MODEL PAPER_CBSE-X'20

According to the Syllabus & Guide Lines for CBSE'20

CLASS-X (2019-2020)

QUESTION WISE BREAK UP

Type of Question	Mark per Question	Total No. of Questions	Total Marks
VSA	1	20	20
SA	2	06	12
LA-I	3	08	24
LA-II	6	04	24
	Total	36	80

	Blueprint of S Q P-01 for CBSE Cl-X'20	80
Q. No.	Name of Chapter	Marks
1	Real Numbers	1
2	Statistics	1
3	Coordinate Geometry (Lines)	1
4	Area Related to Circles	1
5	Pair of Linear Equations in Two Variables	1
OR 5	Pair of Linear Equations in Two Variables	
6	Polynomials	1
7	Circles	1
8	Polynomials	1
9	Introduction to Trigonometry	1
10	Coordinate Geometry (Lines)	1
11	Real Numbers	1
12	Probability	1
13	Introduction to Trigonometry	1
14	Coordinate Geometry (Lines)	1
15	Triangles	1
16	Introduction to Trigonometry	1
OR 16	Introduction to Trigonometry	
17	Real Numbers	1
18	Probability	1
19	Triangles	1
20	Arithmetic Progressions	1
21	Polynomials	2
22	Probability	2
OR 22	Probability	
23	Circles	2
24	Some Applications of Trigonometry	2
OR 24	Introduction to Trigonometry	
25	Area Related to Circles	2
26	Probability	2
27	Polynomials	3
28	Constructions	3
OR 28	Constructions	
29	Surface Areas and Volumes	3
30	Introduction to Trigonometry	3
OR 30	Introduction to Trigonometry	
31	Real Numbers	3
OR 31	Real Numbers	
32	Circles	3
33	Coordinate Geometry (Lines)	3
34	Pair of Linear Equations in Two Variables	3
35	Quadratic Equations	4
36	Arithmetic Progressions	4
OR 36	Arithmetic Progressions	
37	Triangles	4
38	Some Applications of Trigonometry	4
OR 38	Some Applications of Trigonometry	
39	Surface Areas and Volumes	4
OR 39	Surface Areas and Volumes	
40	Statistics	4

	Actual	Expected
Real Numbers	6	6
Polynomials	7	20
Pair of Linear Equations in Two Variables	4	
Quadratic Equations	4	
Arithmetic Progressions	5	
Coordinate Geometry (Lines)	6	6
Triangles	6	15
Circles	6	
Constructions	3	
Introduction to Trigonometry	6	12
Some Applications of Trigonometry	6	
Area Related to Circles	3	10
Surface Areas and Volumes	7	
Statistics	5	11
Probability	6	

[Mp 01F Cbse X'20 Q 191214] MODEL TEST [Pre CBSE-X'20] [FM–80/Time–3 hrs.]

GENERAL INSTRUCTIONS:

(i) **All** questions are compulsory.
(ii) This question paper contains **40** questions divided into four sections A, B, C & D.
(iii) Question **1- 20** in **Section A** are very short-answer type questions carrying **1** mark each.
(iv) Question **21-26** in **Section B** are short-answer type questions carrying **2** marks each.
(v) Question **27-34** in **Section C** are long-answer-**I** type questions carrying **3** marks each.
(vi) Question **35-40** in **Section D** are long-answer-**II** type questions carrying **4** marks each.
(vii) There is no overall choice. However internal choices have been provided in two questions of 1 mark each, two questions of 2 marks each, three questions of 3 marks each and three questions of 4 marks each. You have to attempt only one of the alternatives in all such questions.
(viii) Use of calculators is not permitted.

SECTIONS – A (Questions 01 to 20 carry 1 marks each)

1. Which one of the following rational numbers is a non–terminating decimal ?
i) $\frac{29}{3125}$ ii) $\frac{17}{1875}$ iii) $\frac{6}{15}$ iv) $\frac{798}{175}$

2. Out of the following relations the correct one is
i) Median = 3 Mode + 2 Mean ii) Mode = 2 Median + 3 Mean
iii) Mode = 3 Median + 2 Mean iv) Mode = 3 Median – 2 Mean

3. The coordinates of two points A and B are respectively (– 6, 7) and (– 1, –5). The distance of 2AB is
i) 13 ii) – 26 iii) 338 iv) 26

4. The perimeter of a circle is equal to that of a square. The ratio of their areas is
i) 11 : 14 ii) 22 : 7 iii) 7 : 22 iv) 14 : 11

5. Which of the following pair of linear equations are inconsistent ?
i) $3x + 2y = 5,\ 2x - 3y = 7$ ii) $2x - 3y = 8,\ 10x - 15y = 11$
iii) $\frac{3x}{2}+\frac{5y}{3}=\frac{7}{6},\ 9x-10y=28$ iv) $11x + 32y = -56,\ 2x + y = 7$

OR, The value of 'k' for which the pair of linear equations $2x + 3y = 7$ and $(k - 1)x + (k+2)y = 3k$ have infinitely many solutions is
i) $\frac{7}{2}$ ii) 7 iii) $\frac{7}{6}$ iv) – 7

6. Find the zeroes of the quadratic polynomial $x^2 + 7x + 10$.
i) 5, 2 i) 5, – 2 iii) –5, – 2 iv) –5, 2

7. In fig–1, centre of the circle is O. From outside point P, two tangents PA and PB are drawn to touch the circle. Given $\angle APB = 40^\circ$. Find $\angle AOB$.
i) 50° ii) 140° iii) 100° iv) 80°

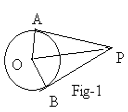

Fig-1

8. Write the polynomial, whose zeroes are p and q. Given that, $p + q = 7$ and $pq = 5$.
i) $x^2 + 7x + 5$ ii) $x^2 + 7x + 10$ iii) $x^2 - 7x - 5$ iv) $x^2 - 7x + 5$

9. If $\sin^2\theta + \sin^2 40^\circ = 1$, then value of θ is
i) 50° ii) 40° iii) 20° iv) 70°

10. The coordinates of point A, where AB,a diameter of a circle with centre at (2, – 3) and B as (1, 4) is
i) (– 3, 10) i) (3, – 10) iii) (–3, –10) iv) (4, –6)

11. Is the rational number $\frac{441}{2^2.5^7.7^2}$ is a terminating or a non-terminating decimal ?

12. A number is chosen at random from the numbers $-3, -2, -1, 0, 1, 2, 3$. Find the probability that square of the number chosen is less than or equal to 1.

13. If $\cot\theta = \frac{2}{3}$ and $\theta + \alpha = 90^o$, then what is the value of $\cot\alpha$?

14. Find the coordinate of the mid-point of the line segment joining the points whose coordinates are $\left(\frac{3}{2},\ -5\right)$ and $\left(-\frac{7}{2},\ 4\right)$.

15. In fig-2, XY||QR and PX = 3 cm, XQ = 2 cm and PR = 6 cm, find PY.

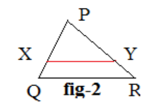

fig-2

16. The length of the shadow of a post is $\sqrt{3}$ times its height. Find the angle of elevation of the source of light.

OR, Write in simplest form : $\frac{\tan^2 A}{\sec A + 1}$.

17. Write a rational number between $\sqrt{2}$ and $\sqrt{3}$.

18. A die is thrown once. What is the probability of getting an odd number ?

19. The lengths of the sides of the ΔABC are 3 cm, 5 cm and 7 cm. The lengths of the sides of the ΔPQR are 6 cm, 10 cm and 14 cm. Find : area(ΔABC) : area(ΔPQR).

20. Write the sum of the first thirteen natural numbers.

SECTIONS – B (Questions 21 to 26 carry 2 marks each.)

21. If two zeroes of the polynomial $\left(x^3 - 5x^2 - 2x + 10\right)$ are $\sqrt{2}$ and $-\sqrt{2}$, then find its third zero.

22. A die is thrown twice. What is the probability of getting 8 as sum of the digits on upper faces of two throw.

OR, Cards marked with number 5, 6, 7 ....., 60 are placed in a box and mixed thoroughly. A card is drawn at random from the box. Find the probability that the selected card bears a perfect square number.

23. If all the sides of a parallelogram touch a circle, show that the parallelogram is a rhombus.

24. The height of a post is $5\left(\sqrt{3}-1\right)$ m. The angle of elevation of the top of a tower at a point on the level ground is 30^o. After walking a distance 'S' m. towards the foot of the tower along the horizontal line through the foot of the tower on the same level ground, the angle of elevation of the top of the tower is 45^o. Find 'S'.

OR, If $\sin\theta - \cos\theta = 0$ and $\sec\theta + \mathrm{cosec}\theta = x$, where $0^o < \theta < 90^o$, then find 'x'.

25. In fig–3 ABCD is a quadrant of a circle with radius 28 cm and a semicircle BED is drawn with BD as diameter. Find the area of the shaded region.

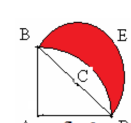

fig-3

26. From a pack of 52 playing cards all cards whose numbers are multiples of 3 are removed. A card is now drawn at random. Find the probability that the drawn card is :
(i) a face card (King, Jack or Queen) (ii) an even numbered red card.

SECTIONS – C (Questions 27 to 32 carry 3 marks each.)

27. Find the zeroes of the polynomial : $\left(2\sqrt{3}x^2 - 5x + \sqrt{3}\right)$.

28. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60°.

OR, Draw a right angled triangle ABC with BC = 7cm, $\angle B = 45^\circ$ and $\angle A = 90^\circ$. Then construct a triangle whose sides are $\frac{3}{4}$ times the corresponding sides of ΔABC.

29. In fig–4, a toy is in the form of a cone mounted on a hemisphere of common base of radius 7 cm. The total height of the toy is 31 cm. Find the total surface area of the toy. [$\pi = \frac{22}{7}$]

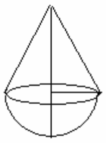
fig-4

30. Prove that, $\frac{1+\cos\alpha}{\sin\alpha} + \frac{\sin\alpha}{1+\cos\alpha} = 2.\mathrm{cosec}\,\alpha$.

OR, Prove that: $\sqrt{\tan^2\theta - \sin^2\theta} = \tan\theta.\sin\theta$.

31. Prove that $\sqrt{2}$ is an irrational number.

OR, A sweet seller has 420 *kaju barfis* and 130 *badam barfis*. She wants to stack them in such a way that each stack has the same number, and they take up the least area of the tray. What is the number of that can be placed in each stack for this purpose ?

32. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC.

SECTIONS – D (Questions 33 to 36 carry 4 marks each)

33. A(4, –6); B(1, 2); C(9, 5) are the vertices of ΔABC and AD is one of its median. With the help of the coordinate geometry, prove that AD divides ΔABC in two triangles of equal areas.

34. Test whether the given pairs of linear equations has unique solution. In case there is a unique solution, find it by using cross multiplication method : $\frac{1}{x} - \frac{3}{y} = 7,\ \frac{3}{x} - \frac{2}{y} = 15$

35. If the roots of the equation $\left(x^2 - a^2\right) + c(2px + c) + p^2x^2 = 0$ are equal, then prove that, $c^2 - a^2 = (ap)^2$.

36. The 4^{th} term of an A.P. is equal to three times the 1^{st} term & the 7^{th} term exceeds twice the 3^{rd} term by 1. Find the 1^{st} term and common difference.

OR, The sum of first p-terms of an A.P. is ‘q’ and the sum of first q-terms is ‘p’. Find the sum of first (p + q) terms.

37. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides. Using this property, prove that, if the areas of two similar triangles are equal, then the triangles are congruent.

38. Two ships are sailing in the sea on either side of a light-house. The angles of depression of two ships as observed from the top of the light-house are 60° and 45° respectively. If the distance between the ships is $200\left(\frac{\sqrt{3}+1}{\sqrt{3}}\right)$ metres, find the height of the light-house.

OR, From the top of a building 100 m. high, the angles of depression of the top and bottom of a tower are observed to be 45° and 60° respectively. Find the height of the tower. Also find the distance between the foot of the building and the bottom of the tower.

39. A solid wooden toy is in the form of a hemisphere surmounted by a right circular cone. Height of the cone is 2 cm and the diameter of the base is 4 cm. If a right circular cylinder circumscribes the solid, find how much more space it will cover. [see fig-5]

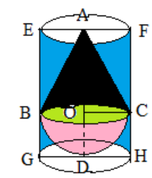

fig-5

OR, A hemispherical bowl of diameter 7.2 cm is filled completely with chocolate sauce. This sauce is poured into an inverted cone of radius 4.8 cm. Find the height of the cone.

40. If the median of the distribution given below is 28.5, find the values of x and y.

Class interval	Frequency
0 – 10	5
10 – 20	x
20 – 30	20
30 – 40	15
40 – 50	y
50 – 60	5
Total	60

"Learning is a Treasure, which accompanies its owner everywhere."

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