



No of Questions : 100

Time : 90 minutes

MODAL TEST -5

1. The simplified value of

$$\sqrt{5 + \sqrt{11 + \sqrt{19 + \sqrt{29 + \sqrt{49s}}}}}$$

- a) 3 b) 2 c) 4 d) 6
2. What is the largest 4-digit number which is exactly divisible by 81?
- a) 9993 b) 9936 c) 9918 d) 9963
3. The sum of two numbers is 75 and their difference is
- a) 1350 b) 1250 c) 125 d) 1000
4. If $\left[\frac{6x}{5} - \frac{1}{4}\right] + \frac{1}{3} = \frac{9x}{5}$, then what is the value of x?
- a) $\frac{1}{6}$ b) $-\frac{1}{6}$ c) $\frac{1}{5}$ d) $-\frac{1}{5}$
5. The average age of a class of 39 students is 15 yr. If the age of the teacher is included, then the average increases by 3 months. Find the age of the teacher.
- a) 30 b) 25 c) 35 d) 40
6. The present age of a father is 3 yr more than three times the age of his son. 3 yr hence, father's age will be 10 yr more than twice the age of the son. The father's present age is
- a) 33 yr b) 39 yr c) 45 yr d) 40 yr
7. If a number is increased by 20% and the resulting number is again increased by 20%, then what per cent is the total increase?
- a) 48 b) 44 c) 41 d) 40
8. Two numbers are in the ratio 3 : 5. If 9 is subtracted from each, then new numbers are in the ratio 12 : 23. The small number is
- a) 27 b) 33 c) 49 d) 55
9. A and b are two alloys of gold and copper prepared by mixing metals in the ratio 5 : 3 and 5 : 11, respectively. Equal quantities of these alloys are melted to form a third alloy C. The ratio of gold and copper in the alloy C is
- a) 25 : 33 b) 33 : 25 c) 15 : 17 d) 17 : 15



10. If 10% loss is made on selling price, then the rate of loss on the cost price will be
- a) $11\frac{1}{9}\%$ b) $9\frac{1}{11}\%$ c) 10% d) 11%
11. Albert invested an amount of Rs. X in a fixed deposit scheme offering 10% per annum for 1 st year and 15% per annum for 2nd year and received an amount of Rs. 20240 after two years. What is x (in Rs.)?
- a) Rs. 15000 b) Rs. 16000 c) Rs. 14000 d) Rs. 18000
12. For what sum will the simple interest at R% for R yr will be Rs. R?
- a) Rs. $\frac{100}{2R}$ b) Rs. $\frac{50}{R}$ c) Rs. $\frac{100}{R}$ d) Rs. $\frac{200}{R}$
13. 1 man and 1 woman together can complete a piece of work in 8 days. A man alone can complete the work in 10 days. In how many days, can one woman alone complete the work?
- a) $\frac{140}{9}$ b) 30 c) 40 d) 42
14. To travel 720 km, an Express train takes 6 h more than Duronto. If however, the speed of the Express train is doubled, it takes 2 h less than Duronto. The speed of Duronto is
- a) 60 km/h b) 72 km/h c) 66 km/h d) 78 km/h
15. The simplification $(0.\overline{63} + 0.\overline{37} - 0.\overline{80})$ yields the result
- a) $1.\overline{80}$ b) $1.\overline{81}$ c) $1.\overline{79}$ d) 1.80
16. If θ is an acute angle and $\cos^2 \theta = \frac{15}{17}$, then the value of $\cot(90^\circ - \theta)$ is
- a) $2\frac{\sqrt{8}}{15}$ b) $\frac{8}{15}$ c) $\frac{\sqrt{2}}{17}$ d) $8\frac{\sqrt{2}}{17}$
17. The height of an equilateral triangle is $4\sqrt{3}$ cm. The ratio of the area of its circum circle to that of its inscribed circle is
- a) 2 : 1 b) 4 : 1 c) 4 : 3 d) 3 : 2
18. $2x - ky + 7 = 0$ and $x - 12y + 15 = 0$ has no solution for
- a) $k = -4$ b) $k = 4$ c) $k = 1$ d) $k = -1$
19. A sphere and a hemisphere have the same radii. Then, the ratio of their respective total surface areas is
- a) 2 : 1 b) 1 : 2 c) 4 : 3 d) 3 : 2



20. The ratio of the ages of a father and his son 10 yr hence will be 5:3, of the age of the son to that of his father today, is
- a) 1 : 2 b) 1 : 3 c) 2 : 3 d) 2 : 5
21. At what time between 3 O'clock and 4 O'clock, will the hands of a clock be together?
- a) $16 \frac{\sqrt{3}}{11}$ min past 3 b) $14 \frac{\sqrt{3}}{11}$ min past 3
- c) $13 \frac{\sqrt{2}}{11}$ min past 3 d) $16 \frac{\sqrt{4}}{11}$ min past 3
22. The shadow of a tower standing on a level plane is found to be 50 m longer when the Sun's elevation is 30° , when it is 60° . What is the height of the tower?
- a) 15 b) $25\sqrt{3}$ m c) $\frac{\sqrt{25}}{3}$ m d) 30 m
23. If $a + b = 10$ and $ab = -21$, then the value of $(a-b)^2$ is
- a) 15 b) 16 c) 17 d) 18
24. One-third of a certain Journey is covered at the rate of 25 km/h, one-fourth at the rate of 30 km/h and the rest at 50km/h. The average speed for the whole journey is
- a) 35 km/h b) $33 \frac{1}{3}$ km/h c) 30 km/h d) $37 \frac{1}{12}$ km/h
25. A can do $\frac{1}{3}$ of a work in 5 days, B can do $\frac{2}{5}$ of work in 10 days, A and B together do the work in how many days?
26. If each term of GP is positive and is the sum of two preceding terms, then the common ratio of GP is
- a) $\frac{(\sqrt{5}-1)}{2}$ b) $\frac{(1-\sqrt{5})}{2}$ c) $\frac{(\sqrt{5}+1)}{2}$ d) $\frac{(\sqrt{3+1})}{2}$
27. what are the roots of the quadratic equation $21x^2 - 37x - 28 = 0$?
- a) $\frac{-7}{3}, \frac{4}{7}$ b) $\frac{3}{7}, \frac{-7}{4}$ c) $\frac{7}{3}, \frac{-4}{7}$ d) $\frac{-3}{7}, \frac{7}{4}$
28. The HCF and LCM of first two prime numbers is
- a) 1,2 b) 1, 3 c) 2, 3 d) 0 1, 6
29. The Selling price of a table is $\frac{4}{3}$ times its cost price. The gain per cent is
- a) $20 \frac{1}{3}$ % b) $20 \frac{1}{2}$ % c) $25 \frac{1}{4}$ % d) $33 \frac{1}{3}$ %



30. The sum product of the roots of the equation $x^2 - 4x + 3 = 0$ are respectively
- a) 3, - 4 b) 4, - 3 c) -4, - 3 d) 4,3

Directions (Q.Nos. 31-33) In the following questions, select the related word/letters/ number from the given alternatives.

31. Goiter : Iodine :: anemia : ?
- a) Vitamin D b) Iron c) Vitamin E d) Calcium
32. 56 : 41 :: 94 : ?
- a) 49 b) 53 c) 60 d) 89

33. TRACK : MECTV :: POND : ?
- a) EOPQ b) FPQR c) GOQQ d) HPPR

Directions (Q. Nos. 34-36) In the following questions, select the odd word/letters/ pair from the given alternatives.

34. a) Cotton b) Mustard c) Almond d) Sesame
35. a) 64-576 b) 17-343 c) 27-196 d) 32-36
36. a) DAEH b) KLMP c) HEIL d) FUGJ
37. Arrange the following words as per order in the dictionary.
1. Director 2. Directed c) Director d) Directing
- a) 1, 4, 3, 2 b) 2, 4, 1, 3 c) 4, 2, 3, 1 d) 2, 4, 3, 1

38. If in a certain language TEACHER is coded as QBXZEBO, then how is STUDENT coded in the same language?
- a) PQRBAQK b) PQRABKQ c) PQRKBAQ d) PRKQBAQ

Directions (Q. Nos. 39 and 40) A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

39. 4, 7, 12, 21, 38, ?
- a) 75 b) 71 c) 78 d) 77
40. PQRS, QPRS, RPQS, ?
- a) SQPR b) RPQS c) QSPR d) SQPR

41. In the question two statements are given, followed by two Conclusions I and II. You have to consider the statements to be true event 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?

Statement Use of cosmetics is

hazardous.

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Conclusions

I. Cosmetics have side effects.

II. Cosmetics are inexpensive.

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

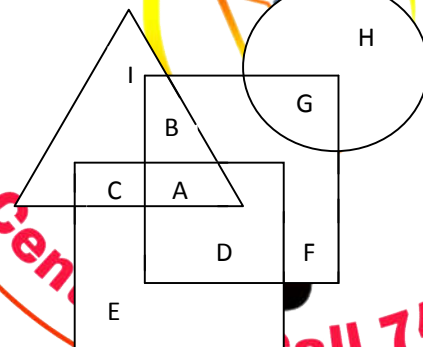
42. Introducing Reeta, Monika said, 'She is the only daughter of my father's only daughter. How is Monika related to Reeta?

- a) Aunt b) Niece c) Cousin d) Mother

43. To attend an exam, Sudhir reached the school by travelling 5 km towards South and after a sharp left-turn, he travelled for about 10 km, he again made a sharp left turn and reached in front of school by travelling 5 km more. Which direction is Sudhir's school from the starting point?

- a) East b) West c) North d) South

44. In the following figure, square represents Teachers, triangle represents Swimmers, circle represents Nurses and rectangle represents Women. Which set of letters represents Teachers who are either Swimmers or Nurses?



- a) D, F b) A, B, D, F, G c) A, B, G, d) I, C, H

Directions (Q. Nos. 45 and 46) 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

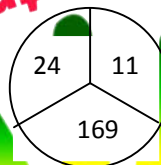
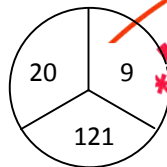
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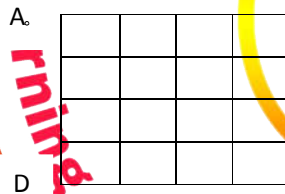


45. Is D the mother of S?
- I. L is the husband of D. L has only three children.
- II. N is the brother of S and P, P is the daughter of L.
46. among five people – A, B, C, D and E sitting around a circular table facing the centre, who is sitting second to the left of D?
- I. C is second to the left of A, B and D are immediate neighbours of each other.
- II. D is to the immediate left of B. E is not an immediate neighbor of D and B

47. Find the missing number from the given alternatives.



- a) 125 b) 175 c) 225 d) 250
48. How many squares are there in the square figure ABCD?



- a) 16 b) 17 c) 26 d) 30
49. If '-' means 'X', 'X' means '+', '+' means '÷' and '÷' means '-' then $40 \times 12 \times 3 - 6 \div 60 = ?$
- a) 44 b) 16 c) 7.95 d) 10

50. Vinay is taller than Hansika, Hansika is taller than Abhay, Aalok is taller than Ashok and Ashok is taller than Vinay, who is the shortest in the group?

a) Aalok b) Ashok c) Hansika d) Abhay

51. Four political parties, W, X, Y and Z decided to set up a joint candidate for the coming parliamentary elections. The formula agreed by them was the acceptance of a candidate by most of the parties. Four aspiring candidates A, B, C and D approached the parties for their tickets.

A was acceptable to W but not Z.

B was acceptable to Y but not X.

C was acceptable to W and Y.

D was acceptable to W and X.

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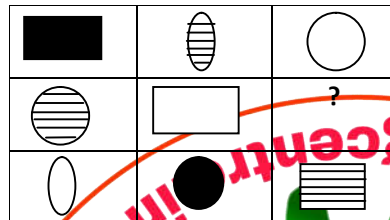


When candidate B was preferred by W and Z, candidate C was preferred by X and Z and candidate A was acceptable to X but not to Y, who got the ticket?

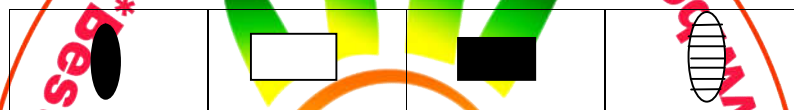
- a) A b) B c) C d) D

52. Which answer figure will complete the pattern in the question figure?

Question figure



Answer figures



(a)

(b)

(c)

(d)

Directions (Q.Nos. 53-55) questions in the form of inferences/conclusions are based on the passages given below. Each passage is followed by five inferences. You are required to examine each inference separately in the context of the passage and decide upon its degree of truth or falsity.

Give answer

- (a) If the inference is definitely true i.e., it properly follows from the statement of facts given
- (b) if the inference is probably true though not definitely true in the light of the facts given
- (c) if the data are inadequate i.e., from the facts given you cannot say whether the inference is likely to be true or false
- (d) if the inference is definitely false i.e., it cannot possibly be drawn from the facts given or it contradicts the given facts

The most empirical argument in favour of prayer is that it relieves the mind of tension, which is the natural concomitant of a life of hurry and worry. It neutralizes mental repressions and purifies the subconsciousness. It releases an extra amount of hope and energy and thus enables a person to face life squarely. Life is not all sweetness, enjoyment and success, it is drudgery, pain and failure too.

53. Prayer is an important part of all religions.

54. People are interested in finding out effects of prayer

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55. Subconsciousness plays no role in our life.
56. 'Plan Holiday' was declared after
 a) the First Five year Plan b) the Second Five Year Plan
 c) the Third Five year Plan d) the Fourth Five year Plan
57. Which script was used in Ashoka's inscription?
 a) Brahmi b) Devanagiri c) Gurumukhi D) Sanskrit
58. Who is called as the 'Prophet of New India'?
 a) Dayananda Saraswati b) Sri Ramakrishna
 c) Raja Rammohan Roy d) Swami Vivekananda
59. El Nino is
 a) a warm ocean current b) sea storm
 c) tropical disturbance d) another name of typhoon
60. Mariana Trench is found in
 a) Atlantic ocean b) pacific ocean c) Indian ocean d) Arctic ocean
61. In which field BC Roy award is given?
 a) Music b) Journalism c) Medicine d) Environment
62. Who has the record of highest number of gold medals in the history of Olympics up till July 2018?
 a) Usain Bolt b) Michael Phelps c) Larisa Latynina d) Ian Thorpe
63. In which year the first world environment day was observed?
 a) 1972 b) 1980 c) 1973 d) 1974
64. Who was sworn as new President of Pakistan?
 a) Dr. Asif Ali b) Dr. Arif Alvi c) Dr. Arif Alvi D) Nawaz Sharif
65. The ancient port site of Godavaya is located in which country
 a) Myanmar b) Indonesia c) Malaysia d) Sri Lanka
66. Which of the following is not a high level computer language used for web designing?
 a) CSS b) HTML c) Java script d) HTTP
67. What is the minimum age required to get elected to Panchayat?
 a) 30 b) 22 c) 21 d) 25



68. Which of the Delhi Sultans pursued the policy of 'blood and iron'?
- a) Alaudding Khilji b) Ghiyasuddin Tughlaq
 c) Balban d) Iltumish
69. Which article of Indian constitution is known as "heart and soul of the constitution"?
- a) Article 32 b) Article 21 c) Article 14 d) Article 17
70. What is the name of India's first man-made mission?
- a) Chandrayaan b) Gaganyaan c) Space-x d) Aditya
71. In the case of a minor burn, you can treat the injury by
- a) covering it with a bandage b) covering it with antiseptic cream
 c) running it under cold water d) apply ice
72. Chemical energy is released during cellular respiration of food and is stored in the form of
- a) AMP b) ATP c) APP d) ADP
73. Leukaemia or blood cancer is characterised by abnormal increase of the
- a) red blood cells b) white blood cells
 c) blood platelets d) blood plasma
74. Which one of the following is a useful functional association between fungi and the roots of higher plants?
- a) Biofertiliser b) Coralloid root c) Lichen d) Mycorrhiza
75. Sound waves transfer
- a) only energy not momentum b) energy
 c) momentum d) Both energy and momentum
76. A particle is moving in a circular path of radius r . The displacement after half a circle would be
- a) zero b) πr c) $2r$ d) $2\pi r$
77. Newton's law of gravitation is universal law, because it
- a) acts on all bodies and particles in the universe
 b) acts on all the masses at all distances and not affected by the medium
 c) is always attractive
 d) None of the above



78. Stainless steel is an alloy of
a) chromium and carbon
b) chromium, carbon and iron
c) chromium and iron
d) carbon and iron
79. Epsom salt is used
a) as purgative
b) in softening water
c) in paper industry
d) in making tooth paste
80. Sulphur dioxide bleaches colouring matter by
a) decomposition
b) oxidation
c) reduction
d) dehydration
81. A good characteristic of a fuel is
a) it leaves more ash
b) it leaves no ash
c) more costly
d) difficult to store
82. The inertia of an object tends to cause the object
a) to increase its speed
b) to decrease its speed
c) to resist any change in its state of motion
d) to decelerate due to friction
83. Velocity—time graph for a moving object is found to be curved line, then its acceleration is
a) constant
b) variable
c) zero
d) None of these
84. Two objects of different masses falling freely near the surface of moon would
a) have same velocities at any instant
b) have different accelerations
c) experience forces of same magnitude
d) undergo a change in their inertia
85. When lime juice is dropped on baking soda, brisk effervescence takes place because the gas evolved is
a) hydrogen
b) oxygen
c) carbon dioxide
d) All of these
86. The boiling points of diethyl ether, acetone and n-butyl alcohol are 35°C , 56°C and 118°C respectively. Which one of the following correctly represents their boiling points in Kelvin scale?
a) 306 K, 329 K, 391 K
b) 308 K, 329 K, 3292 K
c) 308 K, 329 K, 391 K
d) 329 K, 392 K, 308 K



87. The chemical symbol for sodium is
 a) So b) Sd c) NO d) Na
88. A star appears twinkling in the sky because of
 a) scattering of light by atmosphere b) reflection of light by atmosphere
 c) refraction of light by atmosphere d) diffraction of light by atmosphere
89. When a strong beam of light is passed through a colloidal solution, the light will
 a) be scattered b) pass unchanged
 c) be absorbed d) be reflected
90. When a person walking in bright sunlight enters a dark room, he is not able to see clearly for a little while because
 a) the eye muscles cannot immediately adjust the focal length of the eye lens
 b) the retina retains the bright images for some time and becomes momentarily insensitive
 c) the iris is unable to contract the pupil immediately
 d) the iris is unable to dilate the pupil immediately
91. Myopia is the same as
 a) near sightedness. b) astigmatism
 c) presbyopia d) long sightedness
92. Largest tiger population is found in
 a) Sunderban National P ark b) Corbett National Park
 c) Ranthambhor National Park d) Kanha National Park
93. Which one of the following forms of energy leads to least environmental pollution in the process of its harnessing and utilization?
 a) Nuclear energy b) Thermal energy
 c) Solar energy d) Geothermal energy
94. The form of sugar transported through phloem is
 a) glucose b) fructose c) sucrose d) ribose
95. Infrasound can be heard by
 a) dog b) bat c) rhinoceros d) human beings

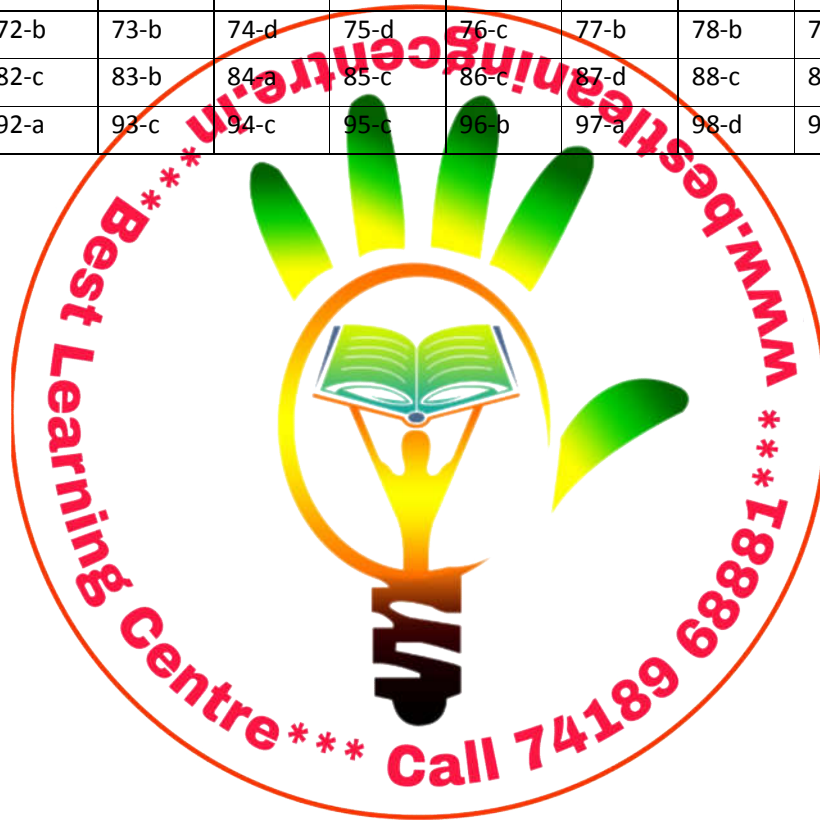


96. Ethylene is used for
- a) retarding ripening of tomatoes b) hastening of ripening of fruits
- c) slowing down ripening of apples d) Both (b) and (c)
97. Electric current in a metal wire due to the flow of free
- a) electrons b) protons c) ions d) holes
98. The best conductor of electricity among the following is
- a) copper b) iron c) aluminum d) silver
99. Tape recorder should not be kept near one of the following things
- a) clock b) magnet c) electrical switchboard d) radio
100. Electrostatic precipitator is used to control
- a) chemical pollutants b) radio-active pollutants
- c) water pollutants d) air pollutants





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



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