

Practice Test 2019-20

Class : X

CH-1/100

Time: 3 hrs

Sub : MATHEMATICS STANDARD

M.M. : 80

General Instructions:

- (i) All the questions are compulsory.
 - (ii) The question paper consists of 40 questions divided into 4 sections A, B, C, and D.
 - (iii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 8 questions of 3 marks each. Section D comprises of 6 questions of 4 marks each.
 - (iv) There is no overall choice. However, an internal choice has been provided. You have to attempt only one of the alternatives in all such questions.
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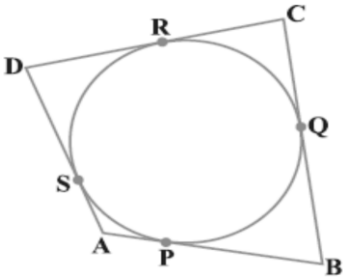
SECTION A

Question(1- 10) are multiple choice questions. Select the most appropriate answer from the given options.

1	The decimal expansion of the rational number will terminate after $\frac{33}{2^{2.5}}$ (A) one decimal place (B) two decimal places (C) three decimal places (D) more than 3 decimal places	1
2	A quadratic polynomial, whose zeroes are -3 and 4 , is (A) x^2-x+12 (B) x^2+x+12 (C) x^2-x-12 (D) x^2+x-12	1
3	The value of c for which the pair of equations $cx - y = 2$ and $6x - 2y = 3$ will have infinitely many solutions is (A) 3 (B) -3 (C) -12 (D) no value	1
4	The quadratic equation $2x^2 - \sqrt{5}x + 1 = 0$ has (A) two distinct real roots (B) two equal real roots (C) no real roots (D) more than 2 real roots	1
5	If the common difference of an AP is 5 , then what is $a_{18} - a_{13}$?	1

	(A) 5 (B) 20 (C) 25 (D) 30	
6	It is given that $\Delta ABC \sim \Delta PQR$ with $\frac{BC}{QR} = \frac{1}{3}$. Then $\frac{\text{ar}\Delta BCA}{\text{ar}\Delta QRP}$ is equal to (A) 3 (B) 9 (C) 1/3 (D) 1/9	1
7	The fourth vertex D of a parallelogram ABCD whose three vertices are A (-2, 3), B (6, 7) and C (8, 3) is (A) (0, 1) (B) (0, -1) (C) (-1, 0) (D) (1, 0)	1
8	If ΔABC is right angled at C, then the value of $\cos (A+B)$ is (A) 0 (B) 1 (C) $\frac{1}{2}$ (D) $\frac{3}{2}$	1
9	If two tangents inclined at an angle 60° are drawn to a circle of radius 3 cm, then length of each tangent is equal to (A) 3 (B) 6 (C) $3\sqrt{3}$ (D) $2\sqrt{3}$	1
10	To draw a pair of tangents to a circle which are inclined to each other at an angle of 35° , it is required to draw tangents at the end points of those two radii of the circle, the angle between which is (A) 105° (B) 70° (C) 140° (D) 145°	1
QUESTION (11- 15) ,Fill in the blanks		
11	A card is selected from a deck of 52 cards. The probability of its being a red face card is.....	1
12	$9 \sec^2 A - 9 \tan^2 A = \dots\dots\dots$	1
13	Write the condition when Pair of Linear Equations have no solutions.	1
14	Write Quadratic Formula.	1
15	Sum of first n terms of an AP is.....	1
Question (16- 20) Answer the following		
16	Define Euclid's Division Lemma.	1
17	Find the values of k for each of the following quadratic equations, so that they have two equal roots.	1

	$2x^2 + kx + 3 = 0$	
18	Find the 10 th term of the AP : 2, 7, 12, . . .	1
19	Write SECTION FORMULA	1
20	State whether the following is true or false. Justify your answer. The value of tan A is always less than 1.	1
Section – B		
21	If $\tan A = \cot B$, prove that $A + B = 90^\circ$.	2
22	Half the perimeter of a rectangular garden, whose length is 4 m more than its width, is 36 m. Find the dimensions of the garden.	2
23	Prove: The lengths of tangents drawn from an external point to a circle are equal.	2
24	How many two-digit numbers are divisible by 3?	2
25	A vertical pole of length 6 m casts a shadow 4 m long on the ground and at the same time a tower casts a shadow 28 m long. Find the height of the tower. OR In each of the following find the value of 'k', for which the points are collinear. (7, – 2), (5, 1), (3, k)	2
26	Find the point on the x-axis which is equidistant from (2, –5) and (–2, 9).	2
Section – C		
27	Obtain all other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\frac{\sqrt{5}}{\sqrt{3}}, -\frac{\sqrt{5}}{\sqrt{3}}$.	3
28	For which value of k will the following pair of linear equations have no solution? $3x + y = 1$ $(2k - 1)x + (k - 1)y = 2k + 1$	3
29	A motor boat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream. OR Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60° .	3
30	How many terms of the AP : 9, 17, 25, . . . must be taken to give a sum of 636?	3
31	BL and CM are medians of a triangle ABC right angled at A.	3

	<p>Prove that $4 (BL^2 + CM^2) = 5 BC^2$.</p> <p style="text-align: center;">OR</p> <p>ABC is an isosceles triangle right angled at C. Prove that $AB^2 = 2AC^2$.</p>	
32	<p>If A and B are $(-2, -2)$ and $(2, -4)$, respectively, find the coordinates of P such that $AP = \frac{3}{7} AB$ and P lies on the line segment AB.</p>	3
33	<p>Prove</p> $\sqrt{\frac{1 + \sin A}{1 - \sin A}} = \sec A + \tan A$	3
34	<p>A quadrilateral ABCD is drawn to circumscribe a circle .</p> <p>Prove that $AB + CD = AD + BC$</p> 	3
Section – D		
35	<p>Solve $\frac{1}{3x+y} + \frac{1}{3x-y} = \frac{3}{4}$ and $\frac{1}{2(3x+y)} - \frac{1}{2(3x-y)} = -\frac{1}{8}$</p>	4
36	<p>A bag contains 24 balls of which x are red, $2x$ are white and $3x$ are blue. A ball is selected at random. What is the probability that it is</p> <p>(i) not red? (ii) white?</p>	4
37	<p>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.</p> <p style="text-align: center;">OR</p> <p>Which term of the AP : 121, 117, 113, . . . , is its first negative term?</p>	4
38	<p>State and prove BPT.</p> <p style="text-align: center;">OR</p> <p>Prove: The ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.</p>	4
39	<p>Two poles of equal heights are standing opposite each other on either side of the road,</p>	4

	which is 80 m wide. From a point between them on the road, the angles of elevation of the top of the poles are 60° and 30° , respectively. Find the height of the poles and the distances of the point from the poles.	
40	Construct a triangle similar to a given triangle ABC with its sides equal to $\frac{5}{3}$ of the corresponding sides of the triangle ABC.	4