



ALL INDIA TALENT SEARCH EXAMINATION

Maths Talent Search Examination

Time: 1 hour

Class -9

MM.100

IMPORTANT INSTRUCTIONS

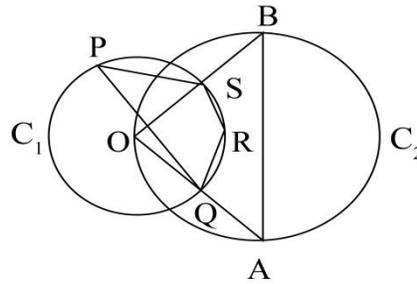
1. Exam duration-1 hour
2. 25 MCQs with only one correct answer*
3. All questions are compulsory
4. Each questions carries 4 marks
5. No negative marking

*This paper contains sample questions and are to be used for reference purpose only.

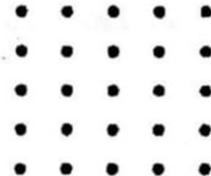
GROUP A

1. Let $\sqrt{1 + \sqrt{21 + 12\sqrt{3}}} = \sqrt{a} + \sqrt{b}$, $a > b$ then $a =$ _____
(a) 1 (b) 2 (c) 3 (d) 5
2. If $(x + 1)(x - 2)(x + 3)(x - 4) \dots (x - 100) = a_0 + a_1x + a_2x^2 + \dots + a_{100}x^{100}$. Then the value of a_{99} is
(a) 1 (b) -1 (c) -50 (d) 50
3. The perimeter of the top of the rectangular table is 28 m whereas its area is 48 cm^2 . Then length of diagonal is
(a) 6 (b) 8 (c) 10 (d) 12
4. The sum of length, breadth and depth of a cuboid is 19 cm and the diagonal is $5\sqrt{5}$ cm. Then the surface area is
(a) 361 cm^2 (b) 125 cm^2 (c) 236 cm^2 (d) 256 cm^2
5. The sides of a triangle are 5 cm, 7 cm and 10 cm, then the length of the median to the longest side.
(a) $2\sqrt{3} \text{ cm}$ (b) $3\sqrt{2} \text{ cm}$ (c) $4\sqrt{2} \text{ cm}$ (d) $4\sqrt{3} \text{ cm}$

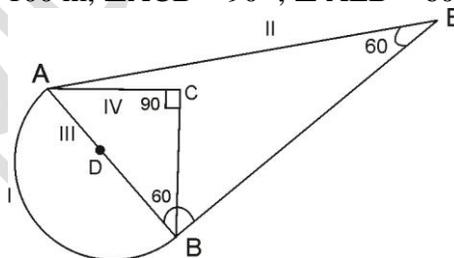
6. In the given figure (not to scale), O is the centre of the circle C_1 and AB is the diameter of the circle C_2 . Quadrilateral PQRS is inscribed in the circle with centre O. Find $\angle QPS$.



- (a) 105° (b) 115° (c) 135° (d) 45°
7. A circle is added to the equally spaced grid alongside. The largest number of dots that the circle can pass through is



- (a) 4 (b) 6 (c) 8 (d) 10
8. AS shown in figure there are 4 roads from A to B I, II, III, IV. Three roads have stoppage point in the middle of A to B, time for stoppage is 15 min, 20 min & 10 min in IV, III, II respectively and in road I there is no stoppage and also it is semicircular road. Speed is 20 cm/s constant for each road find the way that takes less time compare to other.
Given that $AC = CB = 100$ m, $\angle ACB = 90^\circ$, $\angle AEB = 60^\circ$

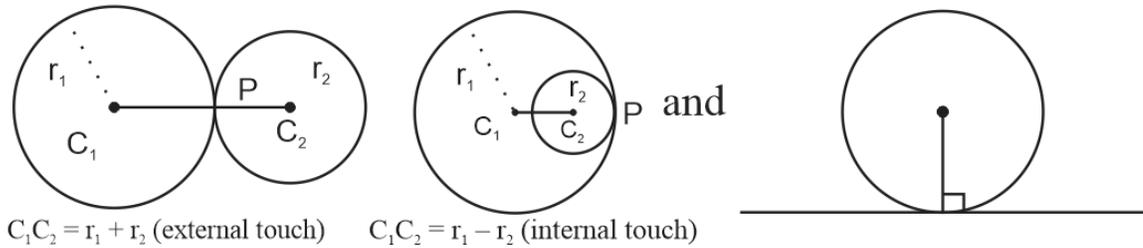


- (a) I (b) II (c) III (d) IV

GROUP B

Directions (9 to 10)

If two circles touch each other then condition will be



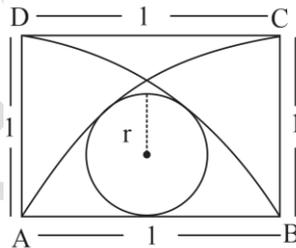
C_1 & C_2 are centres of circle : r_1 & r_2 are radius of circle

C_1C_2 = distance between centres

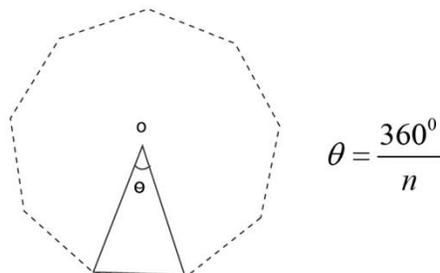
C_1 , C_2 and point of contact P are collinear

Using above information solve the following

9. ABCD is a square with side 1 unit two quadrant drawn with centres A & B (radius = 1), if r radius of circle touching both the quadrant and side AB then $8r$ is equal to



- (a) 3 (b) 6 (c) 9 (d) 12
10. There are two types of circle bigger circle has radius 3 units and smaller circle has radius 1 unit. Find number of smaller circles which are touching externally with each other and internally with bigger circle given that



n sided regular polygon (o is centre)

- (a) 3 (b) 6 (c) 12 (d) 18