CODE:0801- AG-FT-1-SA-2 *पजियन क्रमांक* **REG.NO:-TMC -D/79/89/36**

GENERAL INSTRUCTIONS :

1. All questions are compulsory.
2. The question paper consists of 31 questions divided into four sections A,B,C and D. Section – A comprises of 4 question of 1 mark each. Section – B comprises of 6 questions of 2 marks each. Section – C comprises of 10 questions of 3 marks each and Section – D comprises of 11 questions of 4 marks each.
3. Please check that this question paper contains 4 printed pages.
4. 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.
5. Use of calculator is not permitted.

सामान्य निर्देश :

1. सभी प्रश्न अनिवार्य हैं।
2. इस प्रश्न पत्र में 31 प्रश्न है, जो 4 खण्डों में अ, ब, स व द है। खण्ड – अ में 4 प्रश्न हैं और प्रत्येक प्रश्न 1 अंक का है। खण्ड – ब में 6 प्रश्न हैं और प्रत्येक प्र न 2 अंको के हैं। खण्ड – स में 10 प्रश्न हैं और प्रत्येक प्रश्न 3 अंको का है। हैं। खण्ड – द में 11 प्र न हैं और प्रत्येक प्रश्न 4 अंको का है।
3. कैलकुलेटर का प्रयोग वर्जित हैं ।
4. कृपया जाँच कर लें कि इस प्रश्न–पत्र में मुद्रित पृश्ठ 4 हैं।
5. प्रश्न–पत्र में दाहिने हाथ की ओर दिए गए कोड नम्बर को छात्र उत्तर–पुस्तिका के मुख–पृश्ठ पर लिखें।

Time : 3.15 Hours अधिकतम समय : 3.15

Maximum Marks : 90 अधिकतम अंक : 90

Total No. Of Pages :4 कुल पृष्ठों की संख्या : 4

PRE-BOARD EXAMINATION 2016 -17

MATHEMATICS CLASS X (SA-2)

SECTION A

Q.1	Determine the ratio in which the line $3x + 4y – 9 = 0$ divides the line segment joining the points (1, -3) and (2,7).
Q.2	A coin is tossed three times. Find the probability of getting exactly two tails.
Q.3	What is the probability that a leap year has 53 Sundays and 53 Mondays .
Q.4	Two cubes, each of volume 512 cm^3 are joined end to end. Find the surface area of the resulting cuboid.

SECTION B

Q.5	A kite is flying at a height of 75 metres from the ground level, attached to a string inclined at 60^o to the horizontal. Find the length of the string to the nearest metre.

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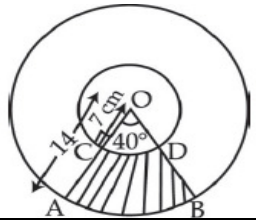
Q.6	Cards marked with number 5,6,7…….30 are placed in a box and mixed thoroughly and once card is drawn at random from the box. What is the probability that the number on the card is (i) A prime number ? (ii) A multiple of 3 or 5? (iii) Neither divisible by 5 nor by 10?
Q.7	Find a relation between *x* and *y* such that the point P(x, *y)* is equidistant from the points A(2, 5) and B (- 3, 7).
Q.8	Area of a sector of a circle of radius 36 cm is 54π sqcm. Find the length of the corresponding arc of the sector.
Q.9	A (1, 1) and B(2, -3) are two points and D is a point on AB produced such that AD = 3 AB. Find the coordinates of D.
Q.10	If x=3 is root of the equation $x^2 - x + k = 0$, find the value of p so that roots of the equation $x^2 + k(2x + k + 2) + p = 0$ are equal.
	SECTION C
Q.11	The sum and the product of the roots of the quadratic equation $4mx^2 + 4nx + 3 = 0$ are $\frac{1}{2}$ *and* $\frac{3}{16}$ respectively. Determine the value of m and n.
Q.12	If the 10^{th} term of an A.P. is 47 and its first term is 2, find the sum of its first 15 terms.
Q.13	A 1.2m tall girl spots a balloon moving with the wind in a horizontal line at a height of 88.2 m from the ground. The angle of elevation of the balloon from the eyes of the girl at any instant is 60. After sometime, the angle of elevation reduces to 30 Find the distance travelled by the balloon during the interval.
Q.14	If the points A (-2, 2) and B (*x*, 8) are on the circle with the centre O (2, 5), find the value of ***x*.**
Q.15	Find the area of shaded region in given figure, where radii of the two concentric circle with centre O are 7 cm and 14 cm respectively and angle AOB = 40°. 
Q.16	A solid metallic sphere of diameter 21cm is melted and recast into a number of smaller cones, each of diameter 7cm and height 3cm. find number of cones so formed.
Q.17	A mobile phones shopkeeper has 48 mobile phones of which 40are good, 5 have only minor defect and 3 have major defect. He sells all the phones at same cost Paridhi will buy a phone is selected at random from the shop. What are the probabilities that it is (i) good phone (ii) major defect ? Which phone should not sell the shopkeeper at the same rate and why?
Q.18	The height of a house subtends a right angle at the opposite window. The angle of elevation of the window from the base of the house 60^0. If the width of the road is 6 m,

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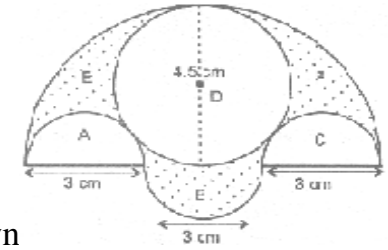
	find the height of the house.
Q.19	Twenty cylindrical pillars of the Parliament House are to be cleaned. If the diameter of each pillar is 0.50 m and height is 4m, what will be the cost of cleaning them at the rate of Rs.2.50 per square metre ?
Q.20	Find the value of k so that the following quadratic equation has equal roots : $2x^2 - (k - 2)x + 1 = 0$.
	SECTION D
Q.21	Using quadratic formula, solve the following equation for x: $abx^2 + (b^2 - ac)x - bc = 0$.
Q.22	A vessel is in the form of an inverted cone. Its height is 8cm and the radius of its open top is 5cm. it is filled with water up to the brim. When lead shots, spherical in shape and of diameter 1cm are dropped into the vessel one fourth of water flows out. Find the number of leads shots dropped into the vessel.
Q.23	Find the coordinates of the points which divide the line segment joining the points (–8, 0) and (4,–8) in four equal parts .
Q.24	A toy is in the form of a cone mounted on a hemisphere of common base of diameter 7cm . If the height of the toy is 15.5 cm, find the total surface area of the toy (Take $\pi = \frac{22}{7}$)
Q.25	The area of an equilateral triangle is $49\sqrt{3}\ cm^2$.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.26	The internal and external diameters of a hollow hemispherical vessel are 24 cm and 25 cm respectively. If the cost of painting 1 cm^2 of the surface area is Rs. 0.05, find the total cost of painting the vessel all over.
Q.27	If a student had walked 1 km/hr faster, he would have taken 15 minutes less to walk 3 km. Find the rate at which he was walking.
Q.28	In figure there are three semicircles, A,B and C having diameter 3 cm each, and another semicircle E having a circle D with diameter 4.5 cm are shown  . Calculate (i) the area of the shaded region (ii) the cost of painting the shaded region of the 25 paisa per cm^2, to the nearest rupee.
Q.29	The length of a line-segments is 10. If one end is at (2, -3) and the abscissa of the second end is 10, show that its ordinate is either 3 or -9.
Q.30	A hemispherical tank full of water is emptied at the rate of $7\frac{1}{7}$ liters per second. How much time will it take to make the tank half empty, if the tank is 3m in radius?(Use $\pi = \frac{22}{7}$)

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Q.31	In a simultaneous throw of a pair of dice, find the probability of getting: (a) 8 as the sum(b)a doublet (c)a number other than 5 on any dice. (d) an even number on one and a multiple of 3 on the other (e) neither 9 nor 11 as the sum of the number on the faces (f) an even number as first die
	" IF YOU ARE NOT MAKING MISTAKES, THEN YOU ARE NOT DOING ANYTHING "

TARGET MATHEMATICS
THE EXCELLENCE KEY
AGYAT GUPTA (M.Sc., M.Phil.)

NOTICE 2016-17

All the students of **Target Mathematics** are hereby informed that your sectional and **FULL SYLLABUS** tests will be held as per the following schedule.

TIME: 10:30 AM to 01:30 PM | **REPORTING TIME:** 10:15 AM

The Syllabus for the **Test Series** is as follows

DATE	CLASS: X
8-Jan-17	QUADRATIC EQUATION, ARITHEMATIC PROGRESSION, SURFACE AREA AND VOLUME; HEIGHTS AND DISTANCES , PROBABILITY, COORDINATE GEOMETRY AND AREA RELATED TO CIRCLE
15-Jan-17	QUADRATIC EQUATION, ARITHEMATIC PROGRESSION, HEIGHTS AND DISTANCES; AREA RELATED TO CIRCLES; PROBABILITY, TANGENT TO A CIRCLE AND COORDINATE GEOMETRY
22-Jan-17	FULL SYLLABUS
29-Jan-17	FULL SYLLABUS (OUTSIDE PAPER)
5-Feb-17	FULL SYLLABUS
12-Feb-17	FULL SYLLABUS
19-Feb-17	FULL SYLLABUS(OUTSIDE PAPER)
26-Feb-17	FULL SYLLABUS

NOTE: All Students Must Carry their **"IDENTITY CARD".**

"Hard Work is the Only Investment that Never Fails.

AGYAT GUPTA (DIRECTOR)

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