



**No of Questions : 100**

**Time : 90 minutes**

**MODAL TEST -4**

1. When a number is increased by 69, it becomes 103% of itself. What is the number?  
 a) 1300                      b) 300                      c) 2300                      d) 4300
2. The smallest whole number that is to be multiplied with 59535 to make a perfect square number is x. The sum of digits of x is  
 a) 6                      b) 5                      c) 7                      d) 9
3. If  $\frac{5}{2} \left[ \frac{8X}{3} - \frac{1}{2} \right] + \frac{13}{2} = \frac{2X}{3}$ , then what is the value of x?  
 a)  $\frac{7}{8}$                       b)  $\frac{8}{7}$                       c)  $-\frac{8}{7}$                       d)  $-\frac{7}{8}$
4. There are 24 peaches, 36 apricots and 60 bananas and they have to be arranged in several rows in such a way that every row contains the same number of fruits of only one type. What is the minimum number of rows required for this to happen?  
 a) 12                      b) 9                      c) 10                      d) 6
5. A cricketer had a certain average of runs for his 64 innings. In his 65<sup>th</sup> inning, he is bowled out for no score on his part. This brings down his average by 2 runs. His new average of runs is  
 a) 130                      b) 128                      c) 70                      d) 68
6. 5 yr ago, the average age of P, Q and R was 25 yr. 7 yr ago, the average age of Q and R was 20 yr. The present age of P is  
 a) 36 yr                      b) 29yr                      c) 24 yr                      d) 21 yr
7. A number is increased by 20% and then it is decreased by 10%. Find the net increase or decrease per cent.  
 a) 10% increase                      b) 10% decrease                      c) 8% increase                      d) 8% decrease
8. If  $\frac{2}{3}$  of A = 75% of B = 0.6 of C, then  
 A : B : C is

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- a) 2 : 3 : 3                      b) 3 : 4 : 5                      c) 4 : 5 : 6                      d) 9 : 8 : 10
9. How much pure alcohol has to be added to 400 mL of a solution containing 15% of alcohol to change the concentration of alcohol in the mixture to 32 %
- a) 60 ml                      b) 100 ml                      c) 128 ml                      d) 68 ml
10. A person sold his watch for Rs. 75 and got a percentage profit equal to the cost price. The cost price of the watch is
- a) Rs. 40                      b) Rs. 45                      c) Rs.50                      d) Rs.55
11. If compound interest received on a certain amount in the 3<sup>rd</sup> year is Rs. 1240, then what will be the compound interest for the 4<sup>th</sup> year on the same amount at 9% rate of interest?
- a) Rs. 1245.6                      b) Rs. 1521.6                      c) Rs. 1351.6                      d) Rs.1220.6
12. Simple interest on a certain sum for 6 yr  $\frac{9}{25}$  is  $\frac{9}{25}$  of the sum. The rate of interest is
- a) 6%                      b)  $6\frac{1}{2}$  %                      c) 8 %                      d)  $8\frac{1}{2}$  %
13. A is twice as good as B and together they finish a piece of work in 16 days. The number of days taken by A alone to finish the work is
- a) 20 days                      b) 21 days                      c) 22 days                      d) 24 days
14. A, B and C are three taps connected to a tank. A and B together can fill the tank in 6 h, B and C together can fill it in 10 h and A and C together can fill it in  $7\frac{1}{2}$  h. In how much time, all three would take to fill the tank
- a) 10 h                      b) 12 h                      c) 20 h                      d) 5 h
15. If a person walks at 15 km/h instead of 9 km/h, he would have walked 3 km more in the same time. What is the actual distance travelled by him?
- a) 5.5 km                      b) 6.5 km                      c) 4.5 km                      d) 7.5 km
16. A boat goes 12 km downstream and comes back to the starting point in 3 km/h, then the speed (in km/h) of the boat in still water is
- a) 12                      b) 9                      c) 8                      d) 6
17. if  $x + y + z = 1$ ,  $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 1$  and  $xyz = -1$ , then  $x^3 + y^3 + z^3$  is equal to
- a) -1                      b) 1                      c) -2                      d) 2



18. If  $(X-4)(x^2 + 4x + 16) = x^3 - P$ , then P is equal to  
 a) 27                                      b) 8                                      c) 64                                      d) 0
19.  $\frac{\tan A + \tan B}{\cot A + \cot B}$  is equal to  
 a)  $\cot A \cot B$                       b)  $\sec A \operatorname{cosec} B$                       c)  $\tan A \tan B$                       d) None of the above
20. In  $\triangle ABC$ ,  $DE \parallel AC$ , where D and E are two points lying on AB and BC, respectively. If  $AB = 5$  cm and  $AD = 3$  cm, then  $BE:EC$  is  
 a) 2:3                                      b) 3:2                                      c) 5:3                                      d) 3:5
21. The radii of two spheres are in the ratio 3:2. Their volumes will be in the ratio  
 a) 9:4                                      b) 3:2                                      c) 8:27                                      d) 27:8
22. If O is the orthocenter of the  $\triangle ABC$ ,  $\angle BAC = 80^\circ$ , then measure of  $\angle BOC$  is  
 a)  $80^\circ$                                       b)  $100^\circ$                                       c)  $120^\circ$                                       d)  $90^\circ$
23. Which one of the following is correct?  
 a)  $(x+2)$  is a factor of  $x^4 - 6x^3 + 12x^2 - 24x + 32$   
 b)  $(9x+2)$  is a factor of  $x^4 + 6x^3 - 12x^2 + 24x - 32$   
 c)  $(x-2)$  is a factor of  $x^4 - 6x^3 + 12x^2 - 24x + 32$   
 d)  $(x-2)$  is a factor of  $x^4 + 6x^3 - 12x^2 + 24x - 32$
24. The 10<sup>th</sup> term of the sequence  $\frac{-7}{6}, \frac{1}{3}, \frac{11}{6}, \frac{10}{3} \dots$  is  
 a)  $\frac{35}{3}$                                       b)  $\frac{37}{3}$                                       c)  $\frac{27}{6}$                                       d)  $\frac{4}{3}$
25. 
$$\sqrt{10 + \sqrt{25 + \sqrt{108 + \sqrt{154 + \sqrt{225}}}}}$$



$$3\sqrt{8}$$

- a) 1                      b) 3                      c) 2                      d) 10
26. On 6<sup>th</sup> March, 2005, Monday falls. What was the day of the week on 7<sup>th</sup> March, 2004?  
 a) Tuesday      b) Monday      c) Friday      d) Sunday
27. The angle of elevation of the top of an unfinished pillar at a point 150 m from its base is 30°. If the angle of elevation at the same point is to be 45°, then the pillar has to be raised to a height of how many metres?  
 a) 59.4                      b) 61.4                      c) 62.4                      d) 63.4
28. One of the factor of  $(3x - 4y)^3 + (4x - 3y)^3$  is  
 a)  $(y + x)$                       b)  $(7x - y)$                       c)  $(7y \times 3x)$                       d)  $(x - y)$
29. The simplified value of  $(\sec A - \cos A)^2 + (\csc A - \sin A)^2 - (\cot A - \tan A)^2$  is  
 a) 0                      b)  $\frac{1}{2}$                       c) 1                      d) 2
30. If  $2^{2n-1} = \frac{1}{8^{n-3}}$  then the value of n is  
 a) 3                      b) 2                      c) 0                      d) -2
31. In a certain code language, 'SHORT' is written as ITOUS and DWARF IS WRITTEN as XEAGS. How is 'MANGO' written in that code language?  
 a) NBNHP                      b) BNNPH                      c) BNNHP                      d) LBNPF
- Direction** (Q.Nos. 32 and 33) Find the odd word/letters/number from the given alternatives.
32. a) 126                      b) 217                      c) 345                      d) 513
33. a) C00l                      b) Hot                      c) Humid                      d) Warm
34. Five girls M, N, O, P and Q are standing in a row. P is on the right of Q. N is on the left of Q but is on the right of M. P. is on the left of O. Who is standing on the extreme right?



- a) Q                                      b) N                                      c) O                                      d) P

**Direction** (Q. No. 35 and 36) Select the related word/letter/number from the given alternatives.

35. Kidney: Nephron :: Central Nervous System:?

- a)Cerebrum                              b) Brain                              c) Neuron                              d) Spinal cord

36. 4:17::7:?

- a)48                                      b)50                                      c) 16                                      d)49

37. a statement is given followed by two conclusions. You have to take the given statement to be true even, if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the conclusions, if any, logically follows from the two given statements, disregarding the known facts.

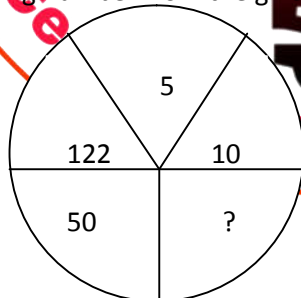
**Statement** The national norm is 100 beds per thousand populations but in this state, 150 beds per thousand are available in the hospitals.

**Conclusions**

- I. Our national norm is appropriate.
- II. The state's health system is taking adequate care in this regard.

- a) Only Conclusion I follows      b) Only Conclusion II follows  
 c) Neither I nor II follows      d) Both I and II follow

38. Select the missing number from the given options.



- a) 25                                      b) 27                                      c) 23                                      d) 26

39. In the following question, a series is given with one term missing. Choose the correct alternative.

$$7 \frac{1}{7}, 8 \frac{2}{6}, 9 \frac{5}{5}, 16 \frac{2}{3}, ?$$



- a)  $15 \frac{2}{4}$                       b)  $16 \frac{4}{4}$                       c) 35                      d)  $\frac{50}{2}$
40. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it? a\_aabb\_\_ab\_b\_
- a) baaaa                      b) Babab                      c) baaba                      d) bbaaa
41. There are 5 friends. Sachin is shorter than Kamal but taller than Ram. Mohan is the tallest. Arun is a little shorter than Kamal and a little taller than Sachin. Who is the second tallest?
- a) Ram                      b) Sachin                      c) Kamal                      d) Arun
42. Annu is daughter of my mother's brother Aabhi. Pari is granddaughter of my mother. Pari should call Annu as
- a) Aunt                      b) Sister                      c) Cousin                      d) Niece
43. A boat moves from a jetty towards East. After sailing for 9 nautical miles, it turns towards right and covers another 12 nautical miles. If it wants to go back to the jetty, then what is the shortest distance now from her present position?
- a) 21 nautical miles                      b) 20 nautical miles                      c) 18 nautical miles                      d) 15 nautical miles
44. One statement is given followed by two assumptions numbered I and II. and the following assumptions and decide which of the assumptions is implicit in the statement
- Statement**
- 'Please do not wait for me, I may be late, start taking Lunch as soon as the guests arrive'.  
 \_\_\_\_\_ a message from a Director of a Company to his Office managers.
- Assumptions**
- I. Keeping guests waiting is not desirable.  
 II. Lunch may not be ready in time.
- a) Only Assumption I is implicit  
 b) Only Assumption II is implicit  
 c) Neither I nor II is implicit  
 d) Both I and II are implicit
45. The question given below is based upon the following set of codes



Digit	1 3 5 4 6 0 8 7 2
Codes	A O Z L D T N H Q

Find the code for 21500.

- a) SLOPH                      b) QAZTT                      c) SLPHO                      d) SHLPO

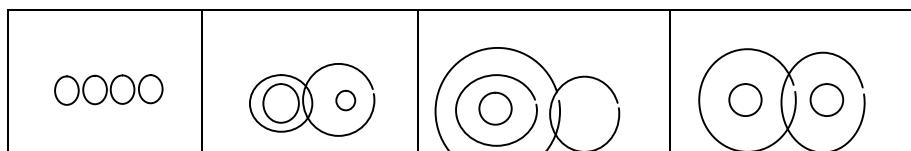
**Directions** (Q.Nos. 46-47) Study the table and answer the given questions.

Number of muffins. Sold by five different bakeries in 5 different months

Month \ Bakery	March	April	May	June	July
P	150	109	112	129	138
Q	78	87	58	105	125
R	157	209	211	213	220
S	169	149	122	153	151
T	175	159	141	180	197

46. What is the respective ratio between the total number of muffins sold by bakeries Q and S together in May and the total number of muffins sold by bakeries R and T together in the same month?
- a) 21:23                      b) 45:88                      c) 19:23                      d) 20:23
47. If the number of muffins sold by bakery T in August was 70% more than that sold by the same bakery in June, what was the number of muffins sold by the bakery T in August?
- a) 255                      b) 221                      c) 323                      d) 306
48. Identify the diagram that best represents the relation among the classes given below.

Building material, diamond, stones, wood





A	b	c	d

49. Which one of the following option would be a meaningful order of the following?  
 1. Chapter    2) Index    3) Bibliography    4) Introduction    5) Preface  
 a) 2, 4, 1, 3 5    b) 4, 2, 5, 1, 3    c) 5, 2, 4, 1, 3    d) 5, 1, 4, 3, 2

**Direction** (Q. No. 50) In the question, two statements are given, followed by two conclusions I and II. you have to consider the statements to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

50. Statements (a) All clouds are fog. B) all fog are white

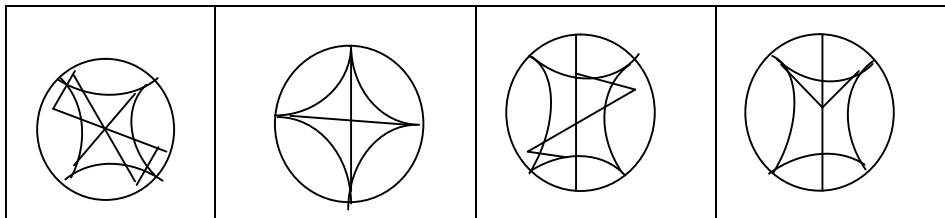
**Conclusions**

- I. Some white are clouds  
 II. some fog are clouds.  
 a) Only Conclusion I follows  
 b) Only Conclusion II follows  
 c) Both Conclusions I and II follow  
 d) Neither Conclusion I nor li follows

51. From the given answer figures, select the one in which the question figure is hidden/embedded Question figure



Answer figures







a

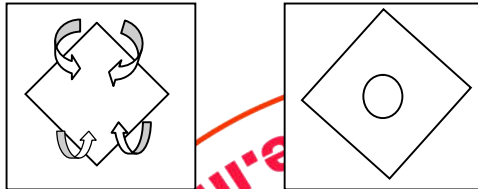
b

c

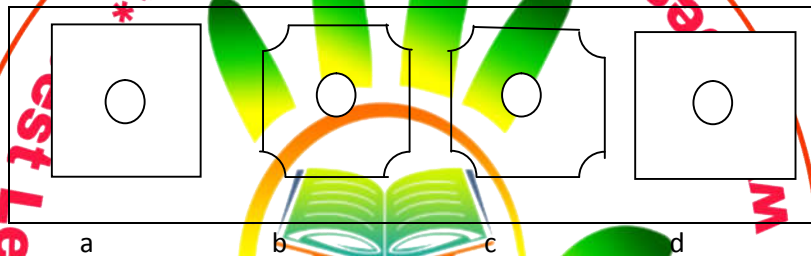
d

52. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?

Question figures



Answer figures



53. If  $64 \times 52 = 17$ ,  $48 \times 56 = 23$  and  $74 \times 35 = 19$ , then  $84 \times 37 = ?$   
 a) 32                                      b) 28                                      c) 22                                      d) 20

**Directions** (Q.Nos. 54 and 55) The questions given below consist of a question followed by two statements labeled as I and II. We have to decide whether these statements give enough information required to answer the question or not.

**Give Answer**

- a) If Statement I alone is sufficient to answer the question  
 b) If Statement II alone is sufficient to answer the question  
 c) If Statements I and II together are needed to answer the question  
 d) If Statements I and II together are not sufficient to answer the question
54. How is A related to B?  
 I. A is the sister-in-law of C, who is the daughter-in-law of B, who is the wife of D.  
 II. B is the mother of A's son's only uncle's son.
55. Among five friends-J, K, L, M and N each of a different height, who is the second tallest?  
 I. N is taller than M and K. K is shorter than M.



- II. L is taller than N. J is not the tallest.
56. Who designed the national Flag of Independent India?  
 a) Bankim Chandra Chatterjee                      b) Rabindranath tagore  
 c) Mahatma Gndhi                                      d) Pingali Venkayya
57. which among the following is not a credit rating agency?  
 a) CRISIL                                      b) CARE                                      c) ICRA                                      d) IFCI
58. Which one of the following is called a red planet?  
 a) Venus                                      b) Mercury                                      c) Mars                                      d) Jupiter
59. The strait that connects Red sea and Mediterranean sea is  
 a) panama strait                                      b) Suez strait                                      c) Palk strait                                      d) Bering strait
60. Rukmini Devi Arundale is associated with  
 a) Kathak                                      b) Bharatanatyam                                      c) Kuchipudi                                      d) Bhangra
61. Name the author of the book "The Fire burns Blue: a History of Women's Cricket in India" launched on 30<sup>th</sup> November, 2018?  
 a) karunya keshav & Rahul Parrikhar                                      b) Sunil goenker & Rahul Parrikhar  
 c) Mukhil Joshi                                      d) Praveen Singh
62. Ekana International Cricket Stadium, which was recently renamed as the "Bharat Ratna Atal Bihari Vajpayee International Cricket Stadium", is located in which city?  
 a) Indore                                      b) Jaipur                                      c) Nagpur                                      d) Lucknow
63. The headquarter of the Food an Agricultural Organisation (FAO) is at  
 a) New York                                      b) Paris                                      c) Geneva                                      d) Rome
64. In which of the following food chains, the Pyramid of Numbers will be always inverted?  
 a) Grassland food chain                                      b) Pond food chain  
 c) Parasitic food chian                                      d) None of the above
65. Which body framed the Constitution of independent India?  
 a) Working Committee                                      b) Drafting Committee



- c) constituent Assembly                      d) Union constitution Committee
66. Who is the youngest Indian athlete to win gold medal in Asian games?  
 a) Manu Bhaker                                      b) Saurabh Chaudhary  
 c) Heena Sidhu                                      d) shardul Vihan
67. Pradhan Mantri Vaya Vandana Yojana is related with  
 a) giving social security to elderly persons  
 b) giving ethical education through school's curriculum  
 c) financial assistance to tribal people  
 d) giving special powers and privileges to North-Eastern autonomous district councils
68. Which of the following are components of Central Processing Unit (CPU)?  
 a) Arithmetic Logic Unit, Mouse                      b) Arithmetic Logic Unit, Control Unit  
 c) Arithmetic Logic Unit, Integrated Circuits                      d) Control Unit, Monitor
69. Where is the Lingaraja temple located?  
 a) Madurai                                      b) Tiruchendur                                      c) Bhubaneshwar                                      d) Ujjain
70. How many High Courts are there in India as of 2019?  
 a) 21                                      b) 22                                      c) 24                                      d) 25
71. The plant that can turn into green manure is  
 a) sunhemp                                      b) mango                                      c) bitter gourd                                      d) okra
72. Match the following

List-I	List-II
A. Cell wall	1. Closed ring
B. Flagella	2. Food reserve
C. DNA	3. Protect cell
D. Glycogen	4. Locomotory structure

**Codes**

- A B C D                      A B C D  
 a) 2 1 3 4                      b) 4 3 2 1



- c) 3 4 1 2                      d) 1 2 4 3
73. Which organelle in the cell, other than nucleus, contains DNA?  
 a) Centriole                      b) Golgi apparatus                      c) Lysosome                      d) Mitochondrion
74. Runoff from fertilizers-rich crop fields causes  
 a) turbidity of water bodies                      b) precipitation of toxicants  
 c) eutrophication of water bodies                      d) thermal pollution of water bodies
75. In which of the following cases of motions, the distance moved and the magnitude of displacement are equal?  
 a) If the car is moving on straight road  
 b) If the car is moving in circular path  
 c) The pendulum is moving to and fro  
 d) The Earth is revolving around the sun
76. A man waves his arms while walking. This is  
 a) to keep constant velocity                      b) to ease the tension  
 c) to increase the velocity                      d) to balance the Effect of Earth's gravity
77. According to the third law of motion, action and reaction  
 a) always act on the same body  
 b) always act on different bodies in opposite directions  
 c) have same magnitude and direction  
 d) act on either body at normal to each other
78. Tincture of iodine has antiseptic properties. This solution is made by dissolving  
 a) iodine in potassium iodide                      b) iodine in vaseline  
 c) iodine in water                      d) iodine in alcohol
79. Isotopes of an element have  
 a) the same physical properties                      b) different chemical properties  
 c) different number of neutron                      d) different atomic numbers





- c) Sodium chloride d) Magnesium sulphate
89. which of the following is most recently discovered element?  
a) Ununoctium (118) b) Ununtrium (113)  
c) Ununseptium (117) d) Ununpentium (115)
90. Which one of the following reducing agents can also act as an oxidizing agent?  
a) H<sub>2</sub> b) H<sub>2</sub>S c) SO<sub>2</sub> d) HI
91. In SONAR, we use  
a) ultrasonic waves b) infrasonic waves  
c) radio waves d) audible sound waves
92. Which of the following is used in pencils?  
a) Twinkling of stars at night  
b) Sun appearing higher in the sky than it is actually  
c) Sun becoming visible two or three minutes before actual sunrise  
d) Sun appearing red at sunset
93. Which of the following is not caused by atmospheric refraction of light?  
a) twinkling of stars at night  
b) Sun appearing higher in the sky than it is actually  
c) Sun becoming visible two or three minutes before actual sunrise  
d) Sun appearing red at sunset
94. Convex mirror are used as a rear view mirror in motor cycles because  
a) it forms real image b) It forms erect (upright) image  
c) it forms smaller Images compared with object d) all of the above
95. Daltonism (Protanopia) is the form of colour blindness in which the patient cannot see  
a) green colour b) red colour c) blue colour d) All of these
96. Hypermetropia or longsight can be corrected by using  
a) Bifocal lenses b) cylindrical lenses  
c) concave lenses d) convex lenses
97. good conductor of electricity is



- a) dry air      b) paper      c) kerosene      d) graphite
98. Safety fuse wire used in domestic electrical appliances is made of metal of low  
a) resistance      b) mutual induction      c) generator      d) inverter
99. A transformer works on the principle of  
a) self induction      b) mutual induction      c) generator      d) inverter
100. Magnetism in materials is due to  
a) electrons at rest      b) mutual induction  
c) protons at rest      d) all neutrons at rest





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

