Sample Question Paper Class- X Session- 2021-22 TERM 1 Subject- Mathematics (Basic)

Time Allowed: 90 minutes

Maximum Marks: 40

General Instructions:

1. The question paper contains three parts A, B and C.

2. Section A consists of 20 questions of 1 mark each. Attempt any 16 questions.

3. Section B consists of 20 questions of 1 mark each. Attempt any 16 questions.

4. Section C consists of 10 questions based on two Case Studies. Attempt any 8 questions.

5. There is no negative marking.

	SECTION A	
	Section A consists of 20 questions. Any 16 questions are to be attempted	
Q.NO.		MARKS
1	A box contains cards numbered 6 to 50. A card is drawn at random from the box. The	1
	probability that the drawn card has a number which is a perfect square like 4,9is	
	(a) 1/45	
	(b) 2/15	
	(c) 4/45	
	(d) 1/9	
2	In a circle of diameter 42cm ,if an arc subtends an angle of 60 ° at the centre where	1
	Π =22/7,then the length of the arc is	
	(a) 22/7 cm	
	(b) 11cm	
	(c) 22 cm	
	(d) 44 cm	
3	If $\sin \Theta = x$ and $\sec \Theta = y$, then $\tan \Theta$ is	1
	(a) xy	
	(b) x/y	
	(d) 1/xy	
4	The pair of linear equations $y = 0$ and $y = -5$ has	1
	(a) One solution	
	(b) I wo solutions	
	(c) Infinitely many solutions	
-	(d) No solution	
5	A fair die is thrown once. The probability of even composite number is	1
	(0) 1/3	
	(C) 5/4 (a) 1	
6	(u) I S chairs and E tables cost Bs 10500, while E chairs and 2 tables cost Bs 6450. The cost of	1
0	each chair will be	1
	(a) Rs 750	
	(b) Bs 600	
	(c) Rs 850	
	(d) Rs. 900	
7	If $\cos\Theta + \cos^2\Theta = 1$. the value of $\sin^2\Theta + \sin^4\Theta$ is	1
	(a) -1	
	(b) O	
	(c) 1	
	(d) 2	

8	The decimal representation of $\frac{23}{23+5}$ will be	1
	(a) Terminating $2^3 \times 5^2$	
	(b) Non-terminating	
	(c) Non-terminating and repeating	
	(d) Non-terminating and non-repeating	
9	The LCM of 2 ³ X3 ² and 2 ² X3 ³ is	1
	(a) 2^3	
	(b) 3 ³	
	(c) 2 ³ X3 ³	
	(d) 2 ² X3 ²	
10	The HCF of two numbers is 18 and their product is 12960. Their LCM will be	1
	(a) 420	
	(c) /20	
44	(d) 800	4
11	In the given figure, DE II BC. Which of the following is true?	1
	\wedge	
	D	
	ВуС	
	a+b	
	(a) $x = \frac{1}{ay}$	
	(b) $v = \frac{ax}{a}$	
	a+b ay	
	(c) $x = \frac{dy}{d+h}$	
	(d) $\frac{x}{a} = \frac{a}{a}$	
	(d) y b	
12	The co-ordinates of the point P dividing the line segment joining the points A (1,3) and B (4,6)	1
	internally in the ratio 2:1 are	
	(a) $(2,4)$	
	(b) $(4,6)$	
	(c) (4,2)	
	(a) (3,5)	
13	The prime factorisation of 3825 is	1
1.5	(a) $3x5^2x21$	-
	(a) $3x^{2}x^{21}$ (b) $3^{2}x^{5^{2}x^{35}}$	
	(c) $3^2 x 5^2 x 17$	
	(d) $3^2 \times 25 \times 17$	
14	In the figure given below, AD=4cm,BD=3cm and CB=12 cm, then cotO equals	1
	A	
	(0) 5/12	
	(L) 4/3 (d) 12/5	
L		

15	If ABCD is a rectangle , find the values of x and y	1
	$\lambda - x + y - y - y$	
	/ n'-y 8	
	Å 12 %	
	(a) X=10,y=2	
	(b) X=12,y=8	
	(c) X=2,y=10	
	(d) X=20,y=0	
16	In an isosceles triangle ABC, if AC=BC and AB ² =2AC ² , then the measure of angle C will be	1
	(a) 30°	
	(b) 45°	
	(c) 60°	
	(d) 90°	
17	If -1 is a zero of the polynomial $p(x)=x^2-7x-8$, then the other zero is	1
	(a) -8	
	(b) -7	
	(c) 1	
	(d) 8	
18	In a throw of a pair of dice, the probability of the same number on each die is	1
	(a) 1/6	
	(b) 1/3	
	(c) 1/2	
	(d) 5/6	
19	The mid-point of (3p,4) and (-2,2q) is (2,6) . Find the value of p+q	1
	(a) 5	
	(b) 6	
	(c) 7	
	(d) 8	
20	The decimal expansion of $\frac{147}{2}$ will terminate after how many places of decimals?	1
	120	
	(a) 1	
	(b) 2	
	(c) 3	
	(d) 4	
	SECTION B	
21	Section B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted	1
21	(a) The perimeter of a semicircular protractor whose radius is "r" is	1
	(U) $\pi + \Gamma$	
	(c) πt	
	(a) $\pi r + 2r$	
22	If D (E) denotes the probability of an event E then	1
22	in P (E) denotes the probability of an event E, then	1
	$(2) 0 \in \mathbb{R}(5) = 1$	
	$(a) \forall F(E) \leqslant I$	
	(U) U < P(E) < 1	
	$(U) U \ge P(E) \le 1$	
	$(U) \ \cup \leq r(E) < 1$	
1		1

23	In \triangle ABC, <b=90° <math="" and="" bd="">\perp AC. If AC = 9cm and AD = 3 cm then BD is equal to</b=90°>	1
	(a) 2√2 cm	
	(b) 3√2 cm	
	(c) 2√3 cm	
	(d) 3√3 cm	
24	The pair of linear equations 3x+5y=3 and 6x+ky=8 do not have a solution if	1
	(a) K=5	
	(b) K=10	
	(c) k≠10	
	(d) k≠5	
25	If the circumference of a circle increases from 2Π to 4Π then its area the original	1
	area	
	(a) Half	
	(b) Double	
	(c) Three times	
	(d) Four times	
26	Given that $\sin A = a/b$, then $\tan A$ is equal to	1
20	(a) b	-
	(a) $\frac{1}{\sqrt{a^2+b^2}}$	
	(b) $\frac{b}{$	
	$(b) \sqrt{b^2 - a^2}$	
	(c) $\frac{u}{\sqrt{2}+2}$	
	$\sqrt{a^2-b^2}$	
	(d) $\frac{1}{\sqrt{h^2 - a^2}}$	
27	If $x = 2\sin^2\theta$ and $y = 2\cos^2\theta + 1$ then $x + y$ is	1
	(a) 3	
	(b) 2	
	(c) 1	
	(d) 1/2	
28	If the difference between the circumference and the radius of a circle is 37 cm , $\Pi = 22/7$, the	1
	circumference (in cm) of the circle is	
	(a) 154	
	(b) 44	
	(c) 14	
	(d) 7	
29	The least number that is divisible by all the numbers from 1 to 10 (both inclusive)	1
	(a) 100	
	(b) 1000	
	(c) 2520	
	(d) 5040	
30	Three bells ring at intervals of 4, 7 and 14 minutes. All three rang at 6 AM. When will they	1
	ring together again?	
	(a) 6:07 AM	
	(b) 6:14 AM	
	(c) 6:28 AM	
	(d) 6:25 AM	
31	What is the age of father, if the sum of the ages of a father and his son in years is 65 and	1
	twice the difference of their ages in years is 50?	
	(a) 40 years	
	(b) 45 years	
	(c) 55 years	
	(d) 65 years	
32	What is the value of $(\tan\theta \csc\theta)^2 - (\sin\theta \sec\theta)^2$	1
	(a) -1	
	(b) 0	
	(c) 1	
	(d) 2	
1		1

33	The perimeters of two similar triangles are 26 cm and 39 cm. The ratio of their areas will be	1
	(a) 2:3	
	(b) 6:9	
	(c) 4:6	
	(d) 4:9	
34	There are 20 vehicles-cars and motorcycles in a parking area. If there are 56 wheels	1
	together, how many cars are there?	
	(a) 8	
	(b) 10	
	(c) 12	
	(d) 20	
35	A man goes 15m due west and then 8m due north. How far is he from the starting point?	1
	(a) 7m	
	(b) 10m	
	(c) 17m	
	(d) 23m	
36	What is the length of an altitude of an equilateral triangle of side 8cm?	1
	(a) 2/3 cm	-
	(a) $\frac{1}{2}$ (b) $\frac{3}{3}$ (cm)	
	$(c) 4\sqrt{3}$ cm	
	(c) 403 cm (d) 5/3 cm	
37	If the letters of the word RAMANI LIAN are put in a box and one letter is drawn at random	1
57	The probability that the letter is A is	-
	(a) $3/5$	
	(a) $3/3$ (b) $1/2$	
	$(0) \frac{1}{2}$	
	(c) 3/7	
20	1/5	1
30	Area of a sector of a circle is 1/0 to the area of circle. This the degree measure of its minor	-
	(a) 50 (b) 60°	
20	(u) 50	1
22	A vertical stick 2011 long casts a shadow 1011 long of the ground. At the same time a tower	1
	(a) 20m	
	(a) 50m	
	(c) 8011 (d) 100m	
40	$\frac{(0) 10011}{(0) 10011}$	1
40	(a) x = 2 x = 1	-
	(a) $x = 2, y = 1$ (b) $x = -1, y = 2$	
	(b) x = -1, y = 2 (c) $x = -2, y = 1$	
	(c) x - 2, y - 1 (d) x - 1 y - 2	
	Case study based questions	
	Section C consists of 10 questions of 1 mark each Any 8 questions are to be attempted	
	Case Study_1	
	Case Study -1	
1		1



41	The distance between the point Country A and Country B is	1
	(a) 4 units	
	(b) 5 units	
	(c) 6 units	
	(d) 7 units	
42	Find a relation between x and y such that the point (x, y) is equidistant from the Country C and	1
	Country D	
	(a) x - y = 2	
	(b) $x+y = 2$	
	(3) x y = 2 (c) $2x - y = 0$	
	(c) 2x - y = 0	
	(u) 2x+y - 2	
42		
43	The fault line $3x + y - 9 = 0$ divides the line joining the Country P(1, 3) and	1
	Country Q(2, 7) internally in the ratio	
	(a) 3 : 4	
	(b) 3 : 2	
	(c) 2 : 3	
	(d) 4 : 3	
44	The distance of the Country M from the x-axis is	1
	(a) 1 units	
	(b) 2 units	
	(c) 3 units	
	(d) 5 units	
45	What are the co-ordinates of the Country lying on the mid-point of Country A and Country D?	1
	(a) (1,3)	
	(b) (2, 9/2)	
	(c) (4.5/2)	
	(d) (9/2, 2)	
	Case Study -2	
	ROLLER COASTER POLYNOMIALS	
	ROLLEN COASTEN FOR THOMMAES	
	Polynomials are everywhere. They play a key role in	
	the study of algebra, in analysis and on the whole	
	many mathematical problems involving them.	
	Since, polynomials are used to describe curves of	
	various types engineers use polynomials to graph	
	the curves of roller coasters.	
	https://images.app.goo.gl/WfcM1aRTHjjqtyT27	
	Based on the given information, answer the questions NO. 46-50.	
46	If the Roller Coaster is represented by the following graph y=p(x) , then name the type of the	1
	polynomial it traces.	



