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No of Questions : 100

Time : 90 minutes

MODAL TEST -1

1.   The difference of a number consisting of two digits from the number formed by interchanging the digits is   always divisible by

    a) 10   b) 9   c)11   d)6

2.   What is the sum of the first 13 terms of an arithmetic progression, if the 5th term is 1 and the 8th term is -17?

    a) -140   b) 61   c) -143   d) 166

3.   If $9\sqrt{X} = \sqrt{12} + \sqrt{147}$, then x is equal to

    a) 5   b) 3   c) 2   d) 4

4.   If $X + \cfrac{1}{1 + \cfrac{1}{2 + \cfrac{1}{3}}} = 2$, then what is x

    Equal to?

    a) $\dfrac{7}{10}$ b) $\dfrac{13}{10}$ c) $\dfrac{11}{10}$ d) $\dfrac{17}{10}$

5.   The average of 100 observations was calculated as 35. It was found later, that one of the observation was misread as 83 instead of 53. The correct average is

    a) 32.7   b) 34.7   c) 35.7   d) 36.7

6.   The average age of A and B is 30 yr and that of B and C is 26yr. The difference of the ages of A and C is

    a) 2 yr   b) 4 yr   c) 6yr   d) 8yr

7.   A number is decreased by 10% and the resulting number is again decreased by 20%. What is the final percentage of decrease?

    a) 25%   b) 26%   c) 27%   d) 28%

8.   If A's wealth is $\dfrac{4}{9}$ times of B's and C's is $\dfrac{7}{6}$ times of B's. What is the ratio of C's wealth to A's

a) 8 : 21   b) 21 : 8   c) 27 : 14   d) 14 :27

9.   In a mixture of 25 L, the ratio of acid to water is 4 : 1. Another 3 L of water is added to the mixture. The ratio of acid to water in the new mixture is

a) 5:2   b) 2 :5   c) 3 :5   d) 5 : 3

10.   The cost price of 25 articles is equal to the selling price of 20 of them. The gain or loss per cent is given by

a) 20 % loss   b) 25 % gain   c) 60 % loss   d) 75 % gain

11.   A sum of money lent out at simple interest amounts to Rs. 720 after 2 yr and to Rs. 1020 after a further period of 5 yr……………… sum is

a) Rs. 500   b) Rs. 600   c) Rs. 700   d) Rs. 710

12.   A, B and C can do a job working alone in 6, 9 and 18 days, respectively. They all work together for 1 day, then A and B quit. How many days C working alone will take to complete the remainder of the job?

a) 9 days   b) 6 days   c) 12 days   d) 10 days

13.   Three taps A, b and C together can fill an empty cistern in 10 min. the tap A alone can fill it in 30 min and the tap b alone in 40 min. How long will the tap C alone take to fill it?

a) 16 min   b) 24 min   c) 32 min   d) 40 min

14.   If a person walks at 12 km/h instead of 10 km/h, he would have walked 1 km more in the same time. What is the actual distance travelled by him at 10 km/h in the same time?

a) 8 km   b) 10 km   c) 5km   d) 12 km

15.   A man can row at a speed of $4\frac{1}{2}$ km /h in downstream. I f the takes 2 times as long to row a distance upstream as to row the same distance downstream. Then, the speed of stream (in km/h) is

a) 1   b) 1.5   c) 2   d) 2.5

16.   If $\frac{1}{P} + \frac{1}{q} = \frac{1}{P+q}$ then the value of $P^3 - q^3$ is

a) p-q   b) pq   c) 1   d) 0

17.   If $5\sqrt{x} + 12\sqrt{x} = 13\sqrt{x}$ then is equal to

a) 25   b) 4   c)9   d) 6

4

18.   The shadow of a tower when the angle of elevation of the sum is 45^0, if found to be 10 m longer than when it was 60^0. The height of tower is

a) 5 $\sqrt{3} - 1) \, m$ **b)** 5 $\sqrt{3} + 1) \, m$ c) 10 $\sqrt{3} - 1) \, m$ **d)** 10 $\sqrt{3} + 1) \, m$

19. $\sqrt{\dfrac{1+ \sin\theta}{1- \sin\theta}}$ is equal to

a) $\sec \theta + \tan \theta$ b) $\sec \theta - \tan \theta$ c) $\csc \theta + \cot \theta$ d) $\csc \theta - \cot \theta$

20.   The adjacent sides of a parallelogram are 36 cm and 27 cm in Length. If the distance between the shorter sides is 12 cm, then the distance between the longer sides is

a) 10 cm   b) 12 cm   c) 16 cm   d) 9 cm

21.   A semi-circular shaped window has diameter of 63 cm. Its perimeter

Equal is take $\left[\pi= \dfrac{22}{7} \right]$

a) 126 cm   b) 162 cm   c) 198 cm   d) 251 cm

22.   The product of Ramu's age 5 yr ago with his age 7 yr later I s 28. Ramu's present age is

a) 4 yr   b) 6 yr   c) 7 yr   d) 8yr

23   In a laboratory, two bottles contain mixture of acid and water in the ratio 2:5 in the first bottle and 7:3 in the second . The ratio in which the contents of these two bottles be mixed such that the new mixture has acid and water in the ratio 2:3 is

a) 4:5   b) 9:8   c) 21: 8   d) 1:2

24.   The third term of a G.P is 2. The product of its first five terms is

a) 2^6 b) 2^5 c) 2^4 d) 2^3

25.   Three taps are fitted to a cistern. The empty cistern is filled by the first and the second taps in 3 h and 4 h, respectively. The full cistern is emptied by the third tap in 5 h. If all three taps are opened simultaneously, the empty cistern will be filled up in

a) $1 + \dfrac{14}{23}$ h   b) $2 + \dfrac{14}{23}$ h   c) 2 h 40 min   d) 1 h 56 min

26.   The values of k for which $X^2 + kx + 9 = 0$ has real roots is

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a) K > 6   b) k $\geq$ 6   c) $-6 \leq k \leq 6$ d) $6 \leq k \leq -6$

27.   If 5th January, 1991 was Saturday, what day of the week was it on 4th march, 1992?

a) Wednesday   b) Monday   c) Friday   d) Sunday

28.   What are the factors of $X^2 + 4y^2 + 4y - 4xy - 2x - 8$?

a) (x-2y -4) (x-2y +2)   b) (x-y +2) (x-4y +4)   c)(x-y +2) (x-4y -4)   d)(x+2y -4) (x-2y +2)

29.   Find the sum $\dfrac{3}{10} + \dfrac{5}{100} + \dfrac{8}{1000}$ in decimal form

a) 0.853   b) 0.358   c) 3.58   d) 8.35

30.   if $\dfrac{x}{y} = \dfrac{6}{5}$, then find the value of $\dfrac{x^2 + Y^2}{x^2 - Y^2}$

a) 11   b) $\dfrac{61}{11}$ c) $\dfrac{11}{5}$ d) 6

Directions (Q.No. 31-33) Select the related word/letters/number from the given alternatives

31.   Skating : Rink :: Wrestling :?

a) Ring   b) Stadium   c) Arena   d) Court

32.   625 :? ::676 : 31

a) 28   b) 42   c) 30   d) 56

33.   AC : CF :: MO :?

a) QQ   b) PQ   c) QR   d) QR

Directions (Q.Nos. 34 and 35) Find the odd word/ numbers from the given alternatives.

34.   a)Everest   b) Amazon   c) Mont Blanc   d) Dhaulagiri

35.   a) 18, 36, 38   b) 14, 28, 56   c) 21, 42, 44   d) 16, 32, 34

36.   you are being sent for an intensive efficiency improvement training program, which you are not interested in going for. What will you do

a) Proceed for the training, keeping your interest aside
b) Inform your boss to send someone else for the training
c) Go for the training but you will spend most of the time by moving here and there
d) Try on finding excuses for avoiding the training

37   If W = 23, WIN = 46, then WAY = ?

a) 46   b) 64   c) 49   d)94

38.   Directions (Q.Nos. 38 and   39) In each of the following questions, a series is given, with one term missing. Choose the correct alternative   from the given options.

12, 8, 14, 6, 16,?

a) 18   b) 32   c) 5   d) 4

39.   AMV, FQX, KUZ,?

a) PYB   b) OXA   c) NYB   d) MYB

40.   The given statement is followed   by two arguments. Decide which of the options is correct about the given arguments.

Statement

Should the railways immediately stop issuing free passes to all its employees?

Arguments
I. No, the employees have right to travel free

II. yes, this will help railways to provide better facility.

a) Only Argument I is strong   b) Only Argument II is strong

c) Both I and II are strong   d) Neither I nor II is strong

41.   Rakesh went 20 m to the East, then he turned left and after walking 15 m turned right and   went 25 m and then turned right and went 15 m. How far was Rakesh from starting point?

a) 60 m   b) 35 m   c) 40 m   d) 45 m

Directions   (Q.Nos. 42 and 43) 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

42   What does '$' mean in a certain code language?

   I.   '5 $ # 3' means 'flowers are really good'.

   II.   '7 # 3 5' means 'good flowers are available'.

43.   Point X I s in which direction in respect of point Y?

   I.   Point Z is at equal distance from point X and point Y.

   II.   Point X is at a distance of 5 km from point Y.

44.   Which one correctly illustrates the relationship among the classes carrot, food and vegetables?

      A   b   c   d
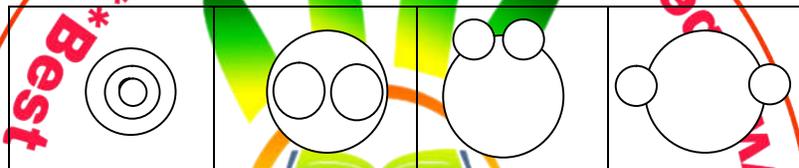
45.   How many rectangles are there in the following figure?

   a) 6   b) 7   c) 8   d) 9

Directions (Q. Nos. 46 and47) Study the given table carefully and answer the questions that follow.

Percentage of marks obtained by five students in five different subjects in a school

Student \ Subject	English (100)	Science (125)	Mathematics (150)	Social Studies (75)	Hindi (50)
Rahul	67	84	70	64	90
Veena	59	72	74	88	84
Soham	66	90	84	80	76
Shreya	71	66	80	66	86

Varun	63	76	88	68	72

Note Figures in brackets indicate maximum marks for a particular subject.

46.   What is Vaurn's overall percentage in the examination?

a) 75.4 %   b) 76.4 %   c) 95.2 %   d) 66.4 %

47.   If in order to pass the exam, a minimum of 95 marks are needed in Science, how many students pass in the exam?

a) One   b) Two   c) Three   d) Four

48.   Which of the answer figure is exactly the mirror image of the given figure when the mirror is held at PQ?

Question figure

Answer figures

a   b   c   d
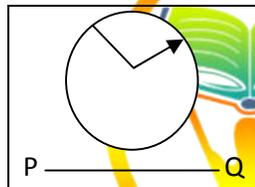
Direction (Q.No. 49) In this question, two statements are given, followed by two conclusions I and II. You have to consider the statement to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any follow9s) from the given statements.

49.   **Statements**

a) Some shoes are white.   b) All white are blue.

Conclusions

I. all shoes are blue.   II . some shoes are blue

a) Only I follows

b) Only II follows

c) Neither I nor Ii follows

d) Both I and II follows

50   If '+' means 'X', '-' means '÷, 'X' means '-' and '÷' means'+' then what will be the value of 16 ÷ 64 – 8 x 4 + 2?

a) 18   b) 24   c) 16   d) 12

51.   A's mother is sister of B and has a daughter C. How can C be related to B from among the following

a) Niece.   b) Uncle   c) Daughter   d) Father

52.   If you are 9th person in a queue starting from one end and 11th from another end, what is the number or persons in the queue?

a) 20   b) 19   c) 21   d) 18

53   In the following question, select the missing number from the given options.

a) 9   b) 14   c) 12   d) 8

54.   Read the following   information careful and answer the question which is asked

A ate grapes and pineapple; b ate grapes and Oranges; C ate oranges, pineapple and apple; D ate grapes, apple and pineapple. After taking fruits, B and C fell sick.

In the light of the above facts, it can be said that the cause of sickness was

a) apple   b) Pineapple   c) grapes   d) oranges

55.   Which one of the given option would be a meaningful order of the following?

1. Famer   2. Seed   3. Food   4. Cultivation

a) 1, 2, 4, 3   b) 2, 1, 3, 4   c) 4, 2, 3, 1   d) 3, 1, 4, 2

56. Who introduced leather token currency in India?

     a) Akbar   b) Mohammad-bin-Tughlaq   c) Babur   d) Humayun

57. The Imperial Bank of India, after its nationalization came to be known as

     a)Reserve Bank of India   b) State Bank of India

     c) united Bank of India   d) Indian Overseas Bank

58. What is NSSO?

     a) National social Science   b) National Social Study Organisation

     c) National Security Science   d) National Sample Survey Organisation

59. The medieval ruler who was the first to establish a ministry of agriculture (Diwan-i-kohi) was

     a) Alauddin Khilji   b) Muhammad Bin Tughlaq

     c) Sher Shah   d) Akbar

60. Who is empowered to transfer a judge from one High Court to another High Court?

     a) Chief Justice of India   b) President of India

     c) Law Minister of India   d) The Union Cabinet

61. The 'Pacific ring of fire' is associated with

     a) oil well fires   b) thermal power station

     c) Volcanoes and earthquakes   d) Forest fires

62. The community development programme was launched in the year

     a) 1950   b) 1952   c) 1951   d) 1953

63. 'An extraordinary Life, An Indian Destiny' is a biography of

     a) Manmohan Singh   b) Sonia Gandhi   c) Shashi Tharoor   d) Indira Gandhi

64. National Environmental Engineering Research Institute is located at

     a) Pune   b) Delhi   c) Nagpur   d) Chennai

65. Union Cabinet approved renaming of Jharsuguda Airport of which state as 'Veer Surendra Sai Airport, Jharsuguda", on 1st November 2018?

     a) Odisha   b) Tamil Nadu   c) Bihar   d) Uttar Pradesh\

66. The world's first ever thermal battery plant is established in which state of India?

     a) Tamil Nadu   b) Gujarat   c) Rajasthan   d) Andhra Pradesh

67.   Who founded the Ramakrishna Mission in 1896?

a) Annie Besant   b) Swami Dayananda Saraswati

c) Swami Vivekananda   d) ram Krishna Paramhansa

68.   Who became the first Indian gymnast to win gold medal at Gymnastics World Challenge?

a) Aruna Reddy   b) Dipa Karmakar   c) Pranati Nayak   d) Guru Shikar

69.   Which among the following is the highest peak of Satpura range?

a) Dhupgarh   b)Pachmarhi   c) Mahendragiri   d) Guru Shikar

70.   What is the rank of India in Ease of Doing Business ranking as   per the World bank   Group's Doing Business 2019 report?

a) 57   b) 77   c) 177   d) 123

71.   A body is floating in a liquid which has a density equal to that of the body. What will happen, if the body is slightly pressed down and released?

a) Sink to the bottom and rise up again slowly

b) Come back to the same position immediately

c) Come back to the same position slowly

d) It will start shaking

72.   The numerical ratio of displacement of distance for a moving object is

a) always less than 1   b) always equal to 1

c) always more than 1   d) equal or less than 1

73.   A body is at rest on the surface of the earth. Which of the following statement is correct?

a) No force is acting on the body.

b) Only weight of the body acts on it .

c) Net downward force is equal to net upward force.

d) None of the above is correct

74. The branch of agricultural science which deals with agricultural practice of feeding, breeding and raising livestock is

   a) Animal husbandry   b) Cattle improvement

   c) Both (a) and (b)   d) Cattle farming

75. The structure for locomotion present in bacteria is

   a) flagella   b) appendages   c) cilia   d) None of these

76. Match List I with List II and select the correct answer using the codes given below.

	List I	List II
A.	Prokaryotic cell	1. Nuclear membrane
B.	Eukaryotic cell	2. Nucleoid
C.	Lysosome	3. ATP generating chemical reactions
D.	Miochondria	4.Digestive enzymes

   Codes

     A B C D   A B C D   A B C D   A B C D

   a) 2 1 3 4   b) 2 1 4 3   c) 1 2 3 4   d) 4 3 2 1

77. Soil erosion can be prevented by which of the following

   a) Terrace farming and deforestation   b) Deforestation and intensive cropping

   c) Intensive cropping and terrace farming   d) None of the above

78. To an astronaut in space, the sky will appear to be

   a) violet   b) red   c) blue   d) black

79. On a rainy day, small oily films on water show brilliant colours. This is due to

   A) scattering   b)dispersion   c) refraction   d) polarization

80. Persons suffering from myopia are advised to use

   a) convex lens   b) concave lens

   c) plano-convex lens   d)plano-concave lens

81. The primary colours in photography are

a) red, blue, yellow   b) red, yellow, green

c) red, blue, green   d) blue, yellow, green

82. A water tanker filled up to $\frac{2}{3}$ of its height is moving with a uniform speed. On sudden application of the brake, the water in the tank would

a) move backward   b) move forward   c) be unaffected   d) rise upwards

83. An object is moving with constant velocity. The net force acting on the object is given by

a) F = mg   b) F = 0   c) F = mv   d) F= v^2m

84. An object is put the one by one in three liquids having different densities. The object floats with $\frac{1}{9}$, $\frac{2}{11}$, and $\frac{3}{7}$ parts of their volumes outside the liquid surface in liquids of densities d_1, d_2 and d_3 respectively. Which of the following statement is correct?

a) $d_1 > d_2 > d_3$ b) $d_1 > d_2 < d_3$ c) $d_1 < d_2 > d_3$ d) $d_1 < d_2 < d_3$

85. The 10% law is related to

a) Mendelian genetics

b) Non-Mendelian genetics

c) energy transfer from lower trophic level to higher trophic level

d) energy consumption during photosynthesis in C_4- plants

86. STD caused by bacteria is/are

a) syphilis   b) gonorrhea   c) Both (a) and (b)   d) None of these

87. Principle or laws of inheritance were enunciated by

a) Mendel   b) Morgan   c) Bateson   d) Punnett

88. The expanded from of IUCN is

a) International Union of Conservation of Nature and Natural Resources

b) International Union of Climate Conservation and Natural Resources

c) International Union for Change in Climate and Natural Resources

d) International Union of Conservation of Natural Resources

89. The angle between the magnetic meridian and the geographical meridian at a place is

     a) dip   b) declination   c) latitude   d) inclination

90. Farad is the unit of

     a) resistance   b) conductance   c) capacitance   d) inductance

91. A good conductor while carrying current is

     a) negatively charged   b) positively charged

     c) electrically neutral   d) alternately charged positive and negative

92. A compass needle cannot be used to detect

     a) magnetic North-South direction   b) polarity of a magnet

     c) strength of a magnet   d) direction of magnetic field

93. Note is a sound

     a) of mixture of several frequencies   b) of mixture of two frequencies only

     c) of a single frequency   d) always unpleasant to listen

94. Which one of the following sets of phenomena would increase on raising the temperature?

     a) Diffusion, evaporation, compression of gases.
     b) Evaporation, compression of gases, solubility.
     c) Evaporation, diffusion, expansion of gases.
     d) Evaporation, solubility, diffusion, compression of gases.

95. Which of the following are chemical changes?

     i) Decaying of wood   ii) Burning of wood

     iii) Sawing of wood   iv) Hammering of a nail into a piece of wood

     a) (i) and (ii)   b (ii) and (iii)   c) (iii) and (iv)   d) (i) and (iv)

96. Which of the following would weigh the highest?

     a) 0.2 mole of sucrose ($C_{12}H_{22}O_{11}$)   b) 2 moles of CO_2

c) 2 moles of $CaCO_3$ d) 10 moles of H_2O

97.   Which of the following metals has least melting point?

a) Gold   b) Silver   c) Mercury   d) Copper

98.   Oxygen has positive (+) oxidation number only in

a) OF_2 b) Cl_2O c) H_2O d) N_2O

99.   Bleaching powder is used in drinking water as a/an

a) disinfectant   b) antibiotic   c) antiseptic   d) coagulant

100.   Ionisation energy increase with

a) decrease in atomic size   b) increase in nuclear charge

c) increase in penetration effect of electrons   d) All of the above

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