SAMPLE QUESTION PAPER

MATHEMATICS(CODE-041)

CLASS X, SA-II

Time: 3 hours **M.M.:80**

General instructions

1. **All questions are compulsory**
2. **The question paper consists of 34 questions divided in to four sections A,B,C and D**
3. **Section A contains 10 questions 1 mark each.which are multiple choice type questions Section B contains 8 questions 2 marks each,Section C contains 10 questions of 3 marks each,Section D contains 6 questions of 4 marks each**
4. **There is no overall choice in the question paper.internal choice is provided in one questions of 2 marks ,3 questions of 3 marks, 2 questions of 4 marks**
5. **Use of calculators is not permitted**

SECTION A (1 MARK EACH)

Q1-The numerical difference of the roots of =n x^2 **-7x +12 is**

a) 7 (b) -7 (c) 1 (d) -1

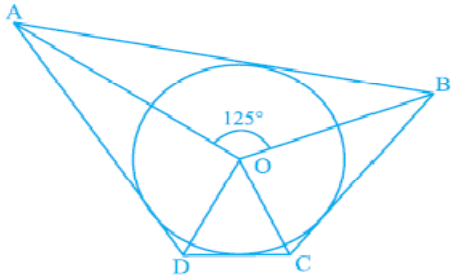
Q2- If 6^{th} **term of an A.P.is 55 then sum of 11 terms of an A.P. is**

a) 605 b) 555 c) 506 d) 55

Q3-If radii of two concentric circles are 4cm and 5cm then length of each chord of one circle which is tangent to the other circle is

a) 3cm b) 6cm c) 9cm d) 1cm

Q4- In fig 1 ,if $\angle AOB = 125^0$ **,then** $\angle COD$ **is equal to**



a) 62.5^0 **b)** 45^0 **c)**35^0 **d)**55^0

Fig 1

Q5- If two tangents are inclined at 60^0 are drawn to a circle of radius 3cm , then length of of each tangent is equal to

a) $\frac{3}{2}\sqrt{3}$cm b) 6cm c) 3cm d)$3\sqrt{3}$ cm

Q6-How many parallel tangents are drawn to a given tangent of the circle

a) 1 b) 2 c) infinite d) none

Q7—Two identical solid cubes of side x are joined end to end Then total surface area of resulting cuboid is

a) $12x^2$ b) $36x^2$ c) $10x^2$ d) $2x^2$

Q8-if the sum of the area of two circles with radii R_1 and R_2 is equal to the radius of a circle R,then

a) $R_1+R_2=R$ b) $(R_1+R_2)^2=R^2$ c) $R_1^2+R_2^2=R^2$ d) $R_1^2+R_2^2>R^2$

Q9-Two poles are 20m and 10m high and the line joining the tops makes an angle of 30^0 with horizontal.The distance between these poles is

a) $20\sqrt{3}$cm b) $10\sqrt{3}cm$ c) 20m d) 10m

Q10- A bag contains white and black balls only .The probability of getting white ball is $\frac{3}{10}$ What is the probability of getting black ball

a) $\frac{3}{10}$ b)$\frac{7}{10}$ c) $\frac{1}{10}$ d) 0

SECTION B (2 MARKS EACH)

Q11-Find the roots of $6x^2-\sqrt{2}x-2=0$ by factoristion method

Q12-The sum of three numbers in A.P. is 27 and product is 405.Find the numbers

Q13-In fig 2, PA and PB are two tangents from external point P of the circle with centre O . LN touches the circle at M .Prove that PL +LM =PN +MN

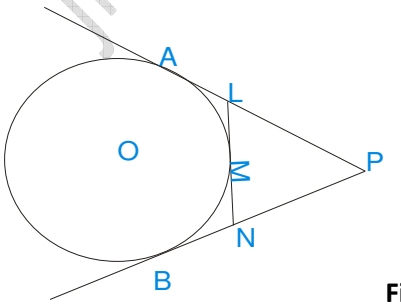


Fig 2

Q14-Four circles are at four corners of the square such that each touches two of the other as shown in fig 3,find the ratio of the area of shaded region to area of square not in shaded region. if side of the square is 12cm

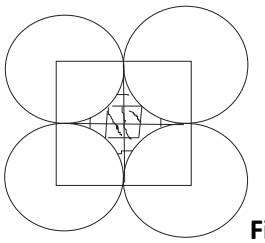


Fig 3

Q15-The surface area of sphere is 616cm^2 Find its radius.

Q16-Find the value of k such that the point (0,2) is equidistant from the points (3,k) and (k,5)

Q17-if the centroid of triangle formed by (7,x) (y, -6) and (9,10) is at(6,3) Find the co-ordinate of x and y

Q18-Two dice are thrown at the same time .Find the probability of getting same number on both dice.

OR

Write the sample space if a coin is tossed twice .if second throw result in head a die is thrown.

SECTION C (3 MARKS EACH)

Q19- If the equation (1+m^2)x^2 +2mcx + (c^2- a^2) =0 has equal roots , prove that c^2 =a^2(1+m^2)

OR

Two numbers differ by 3 and their product is 504. Find the numbers

Q20-If nth term of the two APs:9,7,5,_____ and 24,21,18, ____ are the same Find the value of n.Also find that term.

Q21-In fig 4, AB and CD are common tangents to two circles of unequal radii. Prove that AB=CD

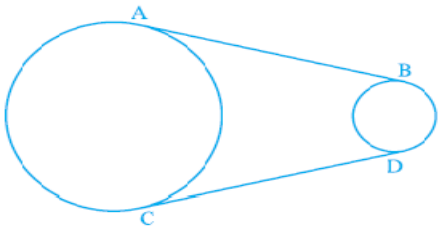


Fig 4

OR

If the angle between two tangents drawn from a point P to a circle of radius a and centre O is 90^0 ,then find the value of OP.

Q22- Construct a tangent to a circle of radius 4cm from a point which is at a distance of 6cm from its centre

Q23-A square of diagonal 8cm is inscribed in a circle as shown in fig 5, Find the area of shaded region.

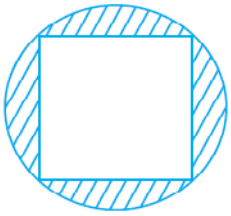


Fig 5

Q24-The difference between the outer and inner curved surface areas of hollow right circular cylinder ,14cm long ,is $88cm^2$. If the volume of metal used in making the cylinder is $176cm^3$.find the outer and inner diameters of the cylinder.

OR

The rain water from a roof 22m X20m drains in to a cylindrical vessel having diameter of base 2m and height 3.5cm .if the vessel is just full ,find the rainfall in cm.

Q25-From a balloon vertically above a straight road,the angle of depression of two cars at an instant are found to be 45^0 and 60^0.if the cars are 100m apart, find the height of the balloon .

Q26-If mid-point of line segment joining (3,-1) and (7 ,-3) is (x,y) Find the relationship between x-y?

Q27-If point Q (a,b) divides the line segment joining points (0,0) and (5,5) internally , in the ratio 2:3 Then find the co-ordinate of Q

Q28- A dice and coin are tossed together What is the probability of getting a tail and odd number.

- *SECTION C (4 MARKS EACH)*

Q29-The base of right angled triangle 2cm less than the perpendicular .the length of hypotenuse is 10cm.Find other two sides of triangle.

OR

Find two consecutive odd positive integers whose product is 63.

Q30-In A.P. first term is 14 ,the sum of all terms is 56 and no. of terms are 7 .Find the last term.

Q31-To prove that the tangent to a circle is perpendicular to the radius through the point of contact.

Q32-A hemisphere of diameter x is surmounted by cone of radius $\frac{x}{2}$ as shown in fig 6,If height of combination is two times the height of hemisphere .Find the volume of combined fig

Fig 6

OR

The length and breadth of cuboid are 4cm ,3cm respectively .The total surface area is 52cm^2.Find the height of the cuboid.

Q33-If x be slant height of the frustum. P and q are are two base radii .Find the ratio of total surface area to the curved surface area of the frustum.

Q34-If two towers of height x and y subtend angles 60^0 and 30^0 respectively. at mid point of the line segment joining their feet. Find the value of x:y