



Code No. **Series AG-9999Q**

- Please check that this question paper contains 4 printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 30 questions.

General Instructions :-

1. Please check that this question paper contains 3 printed pages.
2. All questions are compulsory.
3. The question paper consists of 34 questions divided into four sections A, B and C & D .Section A contains 10 multiple choice type of questions of 1 marks each . Section B is of 8 questions of 2 marks each , Section C is of 10 questions of 3 marks each and Section D is of 6 questions of 4 marks each .
4. Write the serial number of the question before attempting it.
5. If you wish to answer any question already answered, cancel the previous answer.

Pre-Board Examination 2010 -11

Time: 3 hrs.

M.M.: 80

CLASS – X MATHEMATICS

Section A

Q.1	The value of k for which the equation $x^2 + 2(k+1)x + k^2 = 0$ has equal roots is (a) -1 (b) $-\frac{1}{2}$ (c) 1 (d) none of these
Q.2	In AP consist of 31 terms if its 16 th term is m, then sum of all the terms of this AP is (a) 16 m (b) 47 m (c) 31 m (d) 52 m
Q.3	Rahim and karim are friends. What is the probability that both have their birthdays on the same day in a non-leap year ? (a) $\frac{1}{365}$ (b) $\frac{1}{7}$ (c) $\frac{1}{53}$ (d) $\frac{7}{365}$
Q.4	A quadrilateral ABCD is drawn to circumscribe a circle. If AB = 12cm , BC= 15cm and CD= 14cm, then AD is equal to (a) 10cm (b) 11cm (c) 12cm (d) 14cm
Q.5	The circumferences of two concentric circles forming a ring are 88 cm and 66 cm respectively. The width of the ring is (a) 14 cm (b) 7 cm (c) $7\frac{1}{2}$ cm (d) 21 cm
Q.6	If two consecutive vertices of a rhombus are (2,-1), (3, 4) and intersection point of its diagonal are (0 , then the remaining two vertex are (a) (-3,-2) & (-2, 3) (b) (3,2) & (-2, 3)(c) (-3,-2) & (2,3) (d) (1, 2) & (-3,-2)
Q.7	From the word 'POSSESSIVE', a letter is chosen at random. The probability of it to be S is (a) $\frac{3}{10}$ (b) $\frac{4}{10}$ (c) $\frac{3}{6}$ (d) $\frac{4}{6}$

TMC/D/79/89

1

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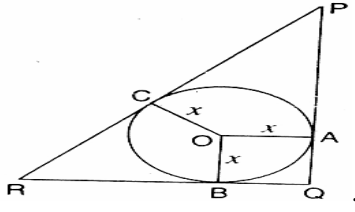
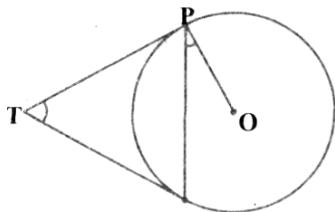
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Q.8	Two tangents TP and TQ are drawn from an external point T to a circle with centre O .If they are inclined to each other at an angle of 100° then what is the value of $\angle POQ$? (a) 70 (b) 60 (c) 80 (d) none of these
Q.9	If α, β are the roots of the equation $x^2 + kx + 12 = 0$ such that $\alpha - \beta = 1$, the value of k is : (a) 0 (b) ± 5 (c) ± 1 (d) ± 7
Q.10	TP and TQ are two tangents to a circle with centre O, so that $\angle POQ = 120^\circ$, then $\angle OPT$ is equal to (a) 50° (b) 60° (c) 80° (d) 90°
Section B	
Q.11	How many balls, each of radius 1cm can be made from a solid sphere of lead radius 8cm?
Q.12	One root of the equation $2x^2 - 8x + m = 0$ is $5/2$. Find the other root and the value of m .
Q.13	The wheels of a car are of diameter 80cm each. How many complete revolution does each wheel make in 10 minutes, when the car is traveling at a speed of 66km/ hour ?
Q.14	A bag contains 5 red balls and some white balls. If the probability of drawing a white ball is double that of red ball, find the number of white balls in the bag.
Q.15	One end of a line of length 10 units is at the point (-3, 2). If the ordinate of the other end be 10, prove that the abscissa will be 3 or -9.
Q.16	In given figure PQR is a right angled triangle with PQ = 12 cm and QR = 5 cm. A circle with centre O and radius x is inscribed in ΔPQR . Find the value of x.  OR Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2 \angle OPQ$. 
Q.17	Solve using quadratic formula: $36x^2 - 12ax + (a^2 - b^2) = 0$.
Q.18	Find a point on the y-axis which is equidistant from the points A(6,5) and B (-4,3).
Section C	
Q.19	Cards marked with the numbers 2 to 101 are placed in a box and mixed thoroughly. One card is drawn from this box. Find the probability that the number on the card is (a)an even number (b) a number less than 14 (c) a number which is a perfect square (d) a prime number less than 20. OR A letter is chosen at random from the English alphabet. Find the probability that the letter chosen (a) is a vowel,(b) is a consonant (c) precedes P (d) follower r.
Q.20	Find the sum of all multiple of 9 lying between 300 and 700.
Q.21	50 circular plates, each of radius 7 cm and thickness $\frac{1}{2}$ cm are placed one above another to form a

	<p>solid right circular cylinder. Find the total surface area and the volume of the cylinder so formed.</p> <p style="text-align: center;">OR</p> <p>A hemispherical tank of radius $1\frac{3}{4}$ m is full of water. It is connected with a pipe which empties it at the rate of 7 litres per second. How much time will it take to empty the tank completely?</p>
Q.22	The area of an equilateral triangle is $49\sqrt{3} \text{ cm}^2$. taking each vertex as centre; a circle is drawn with radius equal to half the length of the side of the triangle. Find the area of the triangle not included in the circles.
Q.23	From the top of a lighthouse, the angles of depression of two ships on its two sides are observed to be α and β . If the height of the lighthouse is h meters and the line joining the ships passes through the foot of the lighthouse, show that the distance between the ships is $\frac{h(\tan \alpha + \tan \beta)}{\tan \alpha \tan \beta}$.
Q.24	Using A (4,-6), B(3,-2) and C(5,2), verify that a median of the triangle ABC divides it into two triangles of equal areas.
Q.25	In a quadrilateral PQRS in circumscribed touching the circle at A,B, C and D . If AP=5cm , QR=7 cm and CR =3 cm , then find the length of PQ.
Q.26	Which term of the sequences 114,109,104is the first negative term ?
Q.27	Find the coordinates of the points which divide the line segment joining the points (-8, 0) and (4,-8) in four equal parts.
Q.28	Prove that the parallelogram circumscribing a circle is a rhombus .
Section D	
Q.29	<p>If the equation $(1+m^2)x^2 + 2mcx + (c^2 - a^2) = 0$ has equal roots, prove that $c^2 = a^2(1+m^2)$.</p> <p style="text-align: center;">OR</p> <p>Out of a number of Saras birds, one fourth the number are moving about in lotus plants ; 1/9 th coupled (along) with $\frac{1}{4}$ as well as 7 times the square root of the number move on a hill; 56 birds remain in vakula trees. What is the total number of birds ?</p>
Q.30	From your pocket money, you save Rs 1 on day1, Rs 2 on day 2, Rs 3 on day 3 and so on. How much will you save in the month of march 2008 ?
Q.31	A cylindrical tube of radius 5 cm and length 9.8 cm is full of water. A solid in the form of a right circular cone mounted on a hemisphere is immersed in the tab. If the radius of the hemisphere is 3.5 cm and total height of solid is 8.5 cm, find the volume of water left in the tab .[Use $\pi = \frac{22}{7}$].
Q.32	Draw a triangle ABC with side $BC = 7\text{cm}$, $\angle B = 45^\circ$, $\angle A = 105^\circ$, then construct a triangle whose sides are $\frac{3}{5}$ times the corresponding side of ΔABC .
Q.33	A copper wire 4 mm in diameter is evenly bound about a cylinder whose length is 24 cm and diameter 20 cm so as to cover the whole surface. Find the length of the wire.
Q.34	<p>A man standing on the deck of a ship, which is 10m 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.</p> <p style="text-align: center;">OR</p> <p>The angle of elevation of a jet fighter from a point A on the ground is 60°. After a flight of 15seconds, the angle of elevation changes to 30°. If the jet is flying at a speed of 720 km/hour, find the constant height at which the jet is flying.</p>

