record is file, a collection of files is database.  
Thus, Bit – Byte – Field – Record – File – Database
71. 2  
Holstein Friesians (often shortened as Friesians in Europe, and Holsteins in North America) are a breed of cattle originating from the two northern provinces of North Holland and Friesland, and what is now Schleswig-Holstein in Northern Germany. They are known as the world's highest-production dairy animals.
72. 4  
The Indian National Congress is one of two major political parties in India; the other being the Bharatiya Janata Party. Congress is one of the largest and oldest democratically run political parties in the world. The party was founded in 1885 during the British Raj; its founders include Allan Octavian Hume, Dadabhai Naoroji and Dinshaw Wacha.
73. 4  
Modern Bangladesh emerged as an independent nation in 1971 after achieving independence from Pakistan in the Bangladesh liberation war.
74. 1  
Brahmo Samaj was one of the most influential religious movements responsible for the making of modern India. It was started at Calcutta on 20 August 1828 by Raja Ram Mohan Roy.
75. 4  
Pulse Family (Leguminosae) is a very large and valuable family of plants, many of them being food-producing.
76. 4  
Vijaya Lakshmi Nehru Pandit was an Indian diplomat and politician, the sister of Jawaharlal Nehru, the aunt of Indira Gandhi and the grand-aunt of Rajiv Gandhi, each of whom served as Prime Minister of India. In 1953, she became the first woman President of the United Nations General Assembly
77. 4  
All the paper currency of India except one rupee note bears the signature of RBI Governor as these are issued by RBI, but Re.1 bears the signature of the Finance Secretary of India as it is issued by GOI.

78. 1

Currency	Country
Riyal	Saudi Arabia
Pound	UK
Ringgit	Malaysia
Renminbi	China

79. 4

The Reserve Bank of India was nationalised with effect from 1st January, 1949 on the basis of the Reserve Bank of India (Transfer to Public Ownership) Act, 1948.

80. 4

Folk dancing is a simple dance form meant for group performance based on a reason like harvest of food, whereas classical dance is a form of enlightenment.

Garba is a form of dance which was originated in the state of Gujarat in India. Many traditional garbas are performed around a centrally lit lamp or a picture or statue of the Goddess Shakti. Rest all are classical dances.

81. 2

National Bank for Agriculture and Rural Development (NABARD) is an apex development bank in India, having headquarters in Mumbai and other branches are all over the country.

82. 2

If the economy is booming, then a budget surplus could be compatible with strong economic growth.

83. 2

Ganesh Vasudev Mavalankar popularly known as Dadasaheb was an independence activist, the President of the Central Legislative Assembly, then Speaker of the Constituent Assembly of India, and later the first Speaker of the Lok Sabha, the lower house of the Parliament of India.

84. 4

Plural voting is the practice whereby one person might be able to vote multiple times in an election.

85. 1

The presence of bundle sheath with chloroplast in the leaves are granulated and lacking in starch. Such feature is known as chloroplast dimorphism.

86. 3

The equator receives equal day and night throughout the year because it does not tilt in relation to the sun's location.

87. 2

Optimum profits means the best possible. Maximum means the most. Sometimes the most is not the best, making the most profit could result in draining the market quickly or using immoral business practices. Optimum profits make enough money to sustain the company over a long time.

88. 4

An evergreen forest is a forest consisting entirely or mainly of evergreen trees that retain green foliage all year round. Such forests reign in the equatorial region, between the tropics primarily as broadleaf evergreens, and in temperate and boreal latitudes primarily as coniferous evergreens.

89. 1

Pleiotropy occurs when one gene influences two or more seemingly unrelated phenotypic traits. Consequently, a mutation in a pleiotropic gene may have an effect on some or all traits simultaneously.

90. 4

In soil science, podzols (known as spodosols in China and the United States of America and podosols in Australia) are the typical soils of coniferous, or boreal forests. They are also the typical soils of eucalypt forests and heathlands in southern Australia, while in Western Europe podzols develop on heathland, which is often a construct of human interference through grazing and burning.

91. 2

Antoine Henri Becquerel was a physicist, Nobel laureate, and the discoverer of radioactivity.

92. 3

Alum and bleaching powder are the most common material used all over the world to purify drinking water. Alum is most efficient than salt as a coagulation agent and the proper dosage does not leave any taste in the water.

93. 3

Retroviral integrase (IN) is an enzyme produced by a retrovirus (such as HIV) that enables its genetic material to be integrated into the DNA of the infected cell.

94. 3

In a representative democracy voting is the method by which the electorate appoints its representatives in its government.

95. 3

According to Mayer's equation,  $C(p) - C(v) = R$  ----- (1)

Where  $C(p)$  = specific heat at constant pressure,  $C(v)$  = specific heat at constant volume,  $R$  = Universal gas constant.

But sometimes the above equation is used in the following way,  $C(p) - C(v) = R/J$  ----- (2)

Where  $C(p)$  = gram molecular specific heat of the gas at constant pressure,  $C(v)$  = gram molecular specific heat of the gas at constant volume,  $R$  = Universal gas constant,  $J$  = Mechanical equivalent of heat.

96. 2

Allan Octavian Hume CB was a civil servant, political reformer, ornithologist and botanist who worked in British India. He was one of the founders of the Indian National Congress, a political party that was later to lead in the Indian independence movement.

97. 4

Water conservation encompasses the policies, strategies and activities made to manage fresh water as a sustainable resource, to protect the water environment, and to meet current and future human demand.

All the above options are good ways to conserve water.

98. 4

A constitutional monarchy, limited monarchy or parliamentary monarchy (in its most limited form, a crowned republic) is a monarchy in which governing powers of the monarch are restricted by a constitution.

99. 3

Popular sovereignty or the sovereignty of the people's rule is the principle that the authority of a state and its government is created and sustained by the consent of its people, through their elected representatives (Rule by the People), who are the source of all political power.

100. 2

Cliffs with weaker rock such as clay tend to slump and erode too quickly to form stacks, while harder rocks such as granite erode in different ways

101. 3

We can see that the given triangle is a right angled triangle.

Radius of circumcircle of a right angled triangle =  $\frac{1}{2} \times (\text{hypotenuse}) = \frac{1}{2} \times (5)$

Radius of Inscribed circle of a right angled triangle =  $\left(\frac{ab}{a+b+c}\right) = \left(\frac{3 \times 4}{3+4+5}\right) = 1 \text{ cm}$

Ratio of their areas =  $\frac{1^2}{\left(\frac{5}{2}\right)^2} = \frac{4}{25}$

102. 4

$$x+1 = \frac{1}{\sqrt{2}+1} + 1 = \frac{\sqrt{2}+2}{\sqrt{2}+1} = \frac{\sqrt{2}+2}{\sqrt{2}+1} \times \frac{\sqrt{2}-1}{\sqrt{2}-1} = \frac{2+2\sqrt{2}-\sqrt{2}-2}{2-1} = \sqrt{2}$$

103. 1

Savings occupy  $\frac{60^\circ}{360^\circ}$  of monthly income

Hence monthly savings are  $\frac{1}{6} \times (36000) = \text{Rs. } 6000$

Yearly savings =  $6000 \times 12 = \text{Rs. } 72000$

104. 2

Let E be expenditure on housing.

$\therefore$  Expenditure on education =  $E + 1600$

Also ratio of expenditures on housing to education is 54 : 70

$$\Rightarrow \frac{E}{E+1600} = \frac{54}{70}$$

Solving we get  $E = 5400$

$$\text{Expenditure on Food} = \frac{120}{54} \times 5400 = \text{Rs. } 12000$$

105. 1

Required ratio =  $120^\circ : 60^\circ = 2 : 1$

106. 1

Let X be sum of marks of five subjects other than the subject in which his marks were wrongly copied.

$$\Rightarrow (X + 86)/6 = 88$$

$$\Rightarrow X = 442$$

$$\text{Corrected average} = (X+68)/6 = 85$$

107. 4

Scores of Players in both the innings are:

$$\text{MS Dhoni} - 60+80 = 140$$

$$\text{Kohli} - 50+50 = 100$$

$$\text{Pujara} - 70+10 = 90$$

$$\text{Dhawan} - 30+20 = 50$$

So Dhoni is the highest scorer.

$$\text{His average innings score} = (60+80)/2 = 70$$

108. 3

Scores of Players in both the innings are:

$$\text{MS Dhoni} - 60+80 = 140$$

$$\text{Kohli} - 50+50 = 100$$

$$\text{Pujara} - 70+10 = 90$$

$$\text{Dhawan} - 30+20 = 50$$

Pujara scored least in 2<sup>nd</sup> innings.

$$\text{So his average innings score} = (70+10)/2 = 40$$

109. 3

Scores of Players in both the innings are:

$$\text{MS Dhoni} - 60+80 = 140$$

$$\text{Kohli} - 50+50 = 100$$

$$\text{Pujara} - 70+10 = 90$$

$$\text{Dhawan} - 30+20 = 50$$

$$\text{Average 2}^{\text{nd}} \text{ innings score of all players} = (80+50+10+20)/4 = 40.$$

110. 3

Scores of Players in both the innings are:

MS Dhoni –  $60+80 = 140$

Kohli –  $50+50 = 100$

Pujara –  $70+10 = 90$

Dhawan –  $30+20 = 50$

Total scores in first innings =  $(60+50+70+30) = 210$ .

111. 4

Volume of a sphere =  $\frac{4}{3} \pi r^3$

Surface area of a sphere =  $4 \pi r^2$

Given volume = Surface area

$$\Rightarrow \frac{4}{3} \pi r^3 = 4 \pi r^2$$

$$\Rightarrow r = 3$$

Diameter = 6 units

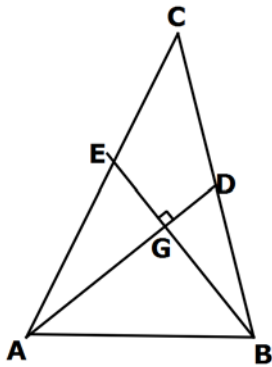
112. 3

Speed of train = 75km/hr

Distance to be covered = 1050 kms

Time required to travel =  $1050/75 = 14$  hrs

113. 1



As shown in fig. G is centroid and AD, BE are medians.

Also centroid divides median in ratio of 2:1.

$$\Rightarrow AG : GD = 2:1 \quad \text{-- (1)}$$

$$\Rightarrow BG : GE = 2:1 \quad \text{-- (2)}$$

Also it is given that  $\angle ABG = 90^\circ$

Since AD = 9 cm and BE = 12 cm

From (1) and (2) we get AG = 6 cm and BG = 8 cm

As  $\triangle ABG$  is a right angled triangle we get,

$$(AB)^2 = (AG)^2 + (BG)^2$$

$$\Rightarrow AB = \sqrt{(6^2 + 8^2)}$$

$$\Rightarrow AB = 10 \text{ cm}$$

114. 3

$$2\sin^2 \theta + 3\cos^2 \theta = 2\sin^2 \theta + 3(1 - \sin^2 \theta) = 2\sin^2 \theta + 3 - 3\sin^2 \theta = 3 - \sin^2 \theta$$

$\sin^2 \theta$  can take a maximum value of 1

$$\text{Hence minimum value of } 2\sin^2 \theta + 3\cos^2 \theta = 2$$

115. 4

An equilateral triangle is the one which all sides equal and all angles measuring  $60^\circ$ .

116. 2

In a parallelepiped,

No. of vertices = 8

No. of edges = 12

No. of faces = 6

$$v - e + f = 8 - 12 + 6 = 2$$

117. 1

Minimum area of base of cone = 5 x (Area required for each person) = 80 m<sup>2</sup>

$$\Rightarrow \pi r^2 = 80$$

Minimum volume of cone = 5 x 100 m<sup>3</sup> = 500 m<sup>3</sup>

$$\Rightarrow \pi r^2 h/3 = 500$$

$$\Rightarrow 80 \left(\frac{h}{3}\right) = 500$$

$$\Rightarrow h = 18.75\text{m}$$

118. 4

For an equilateral triangle of side a,

$$\text{Altitude} = \sqrt{3}/2 a$$

$$\Rightarrow \sqrt{3}/2 a = 12\sqrt{3}$$

$$\Rightarrow a = 24$$

$$\text{Area} = \sqrt{3}/4 a^2$$

$$= \sqrt{3}/4 \times 24 \times 24 = 144 \sqrt{3} \text{ cm}^2$$

119. 4

Let M be marked price of an article

$$\text{SP after 40\% and 30\% discount} = M \times \left(\frac{60}{100}\right) \times \left(\frac{70}{100}\right) = 0.42 M$$

$$\text{SP after 45\% and 20\% discount} = M \times \left(\frac{55}{100}\right) \times \left(\frac{80}{100}\right) = 0.44 M$$

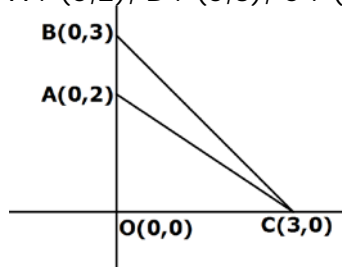
$$\text{Difference} = 0.02 M = \text{Rs. } 12$$

$$\Rightarrow M = \text{Rs. } 600.$$

120. 2

Points of intersection are:

A : (0,2), B : (0,3), C : (3,0)



Area of triangle ABC = Area of triangle OBC – Area of triangle OAC

$$\Rightarrow \text{Area of triangle ABC} = \left(\frac{1}{2} \times 3 \times 3\right) - \left(\frac{1}{2} \times 3 \times 2\right)$$

$$= 9/2 - 3 = 1 \frac{1}{2} \text{ sq. units}$$

121. 1

A line passing through origin means for x=0, y=0, the equation should be valid.

Among the given equations, (x,y) = (0, 0) satisfies only equation 2x-3y = 0.

122. 3

$$(x^8 - 1) = (x^4 - 1)(x^4 + 1) = (x^2 - 1)(x^2 + 1)(x^4 + 1)$$

$$(x^4 + 2x^3 - 2x - 1) = (x^4 + 2x^3 + x^2 - x^2 - 2x - 1)$$

$$= x^2(x^2 + 2x + 1) - (x^2 + 2x + 1)$$

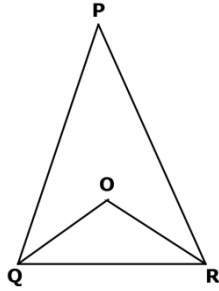
$$= (x^2 - 1)(x^2 + 2x + 1)$$

$$\text{Hence HCF} = (x^2 - 1)$$

123. 2

$$\text{The required number} = \text{LCM}(6, 9, 12, 15, 18) + 2 = 182$$

124. 1



$$\begin{aligned} \text{In triangle OQR, } \angle R/2 + \angle Q/2 + \angle O &= 180 \\ \Rightarrow \frac{1}{2} (\angle R + \angle Q) + 96 &= 180 \\ \Rightarrow \angle R + \angle Q &= 168 \\ \Rightarrow \angle P &= 180 - 168 = 12^\circ \end{aligned}$$

125. 4

$$\begin{aligned} \text{Let sum be } S \\ \text{Amount} &= S(1.1)^2 = 12100 \\ \Rightarrow S &= 10000 \end{aligned}$$

126. 4

A finishes the work in 8 days.  
Hence A's one day's work =  $1/8$   
A's two days' work =  $1/4$  = B's three days' work  
Hence, B's one day's work =  $1/12$   
So B will take 12 days to complete the work.

127. 4

$$\begin{aligned} \text{Let the angles be } 2a, 3a \text{ and } 5a \\ \text{Sum of the angles} &= 2a + 3a + 5a = 10a = 180 \\ \Rightarrow a &= 18 \\ \text{So the angles are } 36^\circ, 54^\circ \text{ and } 90^\circ \end{aligned}$$

128. 4

$$\begin{aligned} \text{Let the number to be added be } a \\ \text{Hence, } (2+a)/(5+a) &= (5/6) \\ \Rightarrow a &= 13 \end{aligned}$$

129. 3

$$\begin{aligned} 22/9 \text{ radians} &= 22/9 \times 180/\pi = 22/9 \times 180 \times 7/22 = 140^\circ \\ \text{Let the angles be } A \text{ and } B. \\ \text{Given, } A+B &= 140^\circ \text{ and } A-B = 36^\circ \\ \text{On solving, we get, } A &= 88^\circ \text{ and } B = 52^\circ \end{aligned}$$

130. 4

$$\begin{aligned} \text{Suppose a man does 'm' units of work in a day and a woman does 'w' units of work in a day.} \\ \text{Total work} &= 8(4m+6w) = 8(2m+9w) \\ \Rightarrow 32m + 48w &= 16m + 72w \\ \Rightarrow 16m &= 24w \\ \Rightarrow 2m &= 3w \\ \text{Thus, total work} &= 8 \times (3w + 9w) = 96w \text{ units.} \\ \text{Hence 18 women will take, } 96/18 &= 5 \frac{1}{3} \text{ days} \end{aligned}$$

131. 4

$$\begin{aligned} \text{Given, } x^{12} + 1/x^{12} &= 7 \\ \text{We know that } a^3 + b^3 &= (a+b)^3 - 3ab(a+b) \\ \Rightarrow (x^{12})^3 + (1/x^{12})^3 &= (x^{12} + 1/x^{12})^3 - 3 \cdot x^{12} \cdot (1/x^{12})(x^{12} + 1/x^{12}) \\ \Rightarrow x^{36} + 1/x^{36} &= 7^3 - 3 \cdot 7 = 322 \\ \text{i.e. } (x^{72} + 1)/x^{36} &= 322 \end{aligned}$$

132. 2

$$5x + 9y = 5$$

We know that  $a^3 + b^3 = (a+b)^3 - 3ab(a+b)$

$$\Rightarrow (5x)^3 + (9y)^3 = (5x + 9y)^3 - 3(5x)(9y)(5x + 9y)$$

$$\Rightarrow 125x^3 + 729y^3 = (5x + 9y)^3 - 3(5x)(9y)(5x + 9y)$$

$$\Rightarrow 120 = (5)^3 - 135xy \times 5$$

$$\Rightarrow 120 = 125 - 675xy$$

$$\Rightarrow 675xy = 5$$

$$\Rightarrow xy = 1/135$$

133. 3

Let the part of work done in a day by one man be 'm' and that by a woman be 'w'

$$\Rightarrow 4m = 1/45$$

$$\Rightarrow m = 1/180$$

$$\text{Also, } 8w = 1/45$$

$$\Rightarrow w = 1/360$$

So work done by 6 men and 12 women in a day =  $6m + 12w$

$$= 6/180 + 12/360 = 1/15$$

Hence they can complete work in 15 days.

134. 2

$$\sin^2 22^\circ + \sin^2 68^\circ + \cot^2 30^\circ = \sin^2 22^\circ + \cos^2 22^\circ + 3 = 4$$

135. 4

Let the marked price be 100p

$$SP = 100p \times 0.9 \times 0.8 \times 0.75 = 54p$$

$$\text{Discount} = 100p - 54p = 46p$$

$$\text{Discount \%} = 46\%$$

136. 1

For an acute angle A,  $\tan A = \cot (90^\circ - A)$

$$\text{Hence, } 4\theta - 50^\circ = 90^\circ - (50^\circ - \theta)$$

$$\Rightarrow 4\theta - 50^\circ + 50^\circ - \theta = 90^\circ$$

$$\Rightarrow 3\theta = 90^\circ$$

$$\Rightarrow \theta = 30^\circ$$

137. 1

Let CP of 1 book be C.

$$\text{CP of 60 books} = 60C$$

$$\text{SP of 60 books} = \text{CP of 100 books} = 100C$$

$$\text{Profit \%} = (\text{SP} - \text{CP}) / \text{CP} \times 100 \%$$

$$= 40C / 60C \times 100 = 66 \frac{2}{3}\%$$

138. 3

$$\sin \theta = 3/5$$

$$\frac{\sec \theta - \tan \theta}{\sec \theta + \tan \theta} = \frac{1/\cos \theta - \sin \theta / \cos \theta}{1/\cos \theta + \sin \theta / \cos \theta}$$

$$= \frac{1 - \sin \theta}{1 + \sin \theta} = \frac{1 - 3/5}{1 + 3/5} = \frac{2/5}{8/5} = \frac{1}{4}$$

139. 4

Let the number be m

Given,

$$\frac{3}{4} \times m = 7 + m/6$$

$$\Rightarrow 7m/12 = 7$$

$$\Rightarrow m = 12$$

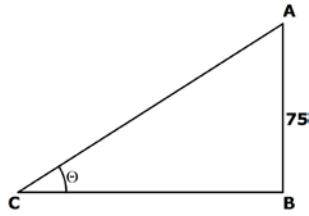
$$5m/3 = 5 \times 12/3 = 20$$



140. 4

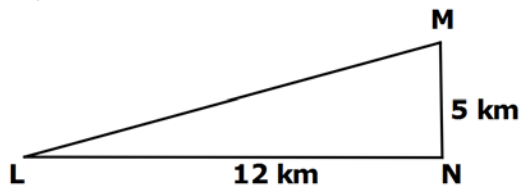
$$\begin{aligned}\text{Required average} &= (1+3+5+\dots+39)/20 \\ &= 10 \times 40/20 \quad [\text{sum of AP} = n/2 \times (a+l)] \\ &= 20\end{aligned}$$

141. 2



$$\begin{aligned}\cot \theta &= BC/AB = 8/15 \\ \Rightarrow BC &= 8/15 \times 75 = 40\text{m} \\ AC &= \sqrt{AB^2 + BC^2} \\ &= \sqrt{1600 + 5625} = \sqrt{7225} = 85\text{m}\end{aligned}$$

142. 4



$$\begin{aligned}\text{Shortest distance} &= LM = \sqrt{LN^2 + NM^2} \\ &= \sqrt{12^2 + 5^2} = 13 \text{ km}\end{aligned}$$

143. 2

$$\begin{aligned}\text{Students who got 190 failed by 35 marks} \\ \Rightarrow \text{Pass mark} &= 190 + 35 = 225 \\ \text{Total marks} &= 225/0.36 = 625\end{aligned}$$

144. 4

$$\begin{aligned}\text{Speed of the train} &= 90\text{km/hr} = 90 \times 5/18 = 25 \text{ m/sec} \\ \text{Time taken to cross post} &= \text{time taken to cross its length} = 180/25 = 7.2 \text{ sec}\end{aligned}$$

145. 4

$$\begin{aligned}\% \text{ Discount} &= (MP-SP)/MP \times 100 \\ &= (975-897)/975 \times 100 \\ &= 78/975 \times 100 = 8\%\end{aligned}$$

146. 2

$$\begin{aligned}\sec \theta + \tan \theta &= p \quad (i) \\ \text{we know that, } \sec^2 \theta - \tan^2 \theta &= 1 \\ \sec^2 \theta - \tan^2 \theta &= (\sec \theta + \tan \theta) (\sec \theta - \tan \theta) \\ \Rightarrow 1 &= p(\sec \theta - \tan \theta) \\ \Rightarrow \sec \theta - \tan \theta &= 1/p \quad (ii) \\ \text{From (i) and (ii),} \\ \Rightarrow \sec \theta &= \frac{1}{2} (p + 1/p)\end{aligned}$$

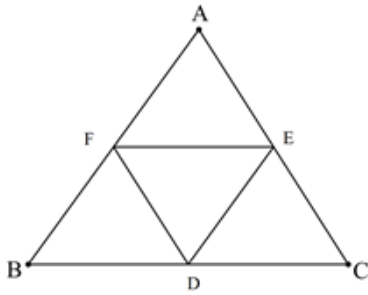
147. 1

$$\begin{aligned}p(p^2+3p+3) &= p^3+3p^2+3p \\ &= p^3+3p^2+3p+1 - 1 \\ &= (p+1)^3 - 1 \\ &= 1000000-1 = 999999\end{aligned}$$

148. 1

$$\begin{aligned}x^3 + 27x^2 + 243x + 631 &= x^3 + 27x^2 + 243x + 729 - 98 \\ &= (x+9)^3 - 98 \\ \Rightarrow (x+9)^3 - 98 &= 11^3 - 98 = 1233\end{aligned}$$

149. 4



In triangles AFE and ABC,

$$AF/AB = AE/AC = \frac{1}{2}$$

Also,  $\angle A$  is common.

Hence the triangles are similar.

Now, each side of AFE is half that of ABC.

Hence area of AFE is  $\frac{1}{4}$ <sup>th</sup> the area of ABC.

Similarly, areas of BFD and CDE is  $\frac{1}{4}$ <sup>th</sup> the area of ABC.

Remaining triangle DEF has area  $(1 - \frac{3}{4}) = \frac{1}{4}$  the area of ABC

Let, Area of  $\triangle AFE = \triangle BFD = \triangle DEC = \triangle DEF = m$

$\Rightarrow$  Area of DEFB =  $2m$  and Area of CAFD =  $3m$

Required Ratio = 2 : 3

150. 4

Let  $A=4k$  and  $B=5k$

$$B^2 - A^2 = 81$$

$$\Rightarrow 25k^2 - 16k^2 = 81$$

$$\Rightarrow 9k^2 = 81$$

$$\Rightarrow k = 3$$

$$\Rightarrow A = 12$$

151. 1

"Morning" should be used with "Came" for the sentence to make sense. The other words are idiomatically incorrect.

152. 3

"Call up" means "to bring to mind"

153. 3

"Up one's sleeve" is the correct idiom. It means "kept secret and in reserve for use when needed". Hence, 3 is correct.

154. 4

"Day by day" signifies that the action is happening currently. Hence, we shall use present continuous tense. So, 4 is correct.

155. 2

The police will resort to firing only when the situation has gone to extreme, i.e. the mob turns violent.

156. 2

Board means "to live and receive regular meals in a house in return for payment or services". Hence, Lodging is similar in meaning.

157. 4

Peruse means to read (something), typically in a thorough or careful way.

158. 1

Spume means froth or foam.

159. 4

The "customs and ceremonies" are related to the 'communities and castes' according to the passage. Custom means "a traditional and widely accepted way of behaving or doing something that is specific to a particular society, place, or time." Hence, 4 is the best answer.

160. 1

The statement talks about 'Theft' and Option 1 mentions about people's possession against being "stolen". Hence, Option 1 is correct.

161. 4

According to the second sentence of the passage, "But in normal times there is another force that compels citizens to obey law and to act with due regard to the rights of others" The 'force' that is mentioned in this sentence is the Police. Hence, Option 4 is correct as it mentions that Police checks the citizens from violating law.

162. 2

According to the sentence, it is the responsibility of army (and not of police) to maintain peace during abnormal (extraordinary conditions)

163. 4

According to the passage, "protect the rights of communities and castes to carry out their customs and ceremonies, so long as they do not conflict with the rights of others.". Hence, these rights are not absolute and unconditional.

164. 4

Usage of 'nor' is correct. Nor (not or) must be used to start the second of two negative independent clauses- For example- "He cannot find anyone now, nor does he expect to find anyone in the future". Hence, Option 4 is correct.

165. 1

Usage of "if" shows a conditional phrase, which means the action may or may not happen in future. So, usage of future tense is wrong and present tense should be used. Hence, 1 is correct.

166. 1

Nodding head is generally a sign of acceptance/approval/acknowledgement. Hence, Option 1 is the most suitable.

167. 2

Usage of "being" is wrong in the original sentence. "Confronted" cannot be used without a preposition (by). "In front of a crisis" doesn't make any sense. Hence, 2 is the only correct option.

168. 3

"Insisted that" is the correct usage

169. 2

The phrase "Cannot /can't help but" means to be unable to refrain from or avoid; be obliged to. So the original sentence is correct.

170. 1

The placement of modifiers is only correct in Option 1. In the original sentence and Option 3, the placement is wrong. It is grapes that are being taken, hence grapes must be placed adjacent to "took". Similarly, the placement of grapes should be adjacent to "brought" in Sentence 4 for the sentence to make sense (Grapes were brought, not my mother).

171. 3

The first part of the sentence is in Simple Past Tense. The second part must be in Simple Past Tense as well. So "Didn't we" is correct.

172. 4

To "Play fair" means to do something by the rules; to play something in a fair and just manner.

173. 2

Endure means to suffer (something painful or difficult) patiently.

174. 3

Vacillation means wavering between different opinions or actions; be indecisive. Hence, the word opposite in meaning is 'steadfastness' which means "resolutely or dutifully firm and unwavering."

175. 2

'Placid' means calm and peaceful. Hence, the word opposite in meaning is 'stormy' which means 'full of angry or violent outbursts of feeling'

176. 1

Effeminacy is the manifestation of traits in a human boy or man that are more often associated with feminine nature. Hence the word opposite in meaning is "manliness"

177. 4

The correct idiom is "A bird in the **hand** is worth two in the bush"

178. 2

The correct usage is "Luggage". There is no word as "luggages"

179. 2

Playground is the subject and it is singular. Hence, the verb should be singular as well. "Are" should be replaced with "is" for the sentence to be correct.

180. 3

The analogy drawn is faulty. A 'mule' is not tall. 'Giraffe' can be used to make a valid analogy.

181. 1

We use "who" when you are referring to the subject of a clause and "whom" when we are referring to the object of a clause. Here 'Who' is wrong as it is the object (the subject is "I"). So, "Who" should be replaced with "Whom"

182. 3

Voluntary means "done, given, or acting of one's own free will"

183. 1

Fugitive is "a person who has escaped from captivity or is in hiding"

184. 4

Dexterous means "showing or having skill"

185. 2

Improvident means "not providing or saving for the future: not wise or sensible regarding money"

186. 3

Laudable means "deserving praise and commendation."

187. 4

Veteran means "a person who has had long experience in a particular field."

188. 2

Archaeology is the study of ancient things.

189. 3

The correctly spelt word is 'Diffusion'.

190. 2

The correctly spelt word is 'Circumlocution'

191. 4

"Compensate" means "give (someone) something in recognition of loss, suffering, or injury incurred; recompense"

192. 4

"To leave someone high and dry" means "To leave someone helpless". Hence, 4 is the correct option.

193. 4

"To make a mountain out of a molehill" means "to make a major issue out of a minor one; to exaggerate the importance of something."

194. 3

"To spill the beans" means "To reveal all the secrets"

195. 3

"Snake in the grass" means "A treacherous person". Hence, 3 is correct as an enemy who is hidden is treacherous (involving betrayal or deception)

196. 4

The last sentence of the passage mentions, "The individual's voice must not be stifled. Instead, the readers should be encouraged to express their opinions, fears, hopes, and or their grievances on **this platform**". Here, "this platform" refers to the newspapers.

197. 1

The answer is mentioned in the 1<sup>st</sup> sentence of the passage, "a provincial paper's purpose is not only to present and project the news objectively and imaginatively...."

198. 3

"Wart" means "an undesirable or disfiguring feature". Hence, 3 is the correct option as it mentions blemishes and inadequacies.

199. 1

It is mentioned in the passage "It would be pretentious to think that a newspaper can change the course of world affairs but at the local limit it can exert influence, it can probe, it can help get things done". Hence, Option 1 is correct.

200. 1

It is clearly mentioned in the passage "A newspaper should reflect the community it serves" and also the author explains how the newspaper can be beneficial to the local community.