



MATHEMATICS POINTTM

[Platform for +1, +2, IIT-JEE, AIEEE & Maths Olympiad]

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www.mathematicspoint.com

SAMPLE TEST-2 (11TH) PAPER-1

Time : 1 Hour 30 Minutes

Maximum Marks : 120

Please read the Instructions carefully

(A) General instructions

- This booklet contains 35 Questions and has 8 Pages.
- Space for rough work is given on every Page .

(B) For Question Paper Format and Marking Scheme, read the instructions printed on the Page number 08.

Name of the Candidate

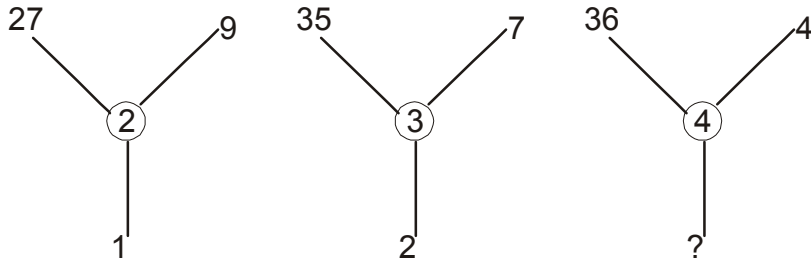
Phone No.

StartingTime _____

Date :-

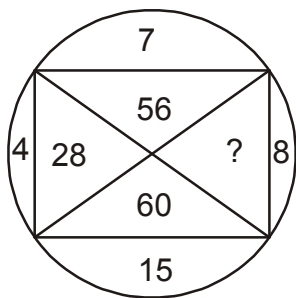
Section - A

1. Which one will replace the question mark ?



- a) 54 b) 51 c) 5 d) 6

2. Which one will replace the question mark ?



- a) 18 b) 33 c) 120 d) 145

3. Find the next term in the following series

APZLT, CQYNR, ERXPP, GSWRN, ITVTL.

- a) KUUVJ b) KVUUJ c) JUVUR d) KVUVJ

4. In the following series of numbers, find out how many times 1, 3 and 7 have appeared together, 7 being in the middle and 1 and 3 either side of 7

2973173771331738571377173906

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

5. Raj wanted to type the first 200 natural numbers, how many times does he have to press the keys

- a) 489 b) 492 c) 400 d) 365

6. Which is the greatest among $\sqrt[6]{100}$, $\sqrt[3]{12}$ and $\sqrt{3}$
- a) $\sqrt{3}$ b) $\sqrt[6]{100}$ c) $\sqrt[3]{12}$ d) cannot be determined

7. If 25th December of 2008 was Thursday, what will be the day on 1st January of 2010 ?
- a) Friday b) Monday
c) Wednesday d) Sunday

8. What is the value of $\frac{160}{2 \times 7} + \frac{160}{7 \times 12} + \frac{160}{12 \times 17} + \frac{160}{17 \times 22} + \frac{160}{22 \times 27} + \frac{160}{27 \times 32}$
- a) 17 b) 15 c) 13 d) 11

9. Parth misses a train by 1 hour, if he travels at a speed of 4 km/h. If he increases his speed to 5 km/h, he still misses the train by 24 minutes. At what speed he should travel so that he reaches the station exactly on time
- a) 15 km/h b) 8 km/h c) 10 km/h d) 6 km/h

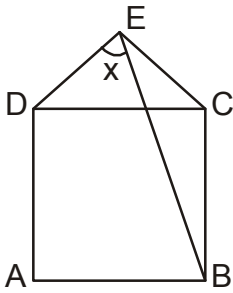
10. The present price of car is Rs. 7290/-. If its value decreased every year by 10%, then its value three years back was
- a) Rs. 11,500/- b) Rs 10, 500/-
c) Rs. 10,000/- d) Rs. 8,000/-

11. 4 boys and 3 girls spent Rs. 120 on the average, of which boys spend Rs. 150 on the average, then the average amount spent by girls is
- a) Rs. 80 b) Rs. 60 c) Rs. 90 d) Rs. 100

12. $\sqrt{11\sqrt{11\sqrt{11\sqrt{11\sqrt{11\dots}}}}} \infty = ?$

- a) $\sqrt[16]{11^{14}}$ b) $\sqrt[16]{11^4}$ c) 11 d) $\sqrt[16]{11^{15}}$

13. In the figure given below, equilateral triangle EDC surmounts square ABCD. Find the angle DEB represented by x



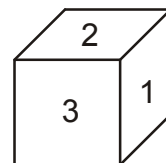
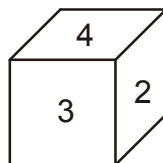
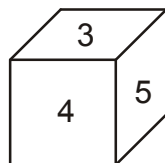
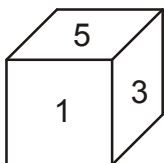
- a) 60° b) 15° c) 30° d) 45°

14. Six faces of a cube are coloured black, brown, green, red, white and blue, such that Red is at the bottom, Brown is adjacent to Black, Black is adjacent to white, Red is opposite to Blue, Green is between Red & Blue. Which colour is opposite to Brown ?

- a) Blue b) Black c) White d) Green

Direction (Q.No. 15-16)

Observe the die given below and answer:



15. Which number is opposite to 4
a) 1 b) 2 c) 3 d) 5
16. What is the sum of numbers on two faces when one number is 5 & the other is on its opposite face ?
a) 5 b) 9 c) 7 d) 6
17. A man walked 30m towards south. The, turned to his right and walked 30m. He again turned to his left and walked 20 m. At last he turned to his left and walked 30 m. How far is he from his starting point ?
a) 20 m b) 80 m c) 50 m d) 60 m
18. Dinesh entered the conference room ten minutes before 12:30 hours for meeting. He came 20 minutes before Naresh who was 30 minutes late. At what time, the meeting was sheduled ?
a) 12:10 b) 12:20 c) 12:40 d) 12:50
19. If $324 + 289 = 35$
 $441 + 484 = 43$
 $625 + 400 = 45$
Then $256 + 729 = ?$
a) 35 b) 34 c) 33 d) 43
20. In a 100 m race, A beats B by 20 m or 5 seconds, Find the speed of A
a) 5 m/sec b) 4 m/sec c) 6 m/sec d) 8 m/sec

Section - B

21. The simplified value of $\frac{1}{\sqrt{2} + \sqrt{3} - \sqrt{5}} + \frac{1}{\sqrt{2} - \sqrt{3} - \sqrt{5}}$ is

- a) 1 b) 0 c) $\sqrt{2}$ d) $\frac{1}{\sqrt{2}}$

22. If $x^{47} + 1$ is divided by $x^2 - 1$, the remainder will be

- a) $x - 1$ b) $x + 1$ c) x d) $-x$

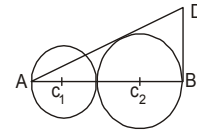
23. A circle with area $A \text{ cm}^2$ is contained in the interior of a larger circle with area $(A + B) \text{ cm}^2$ and the radius of the larger circle is 4 cm. If $A, B, A + B$ are in arithmetic progression, then the diameter (in cm) of the smaller circle is

- a) $\frac{\sqrt{3}}{2}$ b) $\frac{4\sqrt{3}}{3}$ c) $\frac{8\sqrt{3}}{3}$ d) $2\sqrt{3}$

24. A solid metallic block of volume one cubic metre is melted and recast into the form of a rectangular bar of length 9 metres having a square base. If the weight of the block is 90 kg and biggest cube is cut off from the bar, then the weight of the cube is :

- a) $6\frac{1}{3}$ b) $5\frac{2}{3}$ c) $4\frac{2}{3}$ d) $3\frac{1}{3}$

25. Two circles C_1 and C_2 of radius 3 and 5 respectively touch each other as shown in the figure. If AD and BD are tangents then the length of BD is



- a) $\frac{10\sqrt{6}}{3}$ b) $5\sqrt{6}$
 c) $(7\sqrt{6})/3$ d) none of these

26. A student notices that the roots of the equation $x^2 + bx + a = 0$ are each 1 less than the roots of the equation $x^2 + ax + b = 0$. Then $a + b$ is :

- a) possibly any real number b) - 2
 c) - 4 d) - 5

27. Water flows at the rate of 10 metre per minute from a cylindrical pipe 5 mm in diameter. How long will it take to fill up a conical vessel whose diameter at the base is 40 cm and depth 24 cm ?

- a) 48 minutes 15 sec b) 51 minutes 12 sec
 c) 52 minutes 1 sec d) 55 minutes

28. PQ is a tangent drawn from a point P to a circle with centre at O and QOR is a diameter of the circle such that $\angle POR = 120^\circ$, then $\angle OPQ$ is

- a) 60° b) 45° c) 30° d) 90°

29. If $a \cos \theta + b \sin \theta = 4$ and $a \sin \theta - b \cos \theta = 3$, then $a^2 + b^2 =$

- a) 7 b) 12 c) 25 d) None of these

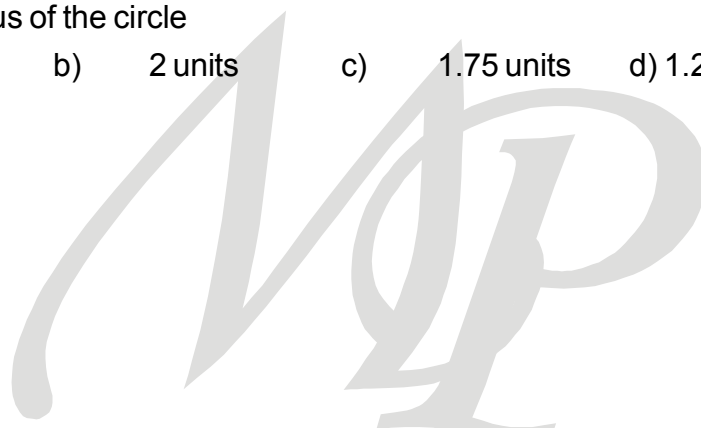
30. The coefficient of x^{49} in the product $(x-1)(x-3)(x-5)\dots(x-99)$ is
a) 1 b) -999 c) -2990 d) -2500
31. If a number m is divided by 5 leaves a remainder 2, while another number n is divided by 5 leaves a remainder 4, then the remainder, when $(m+n)$ is divided by 5 is :
a) 1 b) 2 c) 3 d) 4
32. If $x = \sqrt{5+\sqrt{21}}$ and $y = \sqrt{5-\sqrt{21}}$ then the value of $(x-y)$ is
a) $2\sqrt{21}$ b) 10 c) $\sqrt{6}$ d) $\pm\sqrt{6}$
33. Let ABCD be a square. Let E, F, G and H be the centers, respectively, of equilateral triangles with bases AB, BC, CD, and DA, each exterior to the square. What is the ratio of the area of square EFGH to the area of square ABCD?
a) 1 b) $\sqrt{3}$ c) $\frac{2+\sqrt{3}}{3}$ d) $\frac{\sqrt{2}+\sqrt{3}}{2}$
34. Neha took 7 math tests and got 7 different scores(integer between 91 and 100, inclusive).

After each test the average of her test scores was an integer. Her score on the seventh test was 95. What was her score on the sixth test?

- a) 92 b) 94 c) 96 d) 100

35. There are 5 horses, named Horse 1, Horse 2, . . . , Horse 5. Horse k runs one lap in exactly k minutes. At time 0 all the horses are together at the starting point on the track. The horses start running in the same direction, and they keep running around the circular track at their constant speeds. Let the least time is S minutes, at which all 5 horses will again simultaneously be at the starting point and the distance covered by all horses in this time is 1507 units. Find the radius of the circle

- a) 1.5 unit b) 2 units c) 1.75 units d) 1.25 units



Question Paper Format

The Question Paper consists of 2 sections named A, B.

- **Section A** Contains 20 Multiple Choice Questions. Each Question has 4 choices (a), (b), (c), (d). Out of which **only one choice is correct**.
- **Section B** Contains 15 Multiple Choice Questions. Each Question has 4 choices (a), (b), (c), (d). Out of which **only one choice is correct**.

Marking Scheme

- For each Question in **Section A**, you will be **awarded 3 marks** if you have marked the correct option and **Zero mark** if no option is marked . In all other cases, **Minus one mark (– 1)** will be awarded.
- For each Question in **Section B**, you will be **awarded 4 marks** if you have marked the correct option and **Zero mark** if no option is marked . In all other cases, **Minus one mark (– 1)** will be awarded.

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|--------|--------|--------|--------|--------|--------|-------|
| 31. a) | 26. c) | 21. d) | 16. c) | 11. a) | 6. c) | 1. c) |
| 32. c) | 27. b) | 22. b) | 17. c) | 12. c) | 7. a) | 2. c) |
| 33. c) | 28. c) | 23. c) | 18. a) | 13. d) | 8. b) | 3. a) |
| 34. d) | 29. c) | 24. d) | 19. d) | 14. c) | 9. d) | 4. a) |
| 35. c) | 30. c) | 25. a) | 20. a) | 15. a) | 10. c) | 5. b) |

Answers