



MATHEMATICS TALENT HUNT 2024

Organised By

The Pi Group of Mathematics (TPGM), Coochbehar

Registraton No - SO031696 of 2022-23

Class – VII

Full Mark : 100

Time: 1 hr 30 min

INSTRUCTIONS

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.

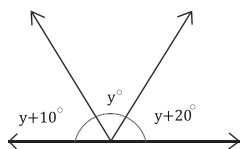
2. There are 50 questions of 2 marks each. Four possible options of answer are given for each question.

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.

- Which of the following number is divisible by 24?
a) 63810 b) 537804 c) 35718 d) 3125736
- Five times of a positive integer is equal to 3 less than twice the square of that number. Find the number.
a) 3 b) 13 c) 23 d) 25
- A sum of ₹782 has been divided between P, Q and R in the ratio $\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$. find the share of R.
a) ₹272 b) ₹204 c) ₹306 d) ₹286
- A student was asked to multiply a number by 15 but instead multiplied the number by 51 and got the product 468 more than the correct product. The number to be multiplied was:
a) 11 b) 13 c) 14 d) 17
- If $3A = 8B = 12C$, then $A : B : C = ?$
a) $8 : 3 : 2$ b) $3 : 8 : 12$ c) $8 : 6 : 1$ d) $4 : 3 : 1$
- The product of given 15 fraction is: $(1 - \frac{1}{5})(1 - \frac{1}{6})(1 - \frac{1}{7}).....(1 - \frac{1}{19})$
a) $\frac{1}{19}$ b) $\frac{18}{19}$ c) $\frac{4}{19}$ d) 1
- By how much is $2x^4 + 8x^2y^2 + y^4$ more than $x^4 - 16x^2y^2 + y^4$?
a) $3x^4 + 24x^2y^2$ b) $-x^4 + 8x^2y^2$ c) $x^4 + 24x^2y^2$ d) $x^4 - 8x^2y^2$
- If $x + y = 6$ and $x^2 - y^2 = 24p$, then $xy = ?$
a) $4p^2 - 9$ b) $9p^2 - 4$ c) $4 - 9p^2$ d) $9 - 4p^2$
- The mean of 6 numbers is 25. If one number is executed, mean of the remaining numbers become 29, then the executed number is:
a) 5 b) 10 c) 12 d) 15
- Which one among the following is greatest?
a) 5^{-4} b) 2^{-4} c) 3^{-4} d) 6^{-4}
- Solve $(\sqrt{17} - \sqrt{13})^{\frac{3}{2}}(\sqrt{17} + \sqrt{13})^{\frac{3}{2}}$
a) 8 b) 4 c) 120 d) 2716

12. If the difference of two supplementary angles is 30° , then find the measurement of the smaller angle.
- a) 75° b) 105° c) 90° d) 150°
13. In winter season, the price of a refrigerator is reduced from ₹16840 to ₹10946. Find the percentage of discount provided.
- a) 36% b) 34% c) 33% d) 35%
14. Find the solution of the equation $\frac{3x-5}{-7x+14} = \frac{-2}{5}$
- a) -2 b) -3 c) -4 d) -5
15. Find the greatest number which divides 107, 140 and 189 exactly leaving remainder 3, 4 and 5.
- a) 6 b) 7 c) 8 d) 9
16. The value of $(1^0 + 2^0 + 3^0)$ is equal to:
- a) $2^2 - 1^2$ b) $2^2 + 1^2$ c) $2^2 \times 1^2$ d) $2^2 \div 1^2$
17. Find the Difference between the compound interest and simple interest on the sum of ₹720000 at 12% per annum for 2 years.
- a) ₹144 b) ₹216 c) ₹288 d) ₹360
18. Solve for x : $(6)^{3x-2} = (36)^{x+2}$
- a) 3 b) 4 c) 5 d) 6
19. The ratio 5 : 6 is equal to
- a) 62.50% b) 30.25% c) 32.50% d) 31.25%
20. If $A = (-1)^1 + (-2)^2 + (-1)^3$ and $B = (-1)^1 - (-1)^2 - (-1)^3$, the $A + B$ is equal to
- a) 0 b) -1 c) -2 d) 1
21. If A and B are finite sets such that $n(A) = 40$, $n(B) = 80$ and $n(C) = 90$ then find $n(A \cup B)$
- a) 20 b) 30 c) 40 d) 45
22. A wire when bent in the form of a square, encloses an area of 484cm^2 . If the same wire is bent in the form of a circle then find the area enclosed by it. $[\pi = \frac{22}{7}]$
- a) 161cm^2 b) 626cm^2 c) 616cm^2 d) 916cm^2
23. By selling 42 oranges, a person loses a sum equal to the selling price of 8 oranges. Find the loss percentage.
- a) 13% b) 16% c) 15% d) 18%
24. The value of y in the following figure is:



- a) 50° b) 60° c) 70° d) 80°
25. Solve $\sqrt{158 + \sqrt{105 + \sqrt{249 + \sqrt{(25^2 - 24^2)}}}}$

a) 18

b) 13

c) 11

d) 10

26. If $a : b = 5 : 3$, then the ratio $\frac{(a^3+b^3)}{(a^3-b^3)}$ is:

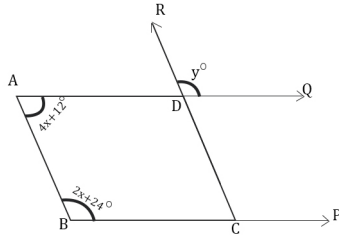
a) 37 : 42

b) 71 : 53

c) 76 : 49

d) 84 : 61

27. In the given figure, find the value of y° .

a) 80° b) 60° c) 72° d) 84°

28. How many numbers between 50 and 100 are divisible by 5 and 6?

a) 2

b) 3

c) 4

d) 5

29. The number of times a particular observation is called

a) Array

b) Data

c) Range

d) Frequency

30. The median of first 50 whole number is

a) 25

b) 26

c) 26.5

d) 25.5

31. The cost price of 40 pens is same as the selling price of 80% of 40 pens, then find the profit in percent.

a) 20%

b) 25%

c) 12%

d) 32%

32. Which one among the following cannot be the sides of a triangle?

a) 3cm, 4cm, 5cm

b) 6cm, 8cm, 10cm

c) 2cm, 5cm, 6cm

d) 4cm, 8cm, 13cm

33. If $x : 8 :: 144 : 64$, then find the value of $x - 2$.

a) 18

b) 16

c) 20

d) 24

34. How many diagonals are there in a regular polygon whose each interior angle is 156°

a) 15

b) 15

c) 45

d) 90

35. Find the simple interest on ₹8000 for 3 years at 5% per annum

a) ₹1000

b) ₹1200

c) ₹1600

d) ₹2000

36. Find the probability that a student chosen at random out of 9 girls and 6 boys is a girl.

a) $\frac{2}{5}$ b) $\frac{3}{5}$ c) $\frac{1}{5}$ d) $\frac{4}{5}$

37. If $7^{x-6} = 9^{x-6}$ then find the value of $x - 3$

a) 2

b) 3

c) 4

d) 6

38. If M is increased by 30%, it equals N. If N is decreased by 40%, it equals P. Then P is how many % of M?

a) 78

b) 80

c) 82

d) 84

39. Which among the following expression is not a Polynomial?

a) 1

b) $1 + \frac{1}{x}$ c) $x + 1$ d) $\frac{x^3}{x^2}$

40. Find the probability of selecting an even number, out of one digit prime number.

- a) 1 b) 2 c) $\frac{1}{4}$ d) $\frac{1}{2}$

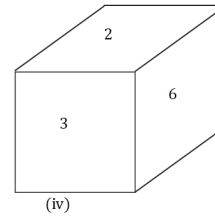
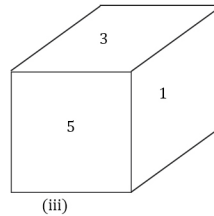
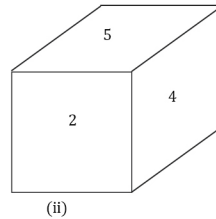
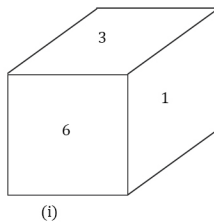
41. Which number will come in place of question mark (?) in the following number series? 3,5,9,15,23,33,45, ?

- a) 49 b) 59 c) 64 d) 14

42. In a queue, the position of 'A' from the left is 16^{th} , and the position of 'B' is 22^{nd} from the right. If there are 6 girls between these two girls, then find the maximum number of girls in the queue.

- a) 44 b) 57 c) 64 d) 32

43. Which number is on the opposite surface of number 6 in the given dice?



- a) 1 b) 2 c) 5 d) 4

44. Pointing towards a boy in a photograph, a man said "He is the son of the only son of my father". How is the man related to that boy?

- a) Cousin b) Uncle c) Father d) Brother

45. If a 'Pen' is called a 'Book', 'Book' is called 'Page', 'Page' is called 'Sheet' and 'Sheet' is called 'Eraser' then what do we read?

- a) Pen b) Page c) Sheet d) Eraser

46. Aruna went 50m south from her house then turned right and went 20m then turning to north she went 30m. In which direction is her house from this point?

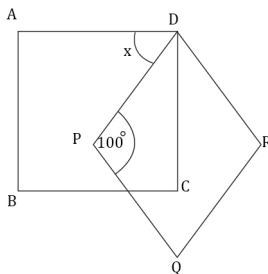
- a) North b) South-West c) East d) North-West

47. Find the highest value among the following.

$$\sqrt{8} + \sqrt{5}, \sqrt{6} + \sqrt{7}, \sqrt{2} + \sqrt{10}, \sqrt{3} + \sqrt{11}$$

- a) $\sqrt{8} + \sqrt{5}$ b) $\sqrt{6} + \sqrt{7}$ c) $\sqrt{2} + \sqrt{10}$ d) $\sqrt{3} + \sqrt{11}$

48. In the figure shown below $ABCD$ is a square and $PQRS$ is a rhombus. Find the value of x .



- a) 45° b) 40° c) 50° d) 60°

49. 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°

50. In a two-digit number, the unit place is 5 ore than the ten's place. If the number is thrice the sum of the digits, then find the one-third of the number.

- a) 6 b) 27 c) 18 d) 9