Exam:	**Prelim I Exam.2019-20**
Grade:	**X**
Subject:	**Mathematics.(STANDARD)**
Date:	**09/11/2019**
Max. Marks:	**80**
Duration:	**3 Hr.**
Roll No:	_____

General Instructions:

(1) The question paper is divided into four sections i.e, A, B, C, and D.

(2) Section A consists of 1 mark questions divided into three sub categories i.e. M.C.Q. , Fill in the blanks type and very short answer type questions. From Q. no. 1 to 10, ten Multiple choice questions are given. From Q. No. 11 to 15 fill in the blank type five questions are given and from Q. no. 16 to 20 very short answer type questions.

(3) In Section B, Q.no. 21 to 26 six short answer type questions of 2 marks each are given.

(4) Section C contains Q.no. 27 to 34, eight Long answer type questions of 3 mark each.

(5) Section D contains Q.no. 35 to 40 having six very long answer type questions of 4 mark each.

(6) Internal choices are given in some questions in each section. You have to choose and attempt one.

(7) Use graph paper in the corresponding question given in the paper.

(8) Use of calculator is strictly prohibited.

(9) Attempt all questions, keeping internal choices in your consideration.

Section A Q. 1 to 20 (1mark each)

(1-10)	Choose the correct option in following Multiple Choice Questions :	
1.	Euclid 's division lemma states that two positive integer a and b,there exist unique integers q such that $a = bq + r$,where r must satisfy : (A) $1 < r < b$ (B)$0 < r \leq b$ (C) $0 \leq r < b$ (D)$0 < r < b$	1
2.	Let $x = \frac{7}{20 \times 25}$ be a rational number, Then x has a decimal expansion ,which terminates after (A) 4 places of decimal (B) 3 places of decimal (C) 2 places of decimal (D) 5 places of decimal	1

3.	The pair of equations y=0 and y=−7 has (A) One solution (B) two solution (C) infinitely many solution (D) no solution	1
4.	The midpoint of the line segment joining the points $A(-2,\ 8\ ), B(-6,-4\ ) is$ (A)$(-4,-6\ )$ (B) $(2,6)$ (C)$(-4,\ 2\ )$ (D) $(4,\ 2)$	1
5.	The perimeter of a triangle with vertices $(0,\ 4)\ , (0\ ,0)\ and\ (3,\ 0)$ is (A) 5 (B) 11 (C)12 (D) $7+\sqrt{5}$	1.
6.	The area of the triangle with vertices A (3 ,0) ,B (7,0) and (8, 4) is (A)14 (B) 28 (C)8 (D) 6	1.
7.	The value of $(sin30^0 + cos30^0) - (sin60^0 + cos60^0)\ is$: (A) -1 (B) 0 (C) 1 (D) 2	1.
8.	If $sinA = \frac{1}{2}$, then the value of $cotA$ is (A) $\frac{1}{\sqrt{3}}$ (B)$\sqrt{3}$ (C) $\frac{\sqrt{3}}{2}$ (D) 1	1.
9.	The value of $(tan1^0 tan2^0 tan3^0 \dots\dots tan89^0)$ is (A) 0 (B) 1 (C) 2 (D) $\frac{1}{2}$	1
10.	Construction of a cumulative frequency table is useful in determining the (A) Mean (B) Mode (C) Median (D) all three measures	1.
(11-15)	**Fill in the blank space and write the suitable answer in answer book :**	
11.	A quadratic polynomial whose zeroes are $-3\ and\ 4\ is$ …………………… OR The number of zeroes of a quadratic polynomial is……………	1.
12. 13.	In an A. P. if $d = -4$, $n = 7$, $a_n = 4\ then\ the\ value\ of\ 'a'\ is$ ……………… If $\Delta ABC \sim \Delta DEF\ such\ that\ \angle A = 47^0$, $\angle E = 83^0\ then\ \angle C = $ ………………	1.
14.	The height of the largest right circular cone that can be cut from a cube of edge 4.2 cm.is ………………	1.
15.	Consider the following distribution: | Class	Frequency
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$0-5$	13
$6-11$	10
$12-17$	15
$18-23$	8
$24-29$	11 | The upper limit of the modal class is…………………	1 1. 1. 1.

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(16-20)	**Very short answer type questions :---**	
16.	If HCF of two numbers are 4 and 9696, then, what is the product of two numbers?	
17.	If $19x - 17y = 55$ and $17x - 19y = 53$ then what is the value of $x - y$?	
18.	Find the 10 th term of the A.P. 2, 7, 12.........	1.
19.	Write the statement of Basic Proportionality Theorem	
20.	If radii of two concentric circles are 4cm. and 5cm. then what is the length of chord of one circle which is tangent of the other circle?	1.
	OR	1.
	The angle between two radii of a circle is 130^0, find the angle between the tangents at the ends of the radii.	1.
		1.
		1.
	SECTION-B(2 Marks each)	
(21-26)	Short answer type questions:	
21.	If the numbers $x - 2$, $4x - 1$ and $5x + 2$ are in $A.P.$, Find the value of x .	
22.	If ΔABC and ΔDEF are similar such that $2AB = DE$ and $BC = 8\ cm$. then find EF.	
	OR	
	Two poles of height 6 m. and 11 m. stand vertically upright on a plane ground .If the distance between their feet is 12 m., calculate the distance between their tops.	
		2.
23.	A kite is flying at a height of 75 metre from the ground level, attached to a string inclined at 60^0 to the horizontal .Find the length of the string to the nearest metre.	2.
24.	From a point Q, the length of the tangent to a circle is 24 cm. and the distance of Q from the centre is 25 cm. .Find the radius of the circle.	
25.	If mean =60 and median =50, then find mode using empirical relationship.	
		2.
26.	A card is selected at random from a well shuffled deck of 52 playing cards. what is the probability of its being (a) face card (b) club	2.
	OR	
	Someone is asked to take a number from 1 to 100. Find the probability that it is a prime number.	2.
		2
	SECTION-C (3 Mark each)	
(27-34)	**Long answer type questions:**	
27	If d is the HCF of 56 and 72, find x and y satisfying $d = 56x + 72y$. Also show that x and y are not unique.	
	OR	
	Two tankers contain 850 litres and 680 litres of kerosene oil respectively .Find the maximum capacity of a container which can measure the kerosene oil of both the tankers when used an exact number of times.	3.

28.	If $\propto$ and β are the zeroes of the quadratic polynomial $(x) = x^2 - 2x + 3$, then find a quadratic polynomial whose zeroes are $\propto +2$ and $\beta + 2$.	
29.	Find the value of m for which the pair of linear equations has infinitely many solutions. $2x + 3y = 7$ and $(m-1)x + (m+1)y = (3m-1)$	
	OR	3.
	For what value of K will the equations $x + 2y + 7 = 0$, $2x + Ky + 14 = 0$ represent coincident lines?	3.
30.	If the sum of first 6 terms of an AP is 36 and that of first 16 terms is 256, Find the sum of first 10 terms.	
31.	If (a , b) is the midpoint of the line segment joining the points A $(10 , -6)$ B $(k ,4)$ and $a - 2b = 18.$ find the value of k and distance AB.	
		3.
32.	Prove that : $\frac{sin\theta - cos\theta + 1}{sin\theta + cos\theta - 1} = \frac{1}{sec\theta - tan\theta}$	
	OR	3.
	Prove that : $\frac{cotA - cosA}{cotA + cosA} = \frac{cosecA - 1}{cosecA + 1}$	
		3.
33.	A well of diameter 3m.is dug 14 m. deep .The earth taken out of it has been spread evenly all around it in the shape of a circular ring of width 4m.to form an embankment .Find the height of the embankment.	
		3.
34.	Find the mean percentage of female teachers of the following data.	

% of teachers	$15 - 25$	$25 - 35$	$35 - 45$	$45 - 55$	$55 - 65$	$65 - 75$	75- 85
No. of States	6	11	7	4	4	2	1

3.

SECTION—D(Each 4 marks)
Very Long Answer type questions.

(35-40)

35.	Determine by drawing graphs whether the following pair of linear equations has a unique solution or not .$3x + 4y = 12$ and $Y = 3$
	OR
	Solve graphically :$3x - 5y + 1 = 0$ and $2x - y + 3$
36.	In a triangle, if the square of one side is equal to the sum of the squares of the other two sides, then the angle opposite to the first side is a right angle. Prove it.
	4
37.	From a point on a bridge across a river, the angles of depression of the banks on opposite sides of the river are 30^0 and 45^0 , respectively. If the bridge is at height of

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38.	3m. From the banks .Find the width of the river. Draw a triangle ABC with side BC =5cm. AB=5 cm.and $\angle ABC = 60^0$. Then construct a triangle whose sides are $\frac{3}{4}$ of the corresponding sides of triangle ABC. **OR** Draw a ΔABC with side $BC = 7$ cm. $\angle B = 45^0$ and $\angle A = 105^0$. Then construct a triangle whose sides are $\frac{5}{3}$ times the corresponding sides of ΔABC.	4 4.
39.	A metallic right circular cone20 cm. high and whose vertical angle is 60^0 is cut out into two parts at the middle of its height by a plane parallel to its base. If frustum so obtained be drawn into a wire of diameter $\frac{1}{16}$ cm., Find the length of the wire . **OR** A container shaped like a right circular cylinder having diameter 12cm. and height 15 cm. is full of ice cream .The ice cream is to be filled into cones of height 12 cm.and diameter 6cm.having a hemispherical shape on the top .Find the number of such cones which can be filled with the ice cream .	4. 4.
40.	Find the median of the following distribution: | Marks	Below 10	Below 20	Below 30	Below 40	Below 50	Below 60
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No. of students	6	15	29	41	60	70 | ----------------X----------------	 4.

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