



MATHEMATICS TALENT HUNT 2025

Organized by : The Pi Group of Mathematics (TPGM), Cooch Behar

Registration No. – S0031696 of 2022-23

Class – VII

Full Mark : 100

Time : 1 Hr 30 mins.

Instructions to the Candidates

1. Candidates must write their Name, Class, Roll No. allotted for the exam and Name of their School correctly in the specific places of the answer sheet.
2. There are 50 questions of 2 marks each. Four possible options of answer are given for each question.
3. Candidates should choose the correct option and completely darken the circle with that option written in it in the answer sheet (OMR). For example, say the correct option for Question Number 10 is (c), then the candidate should darken the circle completely with 'c' written in it against the number 10 of the answer sheet. Use black ball pen or pencil for darkening.
4. There is no negative marking.

1. Sum of the L.C.M and H.C.F of 18, 36 and 72 is _____.
(a) 18 (b) 126 (c) 72 (d) 90
2. Which among the following is the greatest? 5^{-8} , 2^{-8} , 3^{-8} , 6^{-8} , 4^{-8}
(a) 2^{-8} (b) 3^{-8}
(c) 5^{-8} (d) 6^{-8}
3. Which of the following does not represent an integer?
(a) $0 \div (-4)$ (b) $-35 \div 15$ (c) $75 \div (-25)$ (d) $105 \div 7$
4. By selling 45 apples, a person loses a sum equal to the selling price of 15 apples. Find the percentage of loss.
(a) 25% (b) 30% (c) 20% (d) 60%
5. If $x^2 + \frac{1}{x^2} = 2403$, the value of $\sqrt{x - \frac{1}{x}}$ is -
(a) 6 (b) 7 (c) 8 (d) 9
6. If the difference between the compound interest(compounded annually) and simple interest on a sum of ₹ 5000 for two years is ₹ 72 , then the rate of interest per annum is -
(a) 8% (b) 10% (c) 12% (d) 15%
7. If $A = (-42) + 40 + (-42) + 40 + \dots$ up to 60 terms and $B = 63 + (-65) + 63 + (-65) + \dots$ up to 120 terms, then $A - B$ is equal to -
(a) -60 (b) 60 (c) 120 (d) -120
8. What least value must be given to * so that the number 98765*8 is divisible by 8 ?
(a) 0 (b) 2 (c) 4 (d) 8
9. The cost of type I sugar is ₹ 44 per kg and the cost of type II sugar is ₹ 48 per kg. If both type I and type II are mixed in the ratio of 3 : 5 then what is the price per kg of the mixed variety of sugar?
(a) ₹ 46.00 (b) ₹ 46.50 (c) ₹ 46.75 (d) ₹ 47.00

10. The value of $\left[\left(1 - \frac{1}{2}\right) \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \dots \left(1 - \frac{1}{16}\right) \right]^{\frac{1}{2}}$ is equal to -

- (a) $\frac{1}{8}$ (b) $\frac{1}{4}$
(c) $\frac{1}{16}$ (d) 1

11. The range of the data 11, 13, 15, 8, 7, m, 9, 20, 33, 30, 18, 19, 16, 32, 12, 8 is 28 then, m can not be -
(a) 5 (b) 35 (c) 33 (d) $5 \leq m \leq 35$

12. Arrange the following in descending order : $2\sqrt{7}$, $\sqrt{32}$, $6\sqrt{2}$, $3\sqrt{5}$
(a) $\sqrt{32}$, $6\sqrt{2}$, $3\sqrt{5}$, $2\sqrt{7}$ (b) $6\sqrt{2}$, $\sqrt{32}$, $2\sqrt{7}$, $3\sqrt{5}$
(c) $6\sqrt{2}$, $3\sqrt{5}$, $\sqrt{32}$, $2\sqrt{7}$ (d) $\sqrt{32}$, $6\sqrt{2}$, $2\sqrt{7}$, $3\sqrt{5}$

13. If $a : b = 3 : 8$, find the ratio of $(8a + 9b) : (12a + 5b)$.

- (a) 12 : 19 (b) 24 : 19 (c) 15 : 22 (d) 27 : 22

14. If $6^{x-4} = 9^{4-x}$, then the value of x is

- (a) 8 (b) 4 (c) 3 (d) -4

15. If $\sqrt{21} = 4.58$ then, find the value of $\sqrt{\frac{7}{3}}$.

- (a) 1.42 (b) 1.53 (c) 1.74 (d) 1.89

16. For two sets A and B if $n(A \cup B) = 97$, $n(A) = 43$ and $n(A \cap B) = 25$ then, $n(B)$ is -

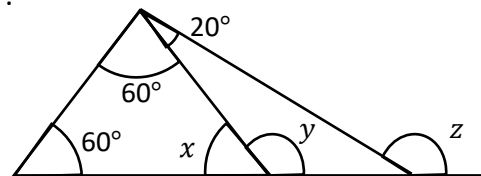
- (a) 72 (b) 73 (c) 79 (d) 89

17. If $47.2506 = 4A + \frac{7}{B} + 2C + \frac{5}{D} + 6E$ then, the value of $5A + 3B + 6C + D + 3E$ is

- (a) 53.6003 (b) 53.603 (c) 153.6003 (d) 213.0003

18. In the figure given here, find the value of $x + y + z$.

- (a) 180°
(b) 220°
(c) 320°
(d) 360°

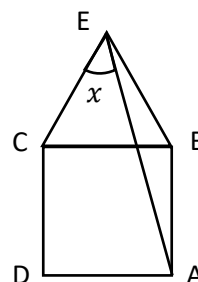


19. How many prime numbers are there in $6^7 \times 35^5 \times 11^{12}$

- (a) 28 (b) 36 (c) 42 (d) 45

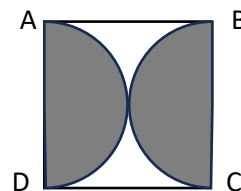
20. In the given figure, equilateral triangle EBC surmounts square ABCD. Find the value of x.

- (a) 45°
(b) 65°
(c) 55°
(d) 35°



21. In the given figure ABCD is a square of side 28 cm, and two semi circles are drawn inside it with AB and CD as diameters. Find the area of the unshaded portion . (Use $\pi = \frac{22}{7}$)

- (a) 176 cm^2
- (b) 168 cm^2
- (c) 238 cm^2
- (d) 315 cm^2



22. Two numbers are 20% and 45% less than a third number. By how much percent is the second number less than the first number?

- (a) $34\frac{1}{4}\%$
- (b) $31\frac{1}{4}\%$
- (c) $21\frac{1}{4}\%$
- (d) $25\frac{1}{4}\%$

23. If $3A = 4B = 9C$ then, $A : B : C = ?$

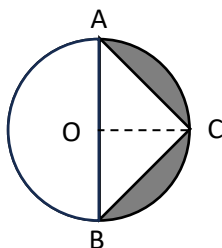
- (a) $3 : 4 : 9$
- (b) $9 : 4 : 3$
- (c) $12 : 9 : 4$
- (d) $6 : 3 : 2$

24. In a pie chart, the central angle for a component value of 320 when the total value of 1440 is -

- (a) 90°
- (b) 85°
- (c) 80°
- (d) 75°

25. The radius of a given circle with centre O is 7 cm and $\triangle ABC$ is right angled triangle. Find the area of the shaded portion. (Use $\pi = \frac{22}{7}$)

- (a) 7 cm^2
- (b) 35 cm^2
- (c) 14 cm^2
- (d) 28 cm^2



26. Five students A,B,C,D and E are competing in a long distance race. Each student's probability of winning the race is as follows: A = 20% , B=22% , C= 7% , D=15% and E=36%. Let S be the event that B will win the race. Then the value of $P(S)$ is -

- (a) $\frac{11}{50}$
- (b) $\frac{1}{22}$
- (c) 1
- (d) 0

27. The lateral surface area of a cube is 100 cm^2 ; then its volume is

- (a) 25 cm^3
- (b) 125 cm^3
- (c) 625 cm^3
- (d) 100 cm^3

28. A point P (7 , 3) is reflected in x-axis to point P'. The point P' is further reflected in the y-axis to the point P''. Find the co-ordinates of P''.

- (a) (0 , 0)
- (b) (-7, 3)
- (c) (7 , -3)
- (d) (-7 , -3)

29. The cost price of an article is 96% of its selling price. Find the loss or the gain as percent on the whole.

- (a) 4% gain
- (b) 4% loss
- (c) $4\frac{1}{6}\%$ gain
- (d) $4\frac{1}{6}\%$ loss

30. P and Q are two stations. A car goes from station P to station Q at a speed of 60 km/h and returns back at a speed of 30 km/h. The average speed for the entire journey is -

- (a) 45 km/h
- (b) 40 km/h
- (c) 50 km/h
- (d) 54 km/h

31. If $2x + 20\% \text{ of } x = 12.1$, then $x = ?$

- (a) 10.5
- (b) 5.5
- (c) 1.1
- (d) 1.21

32. The formula for the sum of n terms is given by $S_n = \frac{n}{2} \{2a + (n - 1)d\}$. If $n = 10$, $a = 6$ and $d = 4$, then S_n is equal to -
 (a) 200 (b) 240 (c) 280 (d) 300

33. Kiran has 10 paise, 25 paise and 50 paise coins in the ratio of 10 : 8 : 9 respectively. If she has ₹ 60, then how many 25 paise coin does she has?
 (a) 59 (b) 72 (c) 200 (d) 64

34. What is the difference between the mean and the median of set $S = \{ 2, 4, 6, 7, 7, 13, 18, 92 \}$?
 (a) 10.125 (b) 11.125 (c) 11.625 (d) 14

35. If $xyz = 0$, then the value of $(p^x)^{yz} + (q^y)^{zx} + (r^z)^{xy}$ (p, q, r are non zero numbers) is -
 (a) $p + q + r$ (b) 0 (c) 1 (d) 3

36. Which of the following is true?
 (a) $\sqrt{a} + \sqrt{b} = \sqrt{a + b}$ (b) $\sqrt{a} \cdot \sqrt{b} = \sqrt{ab}$ (c) $\sqrt{a} - \sqrt{b} = \sqrt{a - b}$ (d) $\sqrt{a} + \sqrt{b} < \sqrt{a} - \sqrt{b}$

37. Match column A with column B

Column A

Column B

(i) If $a^2 - b^2 = 16$ and $a - b = 2$ then, $a + b =$

(a) $3x^2 - x - 11$

(ii) The degree of $(x-a)(x-b)(x-c)(x-d)$

(b) $3x^2 - x + 5$

(iii) $4x^2 + 20xy + 25y^2$

(c) 8

(iv) $(5x^2 + 7x - 3) - (2x^2 + 8x - 8)$

(d) 4

(e) $(4x + 5y)(x + 5y)$

(f) $(2x + 5y)^2$

(a) (i) - (f), (ii) - (a), (iii) - (e), (iv) - (c)

(b) (i) - (c), (ii) - (f), (iii) - (a), (iv) - (d)

(c) (i) - (a), (ii) - (d), (iii) - (f), (iv) - (d)

(d) (i) - (c), (ii) - (d), (iii) - (f), (iv) - (b)

38. If $\frac{a}{b} = \frac{x}{y} = \frac{p}{q}$ then, $\frac{6a+9x+2p}{6b+9y+2q} = ?$

(a) $\frac{a}{b}$

(b) $\frac{x}{y}$

(c) $\frac{p}{q}$

(d) All of these

39. If $x^y = y^x$ where x and y are distinct natural numbers, then find $x + y$.

(a) 6

(b) 8

(c) 4

(d) 2

40. The number of all possible squares in $n \times n$ network is equal to $1^2 + 2^2 + 3^2 + \dots + n^2$. Find the number of possible squares in 7 X 7 network.

(a) 103

(b) 91

(c) 120

(d) 140

41. The focal length of a mirror is given by the formula $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$. Make f as the subject of the formula. If $u = 20$ cm and $v = 30$ cm, then find f. The following steps are involved in solving the above problem. Arrange them in sequential order.

(A) Given $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$

(B) $\Rightarrow f = \frac{uv}{u+v}$

(C) $f = \frac{20 \times 30}{20+30} = \frac{600}{50} = 12$

(D) $\Rightarrow \frac{1}{f} = \frac{u+v}{uv}$

(a) A D B C

(b) B A D C

(c) A C D B

(d) D B A C

42. In a triangle, which is not equilateral, the sides (in cm) are integers. The largest side is 3 cm. The perimeter of the triangle is -

(a) 5 cm

(b) 6 cm

(c) 7 cm

(d) 8 cm

43. In a row at a ticket counter, Amit is the 7th from the left and Vinod is 9th from the right. They both interchange their positions. Now Amit become 11th from the left. How many people are there in the row?

(a) 20

(b) 19

(c) 18

(d) 17

44. If the third day of a month is Monday then, find out the sixth day before the 28th of that month.

(a) Sunday

(b) Monday

(c) Tuesday

(d) Saturday

45. Find the missing term in the series given: 3, 8, 18, 33, ?, 78, 108

(a) 49

(b) 51

(c) 53

(d) 55

46. Complete the following series : BDM , DFO , FHQ , HJS , ?

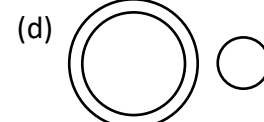
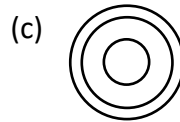
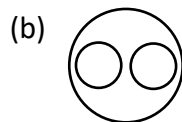
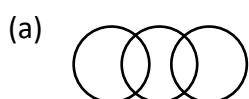
(a) JHU

(b) JHV

(c) JIU

(d) JLU

47. Which one of the following Venn Diagram represents the relationship amongst "Hospital, Operation Theatre and Ward" ?



48. Arun run faster than Prem but not as fast as Raj, who is slower than Ravi. Who is the fastest runner among them?

(a) Arun

(b) Prem

(c) Ravi

(d) Raj

49. Three of the following four are alike in a certain way and so form a group. Which is the one that does not belong to that group?

(a) Table

(b) Bench

(c) Desk

(d) Wood

50. 'Mr. Das' is the husband of 'Anushka'. 'Priyanka' is the sister of 'Mr. Das'. 'Neha' is the sister of 'Priyanka'. How 'Neha' is related to 'Mr. Das'?

(a) Daughter

(b) Sister

(c) Sister in-law

(d) Aunty
