

SRIGAYATRI EDUCATIONAL INSTITUTIONS

ANDHRA PRADESH

Time: 3 hours

CLASS – X (NTSE)

Max. Marks: 200

- Read the following instructions carefully before answering.
➤ The question paper contains questions numbered 001 to 200.

Mental Ability	001 to 100
Mathematics	101 to 120
Physics	121 to 134
Chemistry	135 to 147
Biology	148 to 160
Social Studies	161 to 200

- All questions are multiple choice questions with single right answer.
➤ Mark all the answers on the OMR Sheet given to you.
➤ Each question carries one mark.
➤ Read the instructions given on the OMR sheet before you bubble the answers.

MENTAL ABILITY TEST

I. (1 to 10) Choose the correct alternative that will continue the same pattern in the given series.

- 1, 9, 25, 49, ?, 121
(A) 64 (B) 81 (C) 91 (D) 100
- 4, 7, 12, 19, 28, ?
(A) 30 (B) 37 (C) 39 (D) 49
- 11, 13, 17, 19, 23, 25, ?
(A) 26 (B) 27 (C) 29 (D) 37
- 6, 12, 21, ?, 48
(A) 33 (B) 38 (C) 40 (D) 45
- 2, 5, 9, ?, 20, 27
(A) 14 (B) 16 (C) 18 (D) 24
- R, U, X, A, D, ?
(A) F (B) G (C) H (D) I
- T, R, P, N, L, ?, ?
(A) J, G (B) J, H (C) K, H (D) K, I
- B, D, F, I, L, P, ?

- (A) R (B) S (C) T (D) U
9. U, B, I, P, W, ?
(A) D (B) F (C) Q (D) Z
10. H, I, K, N, ?
(A) O (B) Q (C) R (D) S

Direction: (11 to 15) In each of the following questions find out the alternative which will replace the question mark

11. Mango : Fruit :: Potato : ?
(A) Root (B) Fruit (C) Stem (D) Flower
12. Dog : Bark :: Goat : ?
(A) Bleat (B) Howl (C) Grunt (D) Bray
13. Food : Stomach :: Fuel : ?
(A) Plane (B) Truck (C) Engine (D) Automobile
14. Moon : Satellite :: Earth : ?
(A) Sun (B) Planet (C) Solar System (D) Asteroid
15. Laugh : Joy :: Weep : ?
(A) Grief (B) Remorse (C) Baby (D) Punishment
16. **Apparel** is related to **Cloth** in the same way as **Footwear** is related to _____
(A) Material (B) Leather (C) Cobbler (D) Shoes
17. **Honey** is related to **Wax** in the same way as **Milk** is related to _____
(A) Cow (B) Leather (C) Eggs (D) Water
18. **Inch** is related to **Centimeter** in the same way as **Pint** is related to _____
(A) Litre (B) Volume (C) Gallon (D) Viscosity
19. **Orthopedist** is related to **Bones** in the same way as **Chiropodist** is related to _____
(A) Nails (B) Sounds (C) Feet (D) Heart
20. **Grains** is related to **Granary** in the same way as **Curios** is related to _____
(A) Archives (B) Museum (C) Library (D) Zoo

(21 to 25) Choose the word which is least like the other words in the group.

21. (A) Zebra (B) Lion (C) Tiger (D) Horse
22. (A) Parrot (B) Bat (C) Crow (D) Sparrow
23. (A) Copper (B) Zinc (C) Brass (D) Aluminium
24. (A) Apple (B) Marigold (C) Rose (D) Lily
25. (A) January (B) May (C) July (D) November

(26 to 30) Choose the odd numeral pair/group in each of the following questions

26. (A) 34 – 43 (B) 55 – 62 (C) 62 – 71 (D) 83 – 92

27. (A) 2 – 8 (B) 3 – 27 (C) 4 – 32 (D) 5 – 125
28. (A) 80 – 9 (B) 64 – 8 (C) 36 – 6 (D) 7 – 49
29. (A) 1 – 0 (B) 3 – 8 (C) 6 – 35 (D) 7 – 50
30. (A) 22 – 3 (B) 28 – 4 (C) 36 – 5 (D) 43 – 6
31. In a certain code, TEACHER is written as VGCEJGT. How is CHILDREN written in that code?
(A) EJKNEGTP (B) EGKNFITP (C) EJKNFGTO (D) EJKNFTGP
32. In a certain code language, RUSTICATE is written as QTTUIDBSD. How would STATISTIC be written in that code?
(A) RSBUJTUHB (B) RSBUTTUHB (C) RSBUIRSJD (D) TUBUITUMB
33. If ROAST is coded as PQYUR in a certain language, then how will SLOPPY has coded in the language?
(A) MRNAQN (B) NRMNQA (C) QNMRNA (D) RANNMQ
34. In a certain system of coding, the word STATEMENT is written as TNEMETATS in the same system of coding, what should be the code for the word POLITICAL?
(A) LACITHLOP (B) LCATILIOP (C) OPILITACAL (D) None of these
35. If HEALTH is written as GSKZDG, then how will NORTH be written in that code?
(A) OPSUI (B) GSQNM (C) FRPML (D) IUSPO
36. If REQUEST is written as S2R52TU, then how will ACID be written?
(A) 1394 (B) IC94 (C) BDJE (D) None of these
37. In each of the letters in the English alphabet is assigned odd numerical value beginning A = 1, B = 3 and so on, what will be the total value of the letters of the word INDIAN?
(A) 86 (B) 88 (C) 89 (D) 96
38. In a certain code, the word DEAL, is coded as 4 – 5 – 1 – 12. Following the same rule of coding, what should be the code for the word LADY?
(A) 12 – 4 – 1 – 25 (B) 12 – 1 – 4 – 25
(C) 10 – 1 – 4 – 23 (D) 12 – 1 – 4 – 22
39. If A = 2, M = 26, Z = 52, then BET = ?
(A) 44 (B) 54 (C) 64 (D) 72
40. If A = 26, SUN = 27, then CAT = ?
(A) 24 (B) 27 (C) 57 (D) 58
41. How many such pairs of letters are there in the word INSTRUCTION which have as many letters between them in the word as in the English alphabet?
(A) one (B) two (C) three (D) four
42. How many such pairs of letter are there in the word CORPORATE each of which has as many letters in the same sequence between them in the word as in the English alphabet?
(A) none (B) one (C) two (D) three

43. How many such letters are there in the word BACKLASH each of which is as far away from the beginning of the word as it is from the beginning of the English alphabet?
 (A) none (B) one (C) two (D) three
44. If the letters in the word POWERFUL are rearranged as they appear in the English alphabet, the position of how many letters will remain unchanged after the rearrangement?
 (A) none (B) one (C) two (D) three
45. If the first three letters of the word COMPREHENSION are reversed, then the last three letters are added and then the remaining letters are reversed and added, then which letter will be exactly in the middle?
 (A) H (B) N (C) R (D) S
46. Number of letters skipped in between adjacent letters in the series is two
 (A) MPSVYBE (B) QSVYZCF (C) SVZCGJN (D) ZCGKMPR
47. The group of letters should not contain more than two vowels.
 (A) BDEJOLY (B) JKAPIXU (C) PRAQEOS (D) ZILERAM
48. Number of letters skipped in between adjacent letters in the series is odd
 (A) BDHLR (B) EIMQV (C) FIMRX (D) MPRUX
49. Number of letters skipped in between the adjacent letters in the series is equal
 (A) HKNGSW (B) RVZDFG (C) RVZDHL (D) SUXADF
50. Number of letters skipped in between the adjacent letters in the series are consecutive even numbers
 (A) ADIPY (B) CDFIM (C) DEJPX (D) GIMSZ

51. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



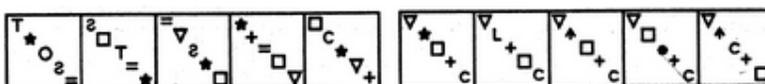
(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

52. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



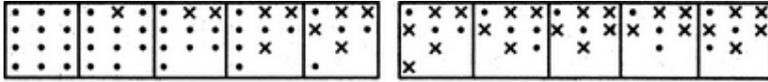
(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

53. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



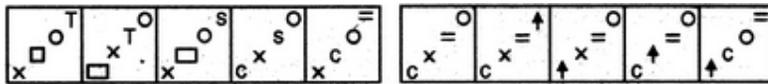
(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

54. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

55. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

56. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

57. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



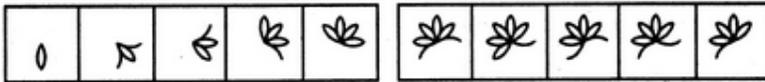
(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

58. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

59. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

60. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



(A) (B) (C) (D) (E) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

61. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

Answer Figures:



(A) (B) (C) (D) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

62. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

Answer Figures:



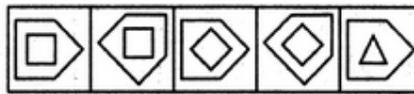
(A) (B) (C) (D) (1) (2) (3) (4) (5)

(A) 1 (B) 2 (C) 3 (D) 4

63. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

Answer Figures:

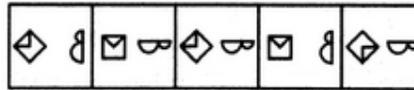
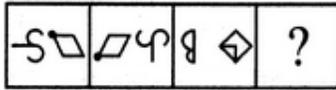


- (A) (B) (C) (D) (1) (2) (3) (4) (5)
 (A) 1 (B) 2 (C) 3 (D) 4

64. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

Answer Figures:

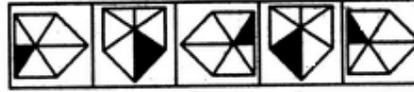
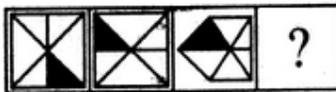


- (A) (B) (C) (D) (1) (2) (3) (4) (5)
 (A) 1 (B) 2 (C) 3 (D) 4

65. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

Answer Figures:

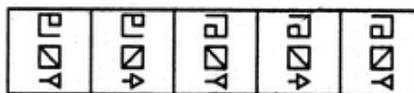
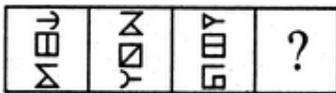


- (A) (B) (C) (D) (1) (2) (3) (4) (5)
 (A) 1 (B) 2 (C) 3 (D) 4

66. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

Answer Figures:

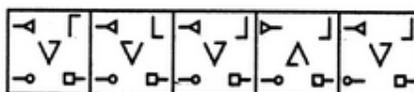
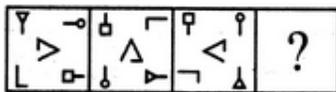


- (A) (B) (C) (D) (1) (2) (3) (4) (5)
 (A) 1 (B) 2 (C) 3 (D) 4

67. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

Answer Figures:

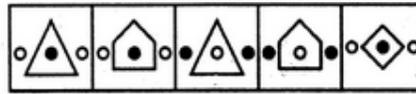
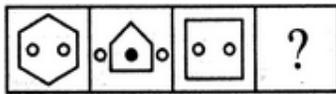


- (A) (B) (C) (D) (1) (2) (3) (4) (5)
 (A) 1 (B) 2 (C) 3 (D) 4

68. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

Answer Figures:

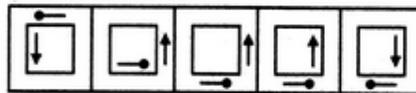
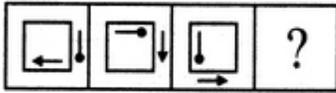


- (A) (B) (C) (D) (1) (2) (3) (4) (5)
 (A) 1 (B) 2 (C) 3 (D) 4

69. Select a suitable figure from the Answer Figures that would replace the question mark (?).

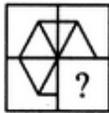
Problem Figures:

Answer Figures:



- (A) (B) (C) (D) (1) (2) (3) (4) (5)
 (A) 1 (B) 2 (C) 3 (D) 4

70. Identify the figure that completes the pattern.



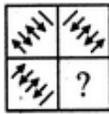
- (X) (1) (2) (3) (4)
 (A) 1 (B) 2 (C) 3 (D) 4

71. Identify the figure that completes the pattern.



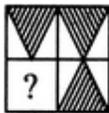
- (X) (1) (2) (3) (4)
 (A) 1 (B) 2 (C) 3 (D) 4

72. Identify the figure that completes the pattern.



- (X) (1) (2) (3) (4)
 (A) 1 (B) 2 (C) 3 (D) 4

73. Identify the figure that completes the pattern.



- (X) (1) (2) (3) (4)
 (A) 1 (B) 2 (C) 3 (D) 4

74. Identify the figure that completes the pattern.



(X)

(1)

(2)

(3)

(4)

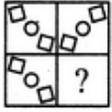
(A) 1

(B) 2

(C) 3

(D) 4

75. Identify the figure that completes the pattern.



(X)

(1)

(2)

(3)

(4)

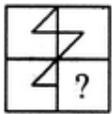
(A) 1

(B) 2

(C) 3

(D) 4

76. Identify the figure that completes the pattern.



(X)

(1)

(2)

(3)

(4)

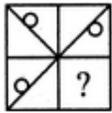
(A) 1

(B) 2

(C) 3

(D) 4

77. Identify the figure that completes the pattern.



(X)

(1)

(2)

(3)

(4)

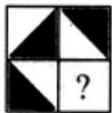
(A) 1

(B) 2

(C) 3

(D) 4

78. Identify the figure that completes the pattern.



(X)

(1)

(2)

(3)

(4)

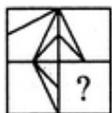
(A) 1

(B) 2

(C) 3

(D) 4

79. Identify the figure that completes the pattern.



(X)

(1)

(2)

(3)

(4)

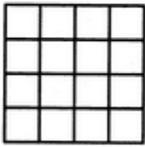
(A) 1

(B) 2

(C) 3

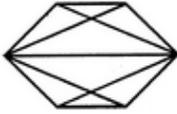
(D) 4

80. Count the number of squares in the given figure.



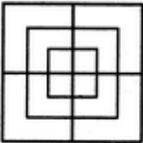
- (A) 32 (B) 30 (C) 29 (D) 28

81. Find the number of quadrilaterals in the given figure.



- A) 6 (B) 7 (C) 9 (D) 11

82. Count the number of squares in the given figure.



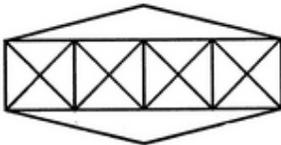
- (A) 8 (B) 12 (C) 15 (D) 18

83. What is the minimum number of colours required to fill the spaces in the given diagram without any two adjacent spaces having the same colour?



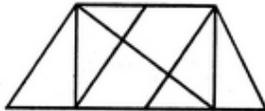
- (A) 6 (B) 5 (C) 4 (D) 3

84. Count the number of triangles and squares in the given figure.



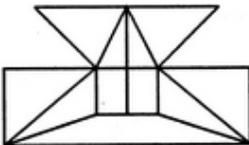
- (A) 36 triangles, 7 squares (B) 38 triangles, 9 squares
 (C) 40 triangles, 7 squares (D) 42 triangles, 9 squares

85. Find the number of triangles in the given figure.



- (A) 8 (B) 10 (C) 12 (D) 14

86. Find the minimum number of straight lines required to make the given figure.



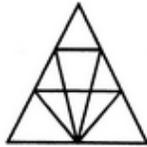
- (A) 16 (B) 17 (C) 18 (D) 19

87. Find the number of triangles in the given figure.



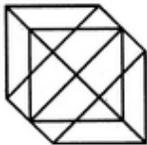
- (A) 22 (B) 24 (C) 26 (D) 28

88. Find the number of triangles in the given figure.



- (A) 12 (B) 18 (C) 22 (D) 26

89. Find the number of triangles in the given figure.



- (A) 18 (B) 20 (C) 24 (D) 27

90. Which of the following diagrams indicates the best relation between Travelers, Train and Bus ?



91. Which of the following diagrams indicates the best relation between Profit, Dividend and Bonus ?



92. Which of the following diagrams indicates the best relation between Women, Mothers and Engineers ?



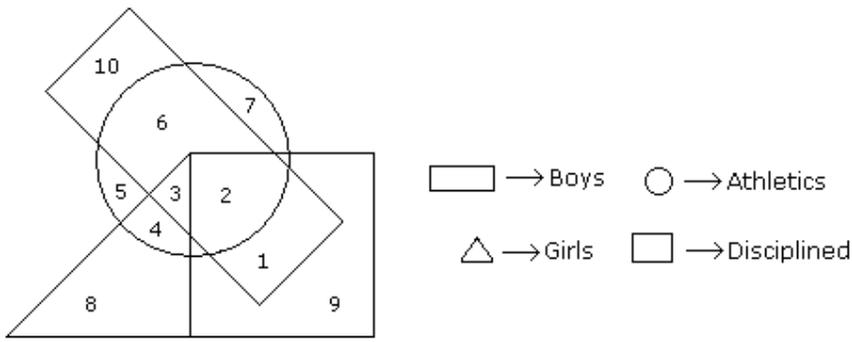
93. Which of the following diagrams indicates the best relation between Factory, Product and Machinery ?



94. Which of the following diagrams indicates the best relation between Author, Lawyer and Singer ?

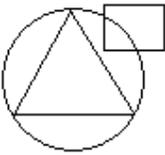


95. In the following diagram the boys who are athletic and are disciplined are indicated by which number?



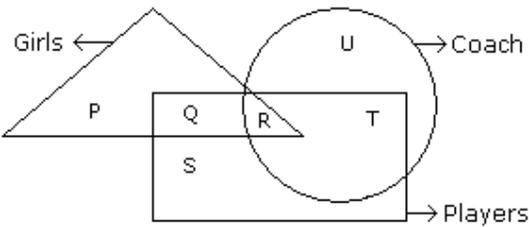
- (A). 1 (B). 2 (C) 10 (D) 6

96. In an organization of pollution control board, engineers are represented by a circle, legal experts by a square and environmentalist by a triangle. Who is most represented in the board as shown in the following figure ?



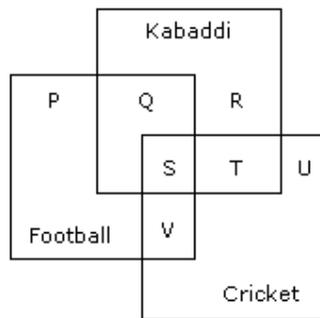
- (A) Environmentalists
 (B) Legal Experts
 (C) Engineers with legal background
 (D) Environmentalists with Engineering background

97. In the following figure triangle represents 'girls', square players and circle-coach. Which part of the diagram represents the girls who are player but not coach?



- (A) P (B) Q (C) R (D) S

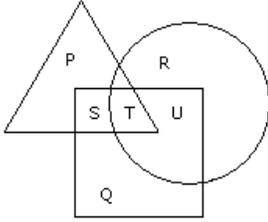
98. The diagram given below represents those students who play Cricket, Football and Kabaddi.



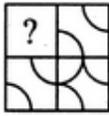
Study the diagram and identify the students who play all the three games.

- (A) P + Q + R (B) V + T (C) S + T + V (D) S

99. In the figure given below, square represents doctors, triangle represents ladies and circle represents surgeon. By which letter the ladies who doctor and surgeon both are represented ?



- (A) U (B) T (C) S (D) P
100. Identify the figure that completes the pattern.



- (X) (1) (2) (3) (4)
- (A) 1 (B) 2 (C) 3 (D) 4

MATHEMATICS

101. The mean of set of 6 observations is 12 and another set of 9 observations is 18. The mean of the combined set is
 (A) 15.6 (B) 12.6 (C) 9.6 (D) 8.6
102. If the mean and median of a distribution are 12 and 15 respectively, then the mode is
 (A) 7 (B) 14 (C) 21 (D) 28
103. The mean marks scored by 40 students were found to be 60. Later it was observed that a score of 48 was misread as 84. Then the correct mean is
 (A) 58 (B) 58.2 (C) 59.1 (D) 59
104. The width of a rectangle in a histogram represents
 (A) mid-value of the class (B) class-interval
 (C) frequency of the class (D) number of classes
105. The runs scored by two players in seven tests are as follows:

	I	II	III	IV	V	VI	VII
A	55	45	75	15	10	40	06
B	35	32	44	50	45	60	40

Comparing the arithmetic mean of both test scores, find the better player. []

- (A) A (B) B (C) Both (D) Neither
106. If $A = (5, 2)$, $B = \begin{pmatrix} x \\ y \end{pmatrix}$, then $AB =$
 (A) $(5x \ 2y)$ (B) $(5x + 2y)$ (C) $\begin{pmatrix} 5x \\ 2y \end{pmatrix}$ (D) $(5 + x \ 2 + y)$

107. $A = \begin{pmatrix} 1 & 2 & 0 \\ 3 & 4 & 5 \end{pmatrix}$ $B = \begin{pmatrix} 2 & 3 & 4 \\ 1 & 2 & 0 \end{pmatrix}$, then $AB =$
- (A) $\begin{pmatrix} 2 & 6 & 0 \\ 3 & 8 & 0 \end{pmatrix}$ (B) not possible (C) $\begin{pmatrix} 2 & 6 & 4 \\ 3 & 8 & 5 \end{pmatrix}$ (D) $\begin{pmatrix} 2 & 3 \\ 6 & 8 \\ 8 & 9 \end{pmatrix}$
108. The order of the matrices A and B are 3×4 and 5×3 respectively, then the order of the product of B.A.
- (A) 5×4 (B) 4×5 (C) 3×5 (D) 3×3
109. If $A^2 = A$, then A is _____
- (A) idempotent (B) involuntary (C) inverse (D) identity
110. If $AB = I$, then B is called _____ of A
- (A) Additive inverse (B) Multiplication inverse
(C) Transpose (D) none of these
111. If $M \times \begin{pmatrix} 1 & 2 \\ 0 & 5 \end{pmatrix} = (2,3)$, then the order of M is
- (A) 1×2 (B) 2×1 (C) 1×3 (D) 3×2
112. Trace of the matrix $\begin{pmatrix} 1 & 4 & 5 \\ 6 & 7 & 8 \\ 1 & 0 & 3 \end{pmatrix}$ is
- (A) 11 (B) 12 (C) 10 (D) 13
113. $x + 5y = 17$ and $5x + y = 13$ are two linear equation then $|B_1| =$
- (A) -48 (B) 52 (C) 35 (D) -71
114. If $B = \begin{pmatrix} 1 & 2 \\ 1 & 3 \end{pmatrix}$, then $B + B^{-1} =$
- (A) $2B$ (B) $4I$ (C) I (D) $-B$
115. If $A = \begin{pmatrix} 1 & 4 \\ 0 & -1 \end{pmatrix}$, then $A^{-1} =$
- (A) A (B) I (C) $-A$ (D) None
116. In a frequency distribution with classes $1 - 8, 9 - 16, 17 - 24, \dots$, the class interval is
- (A) 8 (B) 9 (C) 7 (D) 3
117. In the formula of mode $\Delta_1 =$
- (A) $f + f_1$ (B) $f - f_1$ (C) $f + f_2$ (D) $f_1 - f_2$
118. Median of a grouped data is

$$(A) L + \frac{\left(\frac{N}{2} - F\right)}{f} \times c \quad (B) A + \frac{\sum fu}{N} \times c \quad (C) L + \frac{f - f_1}{2f - (f_1 + f_2)} \times c \quad (D) \frac{\sum fx}{\sum f}$$

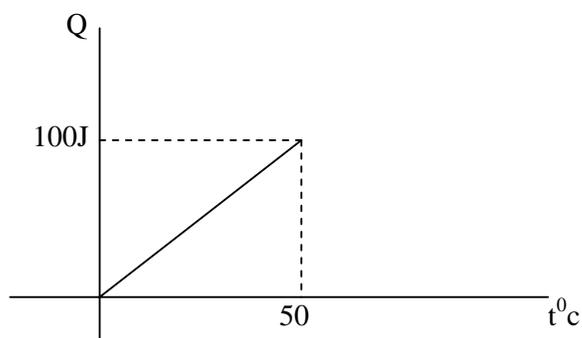
119. Mean of 9, 11, 13, p is 7 then the value of p is
 (A) -5 (B) 4 (C) 3 (D) 6
120. The observation of ungrouped data are x, y and 2x, and $x < y < 2x$. If the mean and median of the data are each equal to 6 then x is
 (A) 4 (B) 6 (C) 8 (D) 10

PHYSICS

121. Two uniform rods A and B of lengths ℓ and 2ℓ and radii $2r$ and r respectively are heated to the same temperature. The ratio of the increase in length of A to that of B
 (A) 1 : 1 (B) 1 : 2 (C) 1 : 4 (D) 2 : 1
122. Specific heat capacity a body depends on
 (A) The heat given (B) the temperature raised
 (C) the mass of the body (D) the material of the body
123. 4 kg of ice at -15°C are added to 5 kg of water at 15°C . The temperature of the resulting mixture equals approximately (specific heat of water = $4200\text{J/kg}\cdot\text{K}$, latent heat of fusion of ice is 340KJ/Kg , Specific heat of ice = $0.5\text{ cal/gm}^\circ\text{C}$)
 (A) -15°C (B) 0°C (C) 5°C (D) 15°C
124. The ratio of coefficients of cubical expansion and linear expansion is
 (A) 1 : 1 (B) 3 : 1 (C) 2 : 1 (D) one of these
125. The bimetallic strips are used in
 (A) refrigerators (B) fire alarms
 (C) automatic electric heaters (D) all the above
126. When a strip made of iron (α_1) and copper ($\alpha_2 > \alpha_1$) is heated
 (A) its length does not change (B) it gets twisted
 (C) it bends with iron on concave side (D) it bends with iron on convex side
127. 5gm ice of 0°C is dropped in a beaker containing 20 gm of water at 40°C then
 (A) all the ice will not melt into water
 (B) all the ice will melt and the resulting temperature of water will be 0°C
 (C) all the ice will melt and the resulting temperature of water will be 2.5°C
 (D) all the ice will melt and the resulting temperature of water will be 16°C
128. The gravitational force of attraction between two bodies is F newtons. If the mass of each body and the distance between them are doubled, then the gravitational force between them in Newton is
 (A) 16F (B) F/16 (C) F/4 (D) F
129. The acceleration due to gravity near the surface of a planet of radius R and density d is proportional to

- (A) d/R^2 (B) dR^2 (C) dR (D) d/R
130. Acceleration due to gravity
 (A) decreases from equator to poles
 (B) decreases from poles to equator
 (C) is maximum at the centre of the earth
 (D) is maximum at the equator
131. Which of the following phenomenon can be understood from ripple tank experiment
 (A) interference (B) diffraction (C) refraction (D) polarization
132. For constructive interference the phase difference between the waves is
 (A) π (B) $\frac{\pi}{2}$ (C) 0 (D) 3π

133.



The temperature Vs heat absorbed by a body of mass 0.5kg is given in graph. Find the specific heat capacity (J/Kg)

- (A) 1 (B) 2 (C) 3 (D) 4
134. Minimum power must be generated if 600 g of water is to be heated in 5 min from 20°C to 95°C ($1\text{ cal} = 4.186\text{ J}$)
 (A) 9400 W (B) 586 W (C) 160 W (D) 626 W

CHEMISTRY

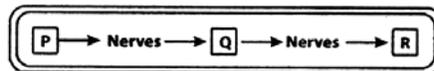
135. A naturally occurring endothermic reaction is
 (A) photosynthesis (B) respiration (C) rusting (D) formation of water
136. Internal energy of a substance depends on
 (A) number of molecules present in a substance
 (B) number of atoms present in a molecule
 (C) chemical structure and physical state
 (D) size of molecules
137. Every substance is associated with a definite amount of energy called.

- (A) internal energy (B) intrinsic energy (C) heat content (D) all
138. 104 Kcal/mol is required to break hydrogen molecules into hydrogen atoms. This energy is called.
 (A) bond energy (B) bond dissociation energy
 (C) extrinsic energy (D) binding energy
139. $A + B \rightarrow C \quad \Delta H = -x \text{ Kcal/mole}$
 The above reaction is
 (A) exothermic (B) endothermic (C) reversible (D) combustion
140. If the total energy of products is less than that of reactants, then the reaction is
 (A) endothermic (B) exothermic (C) reversible (D) irreversible
141. Which is not an exothermic reaction?
 (A) burning of coal (B) reaction between HCl and Ba(OH)_2
 (C) reaction between Ba(OH)_2 and NH_4Cl (D) Haber's process
142. Bond energy of H – H is 104.2 Kcal/mole and Cl – Cl is 57.8 Kcal/mole and the bond energy of H – Cl is 103 Kcal/mole, then the energy released in the following reaction is
 $\text{H}_2 + \text{Cl}_2 \rightarrow 2 \text{HCl}$
 (A) 22 Kcal (B) 44 Kcal (C) 88 Kcal (D) 206 Kcal
143. Energy changes in chemical reactions are due to
 (A) differences in bond energies (B) differences in shapes
 (C) differences in geometry (D) differences in physical state
144. Which of the following has maximum internal energy?
 (A) 1 mole water (B) 1 mole ice
 (C) 1 mole steam (D) all have equal internal energy
145. In a certain reaction, energy is absorbed. It means.
 (A) energy released in product formation is equal to energy required to break reactant bonds
 (B) energy released in product formation is greater than energy required to dissociate reactant bonds
 (C) energy released in product formation is less than energy required to break reactant bonds
 (D) both B & C
146. N = N bond energy is 100 Kcal/mole then, the energy required to break 10 such bonds is (N_A is Avogadro's number) – Kcals.
 (A) $100 N_A$ (B) $\frac{100}{N_A}$ (C) $\frac{10^{20}}{N_A}$ (D) $\frac{10^{-20}}{N_A}$
147. $A + Q \text{ cal} \rightarrow B + C$. This reaction is
 (A) $H_p > H_r$ (B) $H_p = H_r$ (C) $H_p < H_r$ (D) exothermic reaction

BIOLOGY

148. Which of these statements is false about ozone?
 (A) Ozone is light green in color (B) Freons & halons destroy ozone atoms
 (C) Ozone is a protective solid layer (D) It functions as a shield to the biosphere
149. pH value of acid rain water ranges from:
 (A) 1.5 to 5.0 (B) 8.0 to 10 (C) 5.0 to 8.0 (D) 0 to 15
150. The person who infused life to chipko movement is:
 (A) Robert Endurs (B) Sunder Lal Bahuguna
 (C) A village woman (D) Jean Fourier
151. Which of these is not an effect of global warning?
 (A) Melting of snow (B) Drought
 (C) Reduced temperature (D) Birth of new viruses
152. Which of these is / are reflex actions?
 (A) sneezing (B) yawning (C) shivering (D) all of these
153. Which of these statements is false?
 (A) All the spinal nerves are mixed nerves
 (B) Neuroglial cells supply nutrients to the neurons
 (C) Myelin sheath prevents leakage of electric currents from the axon and conduct impulses faster than unmyelinated axons
 (D) None of the above
154. The part of the brain that has centres to control several vital functions of the body such as respiration, heart beat, blood pressure, secretions of saliva etc.
 (A) Cerebrum (B) Cerebellum
 (C) Medulla Oblongata (D) None of the above
155. Which one of the following cell organelles is absent in neuron?
 (A) Ribosomes (B) Endoplasmic reticulum (C) Golgi body (D) Centrosome
156. Peripheral nervous system consists mainly of:
 (A) sensory and motor neurons
 (B) 14 pairs of cranial nerves and 31 pairs of spinal nerves
 (C) 12 pairs of cranial nerves and 31 pairs of spinal nerves
 (D) 12 pairs of cranial nerves and 33 pairs of spinal nerves
157. Due to this natural calamity several countries in Africa and South – East Asia suffer from scanty rainfall, drought and famines.
 (A) Storms (B) Earth quakes (C) El Nino (D) La Nina
158. When coastal mangroves are destroyed natural calamities likecause havoc on land.
 (A) Fire accidents (B) Cyclones (C) Earthquakes (D) Tsunamies

159. The sequence given below shows the flow of nerve impulses in detecting a stimulus and responding to it.



Which of the following are represented by P, Q and R?

P	Q	R
(A) Sensory organ	Effectors	Brain
(B) Sensory organ	Brain	Effectors
(C) Effectors	Sensory organ	Brain
(D) Effectors	Brain	Sensory organ

160. At the synapses, the impulses are always passed from the:
- (A) axon to the dendrites (B) dendrites to the axon
(C) cyton to axon (D) cyton to the dendrites

SOCIAL STUDIES

161. The steel plant setup during the second five year plan was
(A) Bhilai (B) Bokan (C) VISL (D) Visakhapatnam
162. Contribution of textile industry to Indian exports
(A) 40% (B) 45% (C) 35% (D) 30%
163. Frigates and cruisers are built to Indian navy by
(A) Hindustan Shipyard (B) Cochin Shipyard
(C) Garden Reach (D) Mazagaon Dock
164. The oil refinery in private sector is at
(A) Barauni (B) Chennai (C) Digboi (D) Trombay
165. The Bhilai Steel Plant gets limestone from
(A) Balaghat (B) Nandini (C) Bhandra (D) Kemmangundi
166. The beginning of the modern textile industry started in
(A) 1818 (B) 1819 (C) 1820 (D) 1821
167. The state with largest rail route
(A) Bihar (B) Andhra Pradesh
(C) Gujarat (D) Uttar Pradesh
168. The headquarters of south western railway is
(A) Bangalore (B) Mangalore (C) Secunderabad (D) Chennai
169. The density of road network is high in
(A) North eastern India (B) western Plan area
(C) Western India (D) Southern Peninsula
170. The country with largest number of post offices in the world
(A) France (B) USA (C) Germany (D) India
171. The important Navigable canal in South India

- (A) Buckingham (B) Mutter (C) Ken (D) Bhakra
172. The width of broad gauge is
(A) 1 mts. (B) 1.69 mts (C) 1.79 mts (D) 1.70 mts
173. The head quarters of East Central Railway
(A) Allahabad (B) Hazipur (C) Jaipur (D) Bhubaneswar
174. The important challenges of Indian Railways
(A) track conversion & electrification (B) track conversion & maintenance
(C) electrification & raw material (D) employees & bad weather
175. The average density of rail network in India is
(A) 20 kms/1000 sq.km (B) 19 km/1000 sq.km
(C) 13 km/100 sq.km (D) 19 km/100 sq.km
176. The investment and establishment are less in
(A) Road ways (B) Water ways (C) Railways (D) Airways
177. The national highway that passes through Krishnagiri is
(A) NH – 4 (B) NH – 5 (C) NH – 7 (D) NH – 9
178. Border Roads development Board was setup in the year
(A) 1960 (B) 1970 (C) 1980 (D) 1990
179. One of the following is not an international Airport.
(A) Jaipur (B) Hyderabad (C) Tiruvananthapuram (D) Delhi
180. Match the following
- | Group A | | Group B | |
|---------|--------------------|---------|---------------|
| 1. | Hindustan shipyard | a) | Kolkatta |
| 2. | Garden reach | b) | Mumbai |
| 3. | Mazagaon Dock | c) | Cochin |
| 4. | Japan | d) | Vishakapatanm |
- (A) a, b, c, d (B) b, c, a, d (C) d, c, b, a (D) d, a, b, c
181. The philosopher who talked about equality of wealth
(A) Thomas Moore (B) Plato (C) Aristotle (D) Louis Blank
182. Whose phrophecy that proletariat world assume dictatorship after social revolution?
(A) sain Siman (B) Louis Blanc (C) Karl Marx (D) Owen
183. Base of Modern Communism is
(A) Das capital (B) Communist manifesto
(C) Young Italy (D) Resergiments
184. The 1830 revolution was also called.
(A) June revolution (B) July revolution
(C) October revolution (D) March / February revolution

185. VISL was setup in
 (A) 1992 (B) 1923 (C) 1924 (D) 1925
186. The leading producer of silk is
 (A) West Bengal (B) Karnataka (C) Mysore (D) Bihar
187. One of the following jute textiles is in Andhra Pradesh
 (A) Kalltian (B) Muktapur (C) Raigarh (D) Nellimala
188. One of the following has moist sub-humid climate.
 (A) Ganga valley (B) Kutch (C) Goa (D) Western Ghats
189. Rain Shadow region of south west monsoon
 (A) Tamilnadu (B) Kerala (C) Karnataka (D) Andhra Pradesh
190. The average lowest annual rainfall of Jaiselmer is
 (A) 11 cm (B) 12 cm (C) 13 cm (D) 14 cm
191. Continental system was introduced by
 (A) Napoleon (B) Mettesmih (C) Bismark (D) Cavors
192. Napoleon III participated in the Crimean war against
 (A) Great Britain (B) Russia (C) Austria (D) Italy
193. One of the following was turned out from civil services with the remark "deficiency in regularity and discipline"
 (A) Cavone (B) Mazzinai (C) Bismark (D) William J
194. To provide work to every person, to eliminate private capitalists were the policies of
 (A) Cavour (B) Bismark (C) Louis Blanc (D) Victor Emmemual
195. Zolloverin formed in the year
 (A) 1918 (B) 1818 (C) 1718 (D) 1917
196. The symbol French Revolution of 1789 was
 (A) Freedom of Press (B) Restoration Properties
 (C) National Guard (D) Tri Color Flag
197. Cavour concluded the pact of plombiers with
 (A) Napoleon I (B) Napoleon II (C) Napoleon III (D) Charles X
198. The leading state in the paper industry is
 (A) Maharastra (B) Orissa (C) West Bengal (D) Kerala
199. Biggest oil refinery in India is
 (A) Barauni (B) Mathura (C) Koyali (D) Cochin
200. Green Channel gives priority to
 (A) money order transmission (B) six metros
 (C) local mail (D) linking Delhi to state capitals

MAT

1.	B	2.	C	3.	C	4.	A	5.	A
6.	B	7.	B	8.	C	9.	A	10.	C
11.	C	12.	A	13.	C	14.	B	15.	A
16.	B	17.	B	18.	C	19.	C	20.	B
21.	D	22.	B	23.	C	24.	A	25.	D
26.	B	27.	C	28.	A	29.	D	30.	B
31.	D	32.	B	33.	C	34.	A	35.	B
36.	D	37.	D	38.	B	39.	B	40.	C
41.	D	42.	C	43.	C	44.	B	45.	D
46.	A	47.	A	48.	A	49.	C	50.	A
51.	B	52.	C	53.	C	54.	C	55.	C
56.	B	57.	B	58.	A	59.	A	60.	A
61.	D	62.	D	63.	D	64.	C	65.	B
66.	D	67.	C	68.	A	69.	D	70.	C
71.	D	72.	A	73.	C	74.	C	75.	C
76.	B	77.	C	78.	B	79.	D	80.	B
81.	D	82.	C	83.	D	84.	C	85.	D
86.	B	87.	D	88.	B	89.	C	90.	C
91.	B	92.	A	93.	D	94.	B	95.	B
96.	D	97.	B	98.	D	99.	B	100.	C

Mathematics

101.	A	102.	C	103.	C	104.	B	105.	B
106.	B	107.	B	108.	A	109.	A	110.	B
111.	A	112.	A	113.	A	114.	B	115.	A
116.	A	117.	B	118.	A	119.	A	120.	A

Physics

121.	B	122.	D	123.	B	124.	B	125.	D
126.	C	127.	D	128.	D	129.	C	130.	B
131.	C	132.	C	133.	D	134.	D		

Chemistry

135.	A	136.	C	137.	D	138.	B	139.	A
140.	B	141.	C	142.	B	143.	A	144.	C
145.	C	146.	D	147.	A				

Biology

148	C	149	A	150	B	151	C	152	D
153	D	154	C	155	D	156	C	157	C
158	D	159	B	160	A				

Social

161	A	162	D	163	D	164	C	165	B
166	A	167	D	168	A	169	D	170	D
171	A	172	B	173	B	174	A	175	B
176	A	177	C	178	A	179	A	180	D
181	B	182	C	183	A	184	B	185	B
186	B	187	D	188	D	189	A	190	B
191	A	192	B	193	C	194	C	195	B
196	D	197	C	198	C	199	B	200	C