KENDRIYA VIDYALAYA GACHIBOWLI, HYDERABAD – 32

SAMPLE PAPER 03 FOR SA – II (2016-17)

SUBJECT: MATHEMATICS

BLUE PRINT : SA-II CLASS IX

Unit/Topic	MCQ (1 mark)	Short answer (2 marks)	Short answer (3 marks)	Long answer (4 marks)	Total
Algebra Linear Equations in two variables	2(2)	4(2)	6(2)	4(1)	**16(7)**
Geometry Quadrilaterals, Area, Circles & Construction	1(1)	4(2)	9(3)	24(6)	**38(12)**
Mensuration Surface Areas and Volumes	--	--	9(3)	9(3)	**18(6)**
Statistics	1(1)	2(1)	3(1)	4(1)	**10(4)**
Probability	--	2(1)	6(2)	--	**8(3)**
Total	**4(4)**	**12(6)**	**30(10)**	**44(11)**	**90(31)**

The test of OTBA for SA-II will be from Unit-II Quadrilaterals

MARKING SCHEME FOR SA – II

SECTION	MARKS	NO. OF QUESTIONS	TOTAL
VSA	1	4	04
SA – I	2	6	12
SA – II	3	8	24
LA	4	10	40
OTBA	3	2	6
	4	1	4
GRAND TOTAL			**90**

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SAMPLE PAPER 03 FOR SA – II (2016-17)

SUBJECT: MATHEMATICS **MAX. MARKS : 90**

CLASS : IX **DURATION : 3 HRS**

General Instructions:

1. All questions are compulsory.
2. Question paper is divided into four sections: Section A consists 4 questions each carry 1 marks, Sections B consists 6 questions each carry 2 marks, Sections C consists 8 questions each carry 3 marks, Sections D consists 10 questions each carry 4 marks and Sections E consists 2 questions of 3 marks 1 question of 4 marks from OTBA Text Theme
3. There is no overall choice.
4. Use of Calculator is prohibited.

SECTION – A

1. The mean of the following data is 37. Find x
28, 35, 25, 32, x, 40, 45, 50

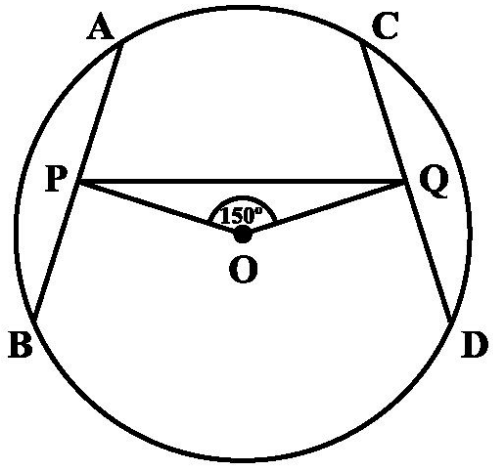
2. ABCD is a cyclic quadrilateral whose diagonals intersect at a point E. If $\angle DBC = 70°$, $\angle BAC$ is 30°, find $\angle BCD$.

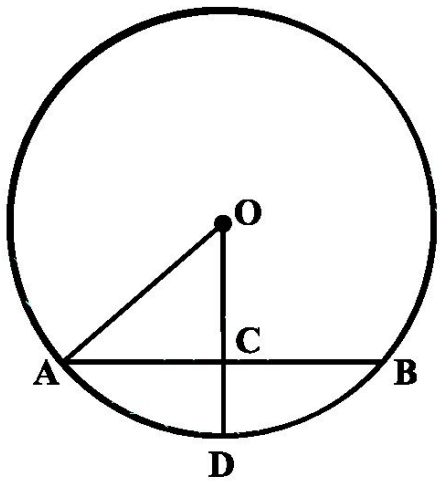
3. Find the value of a if x = 1 and y = 1 is the solution of $3x + ay = 6$.

4. Find the point of intersection of the line represented by the equation $7x + y + 2 = 0$ with y-axis.

SECTION – B

5. In the below figure, AB and CD are two equal chords of a circle with centre O. OP and OQ are perpendiculars on chords AB and CD, respectively. If $\angle POQ = 150^0$, then find $\angle APQ$.





6. In the above right sided figure, if OA = 5 cm, AB = 8 cm and OD is perpendicular to AB, then find CD.

7. Find the four solutions of the linear equation $2x + 3y – 12 = 0$.

8. Show that the points A (1, 2) and B (– 1, – 16) lie on the graph of the linear equation $y = 9x – 7$.

9. In a cricket match, a batsman hits a boundary 5 times out of 30 balls, he plays. Find the probability that he hit a boundary.

10. A school has two sections. The mean mark of one section of size 40 is 60 and mean mark of other section of size 60 is 80. Find the combined mean of all the students of the school.

SECTION – C

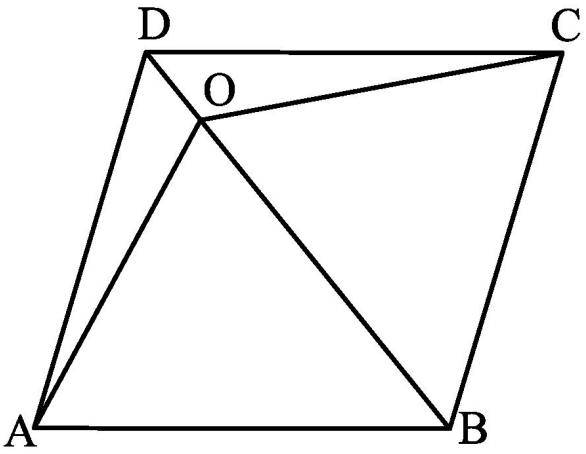
11. Give the geometric representations of $y = 3$ as an equation
(i) in one variable (ii) in two variables

12. The following values of x and y are thought to satisfy a linear equation :

x	1	2
y	1	3

Draw the graph, using the values of x, y as given in the above table. At what point the graph of the linear equation (i) cuts the x-axis. (ii) cuts the y-axis.

13. In the fig. O is any point on the diagonal BD of the parallelogram ABCD. Prove that ar(ΔOAB) = ar(ΔOBC).



14. A cylindrical roller 2.5 m in length, 1.75 m in radius when rolled on a road was found to cover the area of 5500 m^2. How many revolutions did it make?

15. The mean of the following distribution is 50. Find the value of p.

C. I.	10	30	50	70	90
Freq	17	p	32	24	19

16. A right triangle ABC with sides 5 cm, 12 cm and 13 cm is revolved about the side 12 cm. Find the volume of the solid so obtained.

17. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears (i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5.

18. A die is thrown 500 times with the frequencies for the outcomes 1, 2, 3, 4, 5 and 6 as given in the following table :

Outcome	1	2	3	4	5	6
Frequency	79	50	57	49	125	140

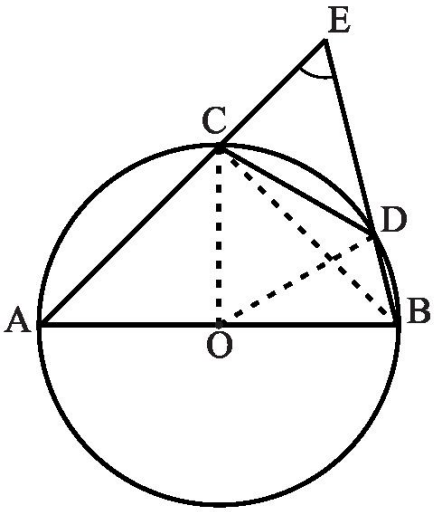
Find the probability of getting (i) an odd number (ii) a prime number and
(iii) a number greater than 4.

SECTION – D

19. Prove that *"Two triangles on the same base and between the same parallels are equal in area"*.

20. Construct a triangle ABC in which BC = 8cm, $\angle B = 30^0$ and AB – AC = 3.5cm

21. In the below figure, AB is a diameter of the circle, CD is a chord equal to the radius of the circle. AC and BD when extended intersect at a point E. Prove that $\angle AEB = 60°$.



22. If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.

23. What length of tarpaulin 3 m wide will be required to make conical tent of height 8 m and base radius 6 m? Assume that the extra length of material that will be required for stitching margins and wastage in cutting is approximately 20 cm (Use $\pi = 3.14$).

24. A wall of length 10 m was to be built across an open ground. The height of the wall is 4 m and thickness of the wall is 24 cm. If this wall is to be built up with bricks whose dimensions are 24 cm × 12 cm × 8 cm, how many bricks would be required?

25. 100 surnames were randomly picked up from a local telephone directory and frequency distributions of the number of letters in the English alphabet in the surnames was found as follows:

Number of letters	Number of surnames
1 – 4	6
4 – 6	30
6 – 8	44
8 – 12	16
12 – 20	4

(i) Draw a histogram to depict the given information.
(ii) Write the class interval in which the maximum number if surnames lie.

26. A villager Itwaari has a plot of land of the shape of a quadrilateral. The Gram Panchayat of the village decided to take over some portion of his plot from one of the corners to construct a Health Centre. Itwaari agrees to the above proposal with the condition that he should be given equal amount of land in lieu of his land adjoining his plot so as to form a triangular plot. Explain how this proposal will be implemented. What value depicted from these?

27. A dome of a building is in the form of a hemisphere. From inside, it was white-washed at the cost of Rs 498.96. If the cost of white-washing is Rs 2.00 per square metre, find the (i) inside surface area of the dome, (ii) volume of the air inside the dome.

28. Draw the graphs of the equations $3x - 2y = 4$ and $x + y - 3 = 0$ in the same graph paper. Find the coordinates of the point where two lines intersect.

SECTION – E (OTBA)

THEME 1: SOLVING MYSTERY OF MESSED UP FIELDS

29. Raja, Ram and Mohan have field in the shape of a equilateral triangle of side 80 m. They want to sow three different crops viz. rice, pulses and vegetables in equal area. How can they divide their field in three parts of equal area? Justify your answer. (4 marks)

30. Also find the cost of fencing the fields outer boundary at the rate of Rs. 12 per m. Write the properties of equilateral triangle. (3 marks)

31. What is the cost of ploughing the filed planned for pulses at the rate of Rs. 20 per m^2. (3 marks)