Exam:	**Annual Exam.2019-20**
Grade:	**X**
Subject:	**Mathematics.(BASIC)**
Date:	
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.	If the HCF of two numbers is 1 ,then the two numbers are called (A) composite (B) co prime or relatively prime (C) perfect (D)irrational	1
2.	The decimal expansion of $\frac{93}{1500}$ will be (A) terminating (B) non terminating (C) non terminating repeating (D) non terminating non repeating	1

3.	LCM of two co prime numbers is always
	   (A) Product of numbers (B) sum of numbers
	   (C) difference of numbers (D) none
		1

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4.	A quadratic polynomial can have at most how many zeroes? (A) 0　　　　　　(B) 1　　　　　　(C) 2　　　　　　(D) 3	1
5.	Which are the zeroes of $P(x) = x^2 - 1$ (A) 1, −1　　　(B) −1 , 2　　　　　(C) −2 , 2　　　　　(D) −3 ,3	1.
6.	If α and β are the zeroes of the quadratic equation $x^2 + x + 1 = 0$, then $\frac{1}{\alpha} + \frac{1}{\beta}$ is (A) 0　　　　(B) 1　　　　　(C) −1　　　　　(D) none	1.
7.	The roots of $quadratic\ equation\ x^2 + 7x + 10 = 0\ are$: (A)　2 and 5　　(B) −2 and 5　　(C) −2 and − 5　　(D) 2 and −5	1.
8.	The length of a tangent from a Point A at distance 5 cm. from the centre of the circle is 4 cm.,then the radius of the circle is (A) 4cm.　　　(B) 3 cm.　　　(C) 6 cm.　　　(D) 5 cm.	1
9.	The class mark of a class interval value of is (A) $\frac{1}{2}$ (Upper limit +Lower Limit)　　　(B) (Upper limit +Lower Limit) (C) $\frac{1}{2}$ (Upper limit −Lower Limit)　　　(D)(Upper limit −Lower Limit)	1.
10.	A coin is flipped to decide which team starts the game .What is the probability that your team will start? (A) 1　　　　(B) 0　　　　(C) $\frac{1}{4}$　　　　(D) $\frac{1}{2}$	1.
(11-15) 11. 12. 13. 14. 15.	**Fill in the blank space and write the suitable answer in answer book :** If α andβ are the zeroes of a quadratic polynomial $f(x) = x^2 + 5x + 8$ then the value of $\alpha + \beta$ is………………… If the areas of similar triangles are in the ratio $25:64$, then the ratio of corresponding sides will be ……………… Distance of a point $P(x , y)\ from\ the\ origin\ is$ ……………… $The\ value\ of\ Sin30^0 = $……………… If $tanA = Cot\ B,$ then $(A + B) = $…………………… **Very short answer type questions :--**	1. 1. 1. 1. 1.

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(16-20) 16.	What will be the 18 th term of AP 4, 6, 8…	1.
17.	Write the statement of Pythagoras Theorem	1.
18.	If $sinA = \frac{5}{13}$, write the value of $cosA$ **OR** If $tanA = \frac{15}{8}$ write the value of $SecA$	1.
19.	If θ is the angle of a sector of a circle of radius r, then what is the area of the sector of the circle?	1.
20.	There are 6 marbles in a box with number 1 to 6 marked on each of them. What is the probability of drawing a marble with number 2?	1.

(21-26)	**SECTION-B(2 Marks each)** **Short answer type questions:**	
21.	Find the value of $k \ if$, 4 $is \ the \ zero \ of \ the \ polynomial \ x^2 + x + 2k$	2.
22.	Prove that lengths of tangents drawn from an external point to a circle are equal.	2.
23.	Evaluate :$(sin^2 65^0 + sin^2 25^0)$ **OR** Simplify $(sec\theta + tan\theta)(1 - tan\theta)$	2.
24.	What is the area of the circle which is inscribed in a square of side 6cm.	2.
25.	A bag has 4 red balls and 2 yellow balls. A ball is drawn from the bag randomly .What is the probability of getting (a) Blue ball (b) Yellow ball?	2.
26.	One card is drawn from a well shuffled deck of 52 playing cards randomly; find the probability of getting a red card? **OR** Two dice are rolled together. Find the probability that the sum of the numbers on the top of the dice is 9	2

(27-34)	**SECTION-C (3 Mark each)** **Long answer type questions:**	
27	Prove that $\sqrt{3}$ is an irrational number. **OR** The HCF of two numbers is 145 and their LCM is 2175.If one of the numbers is 725, find the other.	3.
28.	Solve the following system of equations graphically: $x + 3y = 6$; $2x - 3y = 12$	3.

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29.	Find the discriminant and the nature of the roots of quadratic equation $4x^2 - 12x + 9 = 0$	3.
30.	Find the area of the triangle formed by the points A(5 ,2) B (4 ,7) C(7 , −4) .	3.
31.	A Quadrilateral ABCD is drawn to circumscribe a circle .Prove that AB+CD=AD+BC	3.
32.	Draw a circle of radius 6 c.m.From a point 10 cm. away from its centre, construct the pair of tangents to a circle and measure their lengths. OR Draw a triangle ABC with $BC = 6cm. AB = 5cm. and ∠B = 60^0$.then construct the triangle whose sides are $\frac{5}{4}$ of the corresponding sides of triangle ABC.	3.
33.	If A B and C are interior angles of a triangle ABC. then Prove :$sin\left(\frac{B+C}{2}\right) = cos\frac{A}{2}$	3.
34.	A car has two wipers which do not overlap .Each wiper has a blade of length 25 cm. sweeping through an angle of115^0. Find the area cleaned at each sweep of the blades.	3.
	### SECTION—D(Each 4 marks)	
(35-40)	**Very Long Answer type questions.**	
35.	Solve the equation $2x^2 - 5x + 3 = 0$ by method of completing the square.	4
36.	The first term of an AP is 5, the last term is 45 and the sum is 400.Find the number of terms and the common difference. OR Find the sum of first 17 terms of an AP whose 4th and 9th terms are − 15 and − 30 respectively.	4 4
37.	State and Prove Basic Proportionality Theorem	4.
38.	From a point on the ground , the angles of elevation of the bottom and the top of a transmission tower fixed at the top of a 20 m. high building are 45^0 and 60^0 respectively .Find the height of the building	4.
39.	A toy is in the form of a cone of radius 3.5 cm.mounted on a hemisphere of same radius .Total height of the toy is 15.5 cm. Find the total surface area of the toy. OR	4.

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| 40. | A copper rod of diameter 1 cm. and length 8 cm. is drawn into a wire of length 18 cm.of uniform thickness .Find the thickness of the wire. | 4. |

Find the mode of the following distribution:

Class	0−10	10 − 20	20 − 30	30− 40	40− 50	total
f	8	16	36	34	6	100

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