



MODULUS
ACADEMY
IIT | NEET | PRE-FOUNDATION

Dream Believe Achieve

Intelli-Mind Sample Paper

MAXIMUM TIME : 2 Hrs.

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MAXIMUM MARKS : 240

GENERAL INSTRUCTIONS for This Test

- The question paper consists of 3 sections (Section-A contains Science, Section-B contains Mathematics, Section-C contains Reasoning).
- This Question Paper contains a total of 60 questions.
- All questions are **single correct type questions**. Each of these questions has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.
- Indicate the correct answer for each question by filling appropriate bubble in your answer sheet.
- For each question, you will be awarded **4 marks** if you have darkened only the bubble corresponding to the correct answer and **zero mark** if no bubble are darkened. In all other cases, **minus one (-1) mark** will be awarded
- Also read **instructions** written on the **OMR sheet**.
- Please fill the OMR answer sheet accordingly and carefully.
- Blank spaces and blank pages are provided in this booklet for your rough work. No additional sheets will be provided for rough work.
- Use of Calculator, Log Table, Slide Rule and Mobile is not allowed.

प्रश्न-पत्र के लिए सामान्य निर्देश:

- प्रश्न पत्र के **तीन भाग (भाग-A : Science, भाग-B : Mathematics तथा भाग-C : Reasoning)** है। कृपया अपने उत्तर को उत्तर पुस्तिका (OMR) में क्रमानुसार व ध्यानपूर्वक भरें।
- सुनिश्चित करें कि प्रश्न पत्र में प्रत्येक खण्ड व पेज में सभी प्रश्न है। यदि आपको प्रश्न पत्र में कोई त्रुटि जैसे कोई प्रश्न या पेज नहीं मिलता है, तो निरीक्षक से सम्पर्क करें।
- प्रत्येक भाग में 20 प्रश्न है, अतः इस प्रश्न पत्र में कुल 60 प्रश्न है।
- सभी प्रश्न **एकल सही विकल्प प्रकार** के प्रश्न है। प्रत्येक प्रश्न के चार विकल्प (A), (B), (C) तथा (D) दिये गये है जिनमें से केवल एक सही है।
- प्रत्येक सही उत्तर के लिए आपको **4 अंक** मिलेगे अगर आपने सही उत्तर से संबंधित बुलबुले को काला किया है और **शून्य अंक** मिलेगा यदि कोई बुलबुला काला नहीं किया है। अन्यथा **ऋणात्मक एक (-1) अंक** मिलेगा।
- रफ कार्य के लिए इस पुस्तिका में रिक्त स्थान तथा रिक्त पेज उपलब्ध कराये गये हैं। अतः रफ कार्य के लिए अतिरिक्त पुस्तिका नहीं दी जायेगी।
- आपको प्रत्येक सही उत्तर के लिए उत्तर पुस्तिका में उसी प्रश्न संख्या के सामने उपयुक्त बुलबुले को काला करना है।
- कैलकुलेटर, लॉग तालिका, स्लाइड रूल, तथा मोबाईल के उपयोग की अनुमति नहीं है।

PART-I : SCIENCE

[SINGLE CORRECT CHOICE TYPE]

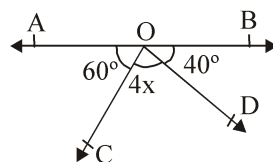
- The sound waves travel the slowest in –
(1) Dry air (2) Moist air (3) Liquid water (4) Ice
- Which among the following will exert maximum pressure when pushed with the same amount of force?
(1) An eraser of area 2 cm^2 (2) A sharpened pencil tip
(3) The blunt end of a pencil (4) The rear portion of closed safety pin
- The twinkling of stars at night is caused by
(1) Reflection of light (2) Refraction of light
(3) Dispersion of light (4) Polarization of light
- A car increases its speed from 36 km/hr to 72 km/hr in 10 s . Its acceleration is
(1) 1 m/s^2 (2) 2 m/s^2 (3) 3.6 m/s^2 (4) 5 m/s^2
- Which of the following quantities is/are a vector quantity ?
(1) Mass (2) Length (3) work (4) Momentum
- Force exerted by the muscles is known as
(1) mechanical force (2) gravitational force (3) electrostatic force (4) None of these
- A driver accelerates his car first at the rate of 2.4 m/s^2 and then at rate of 1.6 m/s^2 . The ratio of the two forces exerted by the engine in the two cases will be–
(1) $1 : 2$ (2) $2 : 1$ (3) $2 : 3$ (4) $3 : 2$
- The number of electrons present in an atom denotes
(1) Mass number (2) Atomic number (3) Abundance (4) Reactivity
- The symbol of Beryllium and Antimony respectively
(1) Be, As (2) Be, Sb (3) Ba, As (4) Ba, Sb
- The trivial name of NaHCO_3 is
(1) Soda ash (2) Washing soda (3) Soda (4) Baking soda
- Which of the following elements does not have neutron
(1) H (2) He (3) Mg (4) Li
- Find the odd one out
(1) Li (2) K (3) Na (4) Mg
- Which one of the following is a compound
(1) He (2) H_2O (3) O_3 (4) N_2
- Atomicity of Ozone is
(1) Two (2) One (3) Three (4) Zero

15. The cell wall in plant cells is made up of
(1) Proteins (2) Facts (3) Plasma (4) Cellulose
16. Which of the following diseases is caused by a fungus
(1) small pox (2) tuberculosis (3) cancer (4) aspergillosis
17. Bandipur National Park is associated with
(1) Tiger (2) Deer (3) Elephants (4) Rhinoceros
18. Viviparity is found in :
(1) Earthworm (2) Rabbit (3) Frog (4) Pigeon
19. Which disease is likely to occur in crowded areas ?
(1) Noninfectious (2) Infectious (3) Genetic (4) Deficiency disease
20. Murrah is a high-yielding breed of
(1) cow (2) hen (3) buffalo (4) sheep
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PART-II : MATHEMATICS

[SINGLE CORRECT CHOICE TYPE]

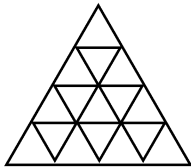
21. Two boys and two girls went for a movie. Each boy had spent Rs. X while each girl spent Rs. 50 less than each boy. If the product of the total amount spent by the boys and the total amount spent by the girls is 416, then amount spend by each girl (in Rs):
 (1) 52 (2) 50 (3) 2 (4) 0
22. In a class there are a total 80 boys and girls. Which of the following can't represent the ratio of the number of boys and girls in the class :
 (1) 3 : 5 (2) 1 : 3 (3) 1 : 6 (4) data insufficient
23. The value of $\sqrt[3]{2} \times \sqrt[5]{3}$ is
 (1) $\sqrt[15]{864}$ (2) $\sqrt[5]{24}$ (3) $\sqrt[3]{250}$ (4) $\sqrt[15]{648}$
24. A certain number of horses and an equal number of men are going somewhere. Half of the owners are on their horses' back while the remaining ones are walking along leading their horses. If the number of legs walking on the ground is 70, how many horses are there ?
 (1) 10 (2) 12 (3) 16 (4) 14
25. One of the factor of $x^4 + 4$ is :
 (1) $x^2 + 2$ (2) $x + 1$ (3) $x^2 - 2x + 2$ (4) $x^2 - 4$
26. A father tells his son, "I was of your present age when you were born". If the father is 36 now, how old was the boy 5 years back ?
 (1) 13 (2) 15 (3) 17 (4) 20
27. 'Once some cats saw some rats'. If each cat caught one rat, there would be a cat without a rat. Should each rat now be shared by two cats there would be a rat not caught by the cats." Tell me, how many cats I am talking about ?
 (1) 3 (2) 4 (3) 5 (4) Data insufficient
28. In figure, AOB is a line, Value of x is.



- (1) 20 (2) 30 (3) 40 (4) 50
29. a __ bbc _ aab _ cca _ bbcc
 (1) bacb (2) acba (3) abba (4) caba
30. By hiring boat X, Rohan took 12 hours to travel a round trip between two points that are 40 km apart in a river. By hiring boat Y, whose speed in still water is twice that of boat X, in still water, he took $15/4$ hours for the round trip, then speed of boat X in km/hr is:
 (1) 9 (2) 12 (3) 15 (4) None of these

31. The product of zeroes of the expression $x^{1997} + 3x^{1996} + \dots + 99x$ is
 (1) 1997 (2) 1996 (3) 99 (4) 0
32. In a row of girls, Sheela and Munni occupy the ninth place from the right end and tenth place from the left end, respectively. If they interchange their places, both occupy seventeenth place from the right and eighteenth place from the left, respectively. How many girls are there in the row?
 (1) 25 (2) 26 (3) 27 (4) None
33. $3\frac{1}{12} - \left[1\frac{3}{4} + \left\{ 2\frac{1}{2} - \left(1\frac{1}{2} - \frac{1}{3} \right) \right\} \right] =$
 (1) $\frac{1}{2}$ (2) 2 (3) 1 (4) 0
34. $\left(\frac{\sqrt{625}}{11} \times \frac{14}{\sqrt{25}} \times \frac{11}{\sqrt{196}} \right) =$
 (1) 5 (2) 6 (3) 8 (4) 11
35. If the H.C.F. of two numbers is 1, then they are called
 (1) Co-primes (2) Composite numbers (3) Prime numbers (4) Twin Primes
36. The factors of $(x^3 + 8y^3)$ are -
 (1) $(x + 2y)(x^2 - 2xy + 4y^2)$ (2) $(x + 2y)(x^2 + 2xy + 4y^2)$
 (3) $(x + 2y)(x - 2y)^2$ (4) $(x + 2y)^3$
37. The length of a rectangle is 18 cm and its breadth is 10 cm. When the length is increased to 25 cm, what will be the breadth of the rectangle if the area remains the same?
 (1) 7cm (2) 7.1 cm (3) 7.2 cm (4) 7.3 cm
38. The smallest number which has four different prime factors :
 (1) 24 (2) 6 (3) 210 (4) 120
39. Ravi wrote two digits of a 3 digit number on the blackboard as shown in

1	?	3
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.
 The missing digit if it has 11 and 13 as factors is
 (1) 2 (2) 4 (3) 6 (4) 8
40. How many triangles are there in the following figure ?

 (1) 19 (2) 21 (3) 27 (4) 48

PART-III : REASONING

[SINGLE CORRECT CHOICE TYPE]

41. 4, 5, 9, 18, 34, (.....)

- (1) 43 (2) 49 (3) 50 (4) 59

42. Find out the wrong number in each case

1, 2, 5, 14, 41, 124

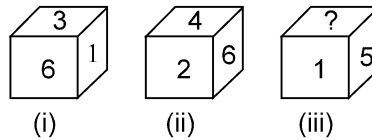
- (1) 5 (2) 14 (3) 41 (4) 124

43. Find out the missing number:

8	7	5
10	7	5
9	7	?

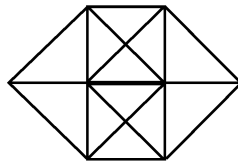
- (1) 2 (2) 5 (3) 1 (4) 25

44. On the basis of the following figures you have to tell which number will come in place of '?'



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

45. How many triangles are there in the following figure ?



- (1) 20 (2) 24 (3) 28 (4) 32

46. In following letter series, some of the letters are missing which are given in that order as one of the alternatives belows it. Choose the correct alternative.

ac _ cab _ baca _ aba _ acac

- (1) aacb (2) acbc (3) babb (4) bcbb

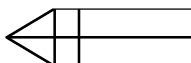
47. If > denotes +, < denotes -, + denotes ÷, Δ denotes ×, - denotes =, × dentotes > and = denotes < choose the correct statements in each of the following questions.

- (1) $6 + 3 > 8 = 4 + 2 < 1$ (2) $4 > 6 + 2 \times 32 + 4 < 1$
 (3) $8 < 4 + 2 = 6 > 3$ (4) $14 + 7 > 3 = 6 + 3 > 2$

48. X and Y start walking in opposite directions X walked 7 kms, Y walked 8 kms. There after both turned to their left and X walked 2 kms and Y walked 3 kms. They terned to left again and walked 4 kms. How much distant apart are they from each other ?

- (1) 8 kms (2) 7 kms (3) 6 kms (4) 9 kms

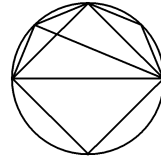
49. How many rectangles are there in the given figure?



- (1) 6 (2) 7 (3) 8 (4) 9

50. Count the number of triangles in the following figure ?

- (1) 8
(2) 10
(3) 11
(4) 12



51. If \times stands for 'addition', \div stands for 'subtraction', $+$ stands for 'multiplication' and $-$ stands for 'division', then

$$20 \times 8 \div 8 - 4 + 2 = ?$$

- (1) 80 (2) 25 (3) 24 (4) 5

52. The year next to 1996 will have the same calendar as that of the year 1996 :

- (1) 2001 (2) 1996 (3) 1997 (4) 1999

Directions for 53 to 54:

Read the information carefully and answer the questions based on it.

A group of seven singers, facing the audience, are standing in a line on the stage as follows :

- (i) D is to the right of C (ii) F is near G
(iii) B is to the left of F (iv) E is to the left of A
(v) C and B have one singer between them (vi) A and D have one singer between them

53. Who is on the extreme right ?

- (1) D (2) F (3) G (4) E

54. If we start counting from the left, on which number is C ?

- (1) 1st (2) 2nd (3) 3rd (4) 5th

55. A, B, D, G, ?

- (1) M (2) L (3) K (4) H

$$2 \overset{5}{\textcircled{196}} 3 \quad 1 \overset{3}{\textcircled{144}} 6 \quad 2 \overset{5}{\textcircled{?}} 1$$

4 2 6

- (1) 270 (2) 196 (3) 256 (4) 320

57. 16, 33, 65, 131, (?), 523

- (1) 261 (2) 521 (3) 613 (4) 721

58. 5, 2, 17, 4, (?), 6, 47, 8, 65

- (1) 29 (2) 30 (3) 31 (4) 32

59. If the Angle of elevation of sun increases from 0° to 90° then the change in the length of shadow of Tower will be -

- (1) No change in length of shadow (2) length of shadow increases
(3) length of shadow decreases (4) length of shadow will be zero

60. The perimeter of square and circumference of Circle are equal, the area of square is 121 m^2 then the area of circle is -

- (1) $7 \pi \text{ m}^2$ (2) $14 \pi \text{ m}^2$ (3) $21 \pi \text{ m}^2$ (4) $49 \pi \text{ m}^2$