

SUMMATIVE ASSESSMENT- II
SUB: MATHEMATICS
CLASS: X

Time Allowed: 3 Hours

Maximum Marks: 90

General Instructions:

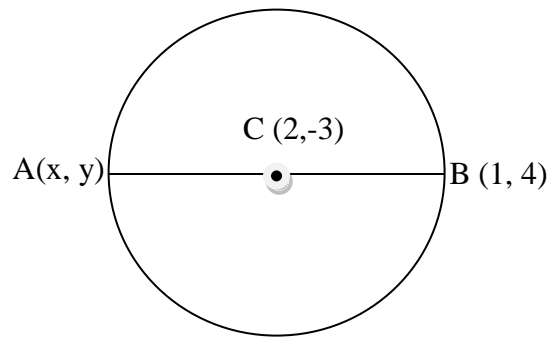
- (1) All questions are compulsory
- (2) The Question paper consists of 31 questions divided into four sections A, B, C and D
- (3) Section A contains 4 questions of 1 mark each. Section B contains 6 questions of 2 marks each, Section C contains 10 questions of 3 marks each and Section D contains 11 questions of 4 marks each.
- (4) Use of calculator is not permitted.

SECTION A

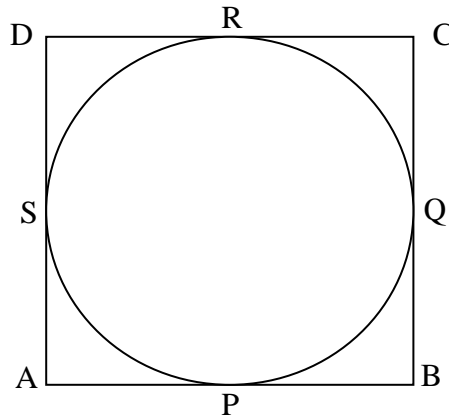
- Q1. If n th term of a sequence is given by $a_n = 3 - 4n$ find the sum of first sixteen terms of the sequence.
- Q2. The radii of two circles are 6cm and 8cm respectively find the radius of the circle having area equal to the sum of the areas of the two circles.
- Q3. Two coins are tossed simultaneously. Find the probability of getting at least one head.
- Q4. A ladder of length 90m touches the wall at a height of 45m. Find the angle made by ladder with the horizontal.

SECTION B

- Q5. Find the area of a right angled triangle, if the radius of its circum circle is 3cm and altitude drawn to the hypotenuse is 2 cm.
- Q6. Find the relation between x and y such that the point $P(x, y)$ is equidistant from the points $A(3, 6)$ and the points $B(-3, 4)$.
- Q7. The angle between two tangents drawn from a point P to a circle of radius a and centre O is 90° find OP .
- Q8. A Cone of height 24cm and radius of base 6cm is made of modeling clay. A child reshapes it in the form of sphere. Find the radius of the sphere.
- Q9. Find the coordinates of a point A , where AB is the diameter of a circle where centre is $(2, -3)$ and B is $(1, 4)$



Q10. A quadrilateral ABCD is drawn to circumscribe a circle Prove that $AB+CD=AD+BC$

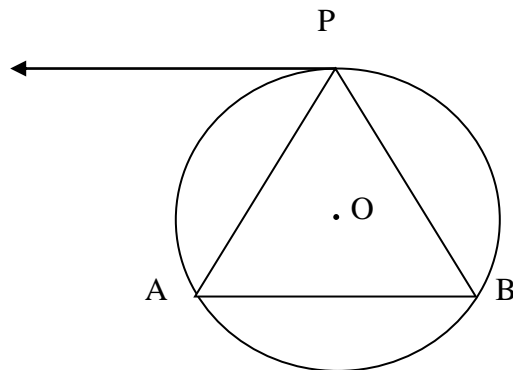


SECTION C

Q11. A 1.5 m tall boy is standing at some distance from a 30 tall building. The angle of elevation from his eyes to the top of the building increases from 30° to 60° as he walks towards the building Find the Distance he walked towards the building.

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Q12. A tangent PT is drawn parallel to a chord AB of a circle as shown in figure Prove that $\triangle APB$ is an isosceles triangle.



Q13. Determine the AP whose third term is 16 and 7th term exceeds the 5th term by 12.

Q14. Construct a triangle ABC with sides 5cm, 6cm, and 7cm and then construct another triangle whose sides are $\frac{7}{5}$ of the corresponding sides of the first triangle ABC

Q15. If the roots of the equation:

$(a-b)x^2 + (b-c)x + (c-a) = 0$, are equal. Prove that $2a = b + c$

Q16. One card is drawn from a well shuffled deck of 52 cards. Find the probability of getting

- (a) A face card
- (b) A queen of diamonds
- (c) A card of spade or an ace.

Q17. Find the area of a rhombus if its vertices are $(3,0)$, $(4,5)$, $(-1,4)$ and $(-2,-1)$

Q18. A vessel is in the form of a hollow hemisphere mounted by a hollow cylinder. The diameter of the hemisphere is 14 cm and total height of the vessel is 13cm. Find the inner surface area of the vessel.

Q19. The minute hand of a clock is 10 cm long. Find the area on the face of the clock described by the minute hand between 9:00 AM and 9:35 AM.

Q20. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60°

SECTION: D

Q21. A man standing on the deck of a ship, which is 10 m above the water level observes the angle of elevation of the top of a hill as 60° and the angle of depression of the base of the hill as 30° . Calculate the distance of the hill from the ship and the height of the hill.

Q22. A die is thrown twice. Find the probability that:

- (i) the same number will appear both times.
- (ii) the number appearing both times are perfect squares
- (iii) the product of numbers appearing on both times is odd
- (iv) the product of numbers appearing on both times is even.

Q23. The line joining the points $(2,1)$ and $(5,-8)$ is trisected at the points P and Q . If point P lies on the line $2x - y + k = 0$ Find the value of K .

Q24. A cylindrical bucket, 32 cm high and with radius of base 18cm, is filled with sand. The bucket is emptied on the ground and a conical heap of sand is formed. If height of the conical heap is 24cm find the radius and slant height of the heap.

Q25 . A container opened from the top and made up of a metal sheet is in the form of frustum of a cone of height 16cm with radii of its lower and upper ends are 8 cm and 20 cm respectively. Find the cost of milk which can completely fill the container at the rate of Rs.20 per litre . Also find the cost of metal sheet used to make the container if it costs Rs.8 per 100cm^2

Q26.A sum of Rs. 700 is to be used to give seven cash prizes to students of a school for their overall academic performance . If each prize is Rs.20 less than its preceding prize .find the value of each of the prizes .

Q27.Solve $2x^2 + x - 4 = 0$ by the method of completing the square.

Q28.The difference of two natural numbers is 3 and the difference of their reciprocals is $\frac{3}{28}$. Find the numbers.

Q29 Prove that the lengths of the tangents drawn from an external points to a circle are equal .

Q30.Some students planned a picnic .The total budget for hiring a bus was Rs.1440. Later on ,eight of those refused to go and instead paid their total share of money towards the fee of one economically weaker student of their class and thus contribution of each member ,who went for picnic increased by Rs.30

- (i) How many students attended the picnic?
- (ii) How much money in total was paid towards the fees?
- (iii) which value is reflected in this Question.

Q31. In figure ,A B C is a quadrant of a circle of radius 14cm and a semicircle is drawn with BC as diameter. Find the area of the shaded region.

