IQBAL'S INSTITUTE OF MATHEMATICS

Class : X | CBSE Sample Paper | Time : 3hrs

Sub : Maths | **Summative Assessment –II** | Marks : 90

General Instructions.

i) All Questions are compulsory

ii) The Questions paper consists of 34 questions divided in to four section – A, B, C, and D.

iii) Section A contains 4 Questions of 1 mark each, which are multiple choice type questions, section B contains 8 questions of 2 marks each, section C contains 10 questions of 3 marks each, and section D contains 10 questions of 4 marks each.

Section – A

Question numbers 1to 8 carry 1 marks each.

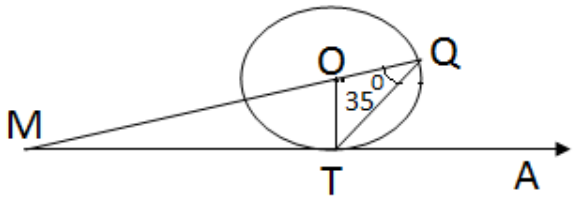
1. The value of P for which the quadratic equation $x(x-4)+P=0$ has real roots, is [ ]

   a) $P \geq 4$ b) $P < 4$ c) P = 4 d) None

2. Which terms of A.P. $19, 18\frac{1}{5}, 17\frac{2}{5}$ ..... are negative terms. [ ]

   a) 24th term b) 25th term c) 26th term c) Both B and C

3. From the adjacent figure, 'O' is the centre the circle with $\angle TQM = 35^0$, then angle ATQ would be equal to _____ [ ]



   a) 35^0 b) 55^0 c) 90^0 d) None

4. The diameter of circle whose area is equal to sum of area of two circles of diameter 16cm and 12cm is [ ]

   a) 56cm b) 44 cm c) 28 cm d) 20 cm

5. Volume of largest possible cone can be curved out from hemisphere of radius 'r' is [ ]

   a) $\frac{1}{3}\pi r^3$ b) $\frac{2}{3}\pi r^3$ c) $\frac{4}{3}\pi r^3$ d) $\frac{2}{3}\pi r^2$

6. A pole 6m high casts a shadow $2\sqrt{3}\,m$ long on the ground, then the sun's elevation is[ ]

   a) 45^0 b) 30^0 c) 60^0 d) 90^0

7. Image of point (-4, 0) under x – axis is _____ [ ]

   a) (0, -4) b) (4, 0) c) (-4 , 0) d) (0, 4)

8. What is the probability of zero choosen from first five whole numbers. [ ]

   a) 0 b) $\frac{1}{5}$ c) $\frac{2}{5}$ d) 1

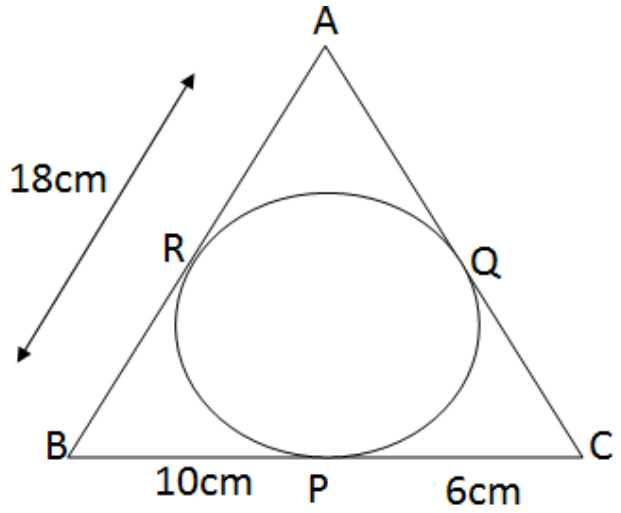
Section – B

Question numbers 9 to 14 carry 2 marks each.

9. Divide 12 into two parts such that their product is 32

10. Find the 10^{th} term from the end of the A.P. 4 , 9, 14……. 254.

11. From the adjacent figure find the perimeter of a triangle whose three sides touch the circle.



12. The length of minute hand of the clock is 14cm. Find the area swept by the minute hand from 9:00 AM to 9:35 AM.

13. A cow is tied with a rope of length 14m at one corner of a rectangular field of dimensions 20M x 15M. Find the area of the field in which the cow cannot graze.

14. A card is drawn from a well shuffled pack of 52 cards. Find the probability of getting

    i) a red face card ii) a spade king.

Section – C

Questions numbers 15to 24 carry 3 marks each.

15. An old lady while boarding a plane got hurt and the captain immediately called for the medical aid. Thus the plane left with the lady. 30 minutes later than the scheduled time. Then in order to reach its destination 15000 km away in time, it has to increase its speed by 250 km/ hr from its usual speed. Find the usual speed of the plane.

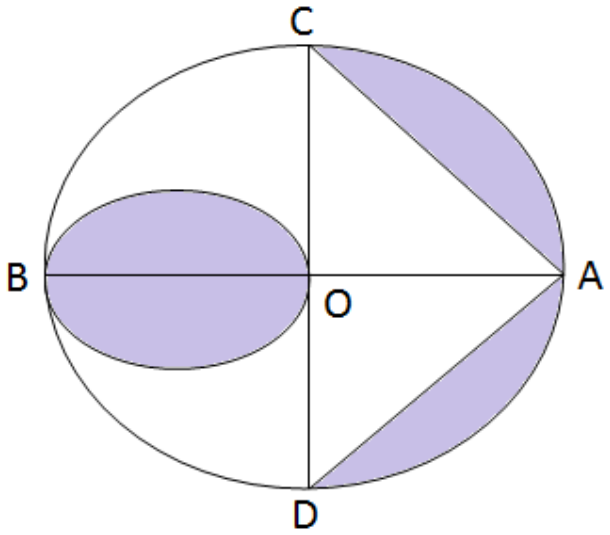
16. The interior angles of a polygon are in AP. The smallest angle is 120^0 and the common difference is 5^0 . Find the number of sides of the polygon.

17. Two concentric circles are of radii 10cm and 8cm. RP and RQ are tangents to the two circles from R. If the length of RP is 24cm, find the length of RQ.

18. A toy is in the form of a right circular cylinder with a hemisphere on one end and a cone on the other. The height and radius of base of the cylindrical part are 13cm and 5cm respectively. The radius of hemisphere and base of the conical part are same as that of the cylinder. Calculate the surface area of the toy, if the height of the cone is 12cm $\left[Take\ \pi = \frac{22}{7}\right]$

19. Draw $\Delta\ ABC$ with BC = 6cm , $\angle B = 60^0\ and\ \angle C = 45^0$ construct another triangle whose sides are $\frac{2}{3}$ of corresponding sides of $\Delta\ ABC$

20. From the adjacent figure AB is a diameters of the circle with centre 'O' and OA = 7cm. Find the area of the shaded region.

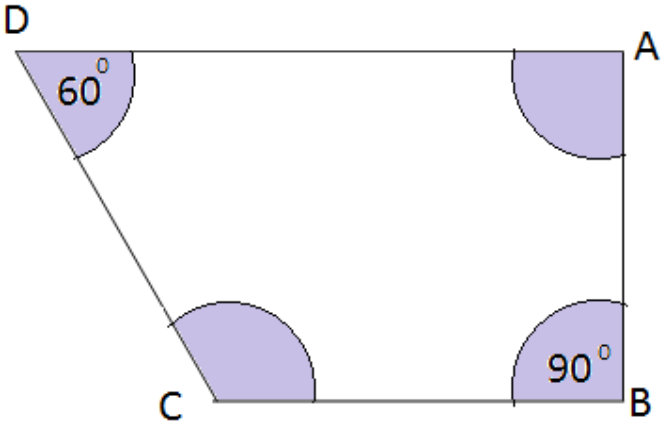


21. From the top of a cliff 50m high, the angles of depression of the top and bottom of a tower are observed to be 30^0 and 45^0, respectively. Find the height of the tower.

22. If A (-3,5) , B(-1, 1) and C (3, 3) are the vertices of a triangle ABC, find the length of median AD. Also find the co – ordinates of the point which divides AD in the ratio 2 : 1.

23. A solid sphere of diameter 14cm is cut into two halves by a plane passing through the centre. Find the combined surface area of the two hemispheres so formed.

24. ABCD is a field in the shape of a trapezium AD||BC, $\angle ABC = 90^0\ and\ \angle ADC = 60^0$. Four sectors are formed with centers A,B.C and D as shown in figure. The radius of each sector is 14m



Find the following.

i Total area of the four sectors.

ii. Area of the remaining portion, given that AD = 55m BC = 45m and AB = 30 M

Section – D

Questions numbers 25 to 34 carry 4 marks each.

25. Solve $9x^2 - 9(a+b)\,x + (2a^2 + 5ab + 2b^2) = 0$ *for* x

(OR)

Two pipes can together fill a tank in $3\frac{1}{13}$ minutes. If one pipe take 3 minutes more than the other to fill it, find the time in which each pipe can fill the tank.

26. The mid points of the sides AB, BC and CA of a triangle ABC are D (2,1) , E (1, 0) and F (-1,3) respectively. Find the ratio of area of $\Delta\ DEF\ to\ area\ of\ \Delta ABC$

27. A box contains 20 balls bearing numbers 1, 2 , 3, 4…….. 20. A ball is drawn at random from the box. What is the probability that the number on the drawn ball is.

    i) An odd number ii) Divisible for 2 or 3

    iii) Prime number iv) Not divisible by 10

28. An aeroplane flying at a height of 2500m above the ground. From a point on the ground the angle of elevation of this aeroplane was found to be 60^0 . If after 15 seconds of horizontal flight, the angle of elevation changes to 30^0, find the speed of the aeroplane.

29. a metallic bucket is in the shape of a frustum of a cone. If the diameter of two circular ends of the bucket are 45cm and 25cm, , Find the area of the metallic sheet used to make the bucket.

(OR)

A sphere and cube have same surface show that the ratio of the volume of sphere to that of the cube is $\sqrt{6} : \sqrt{\pi}$

30. A chord of a circle of radius 12cm subtends an angle of 120^0 at the centre. Fid the area of the corresponding segments of the circle.

31. If all the sides of a parallelogram touch a circle, show that the parallelogram is a rhombus.

32. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact

33. Find the sum of 1 + 5 + 3 + 9 + + 13 + 7 + …… up to 20 terms.

34. Three cubes of a metal whose edges are in the ratio 3 : 4 : 5 are melted and converted into a single cube whose diagonal is $12\sqrt{3}$ cm. Find the volumes of all the cubes.

Prepared by

Syed Iqbal

Department of Mathematics

New Vision School

Khammam.

Mail Id- iqbal_msc@yahoo.co.in

mathiqbal@gmail.com

cell No. 9440654176