

KENDRIYA VIDYALAYA GACHIBOWLI , HYDERABAD - 32
SAMPLE PAPER 03 FOR SA - II (2015-16)

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	--	--	6(2)	4(1)	10(3)
Geometry Quadrilaterals, Area, Circles & Construction	2(2)	6(3)	6(2)	24(6)	38(13)
Mensuration Surface Areas and Volumes	1(1)	--	9(3)	12(3)	22(7)
Statistics	1(1)	4(2)	3(1)	4(1)	12(5)
Probability	--	2(1)	6(2)	--	8(2)
Total	4(4)	12(6)	30(10)	44(11)	90(31)

The test of OTBA for SA-II will be from Unit-II Linear Equation in Two variables

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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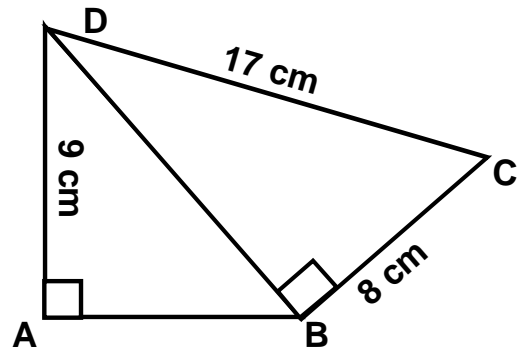
MAX. MARKS : 90
DURATION : 3 HRS

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.

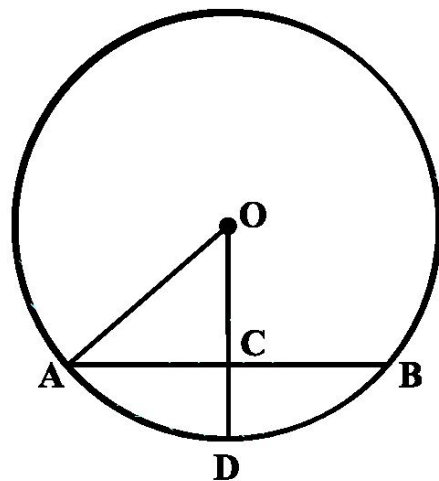
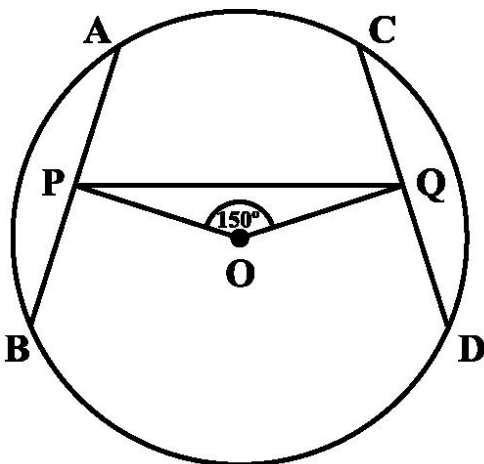
SECTION – A

1. The mean of the following data is 37. Find x
28, 35, 25, 32, x, 40, 45, 50
2. What is the total surface area of a hemisphere of base radius 7cm?
3. ABCD is a cyclic quadrilateral whose diagonals intersect at a point E. If $\angle DBC = 70^\circ$, $\angle BAC$ is 30° , find $\angle BCD$.
4. Find the area of a given quadrilateral is



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 $\angle POQ = 150^\circ$, then find $\angle APQ$.

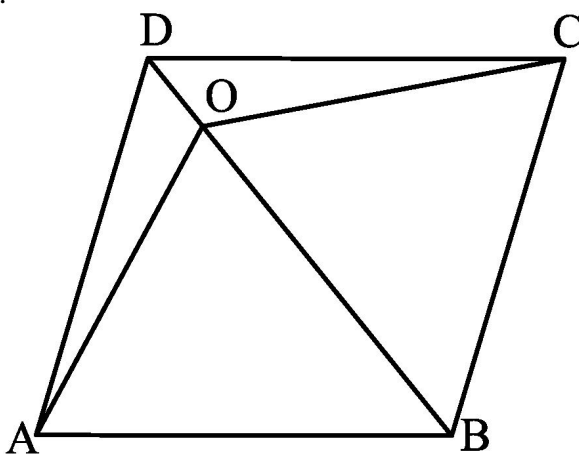


6. In the above right sided figure, if $OA = 5$ cm, $AB = 8$ cm and OD is perpendicular to AB, then find CD.
7. D and E are points on sides AB and AC respectively of $\triangle ABC$ such that $\text{ar}(\triangle DBC) = \text{ar}(\triangle EBC)$. Prove that $DE \parallel BC$.

8. Find the median of first sixteen odd numbers.
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. Prove that a diagonal of a parallelogram divides it into two congruent triangles.
12. 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 $\pi = 3.14$).
13. In the fig. O is any point on the diagonal BD of the parallelogram ABCD. Prove that $\text{ar}(\triangle OAB) = \text{ar}(\triangle OBC)$.



14. A joker's cap is in the form of a right circular cone of base radius 7 cm and height 24 cm. Find the area of the sheet required to make 10 such caps.

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 river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour. How much water will fall into the sea in a minute?
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 1000 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	179	150	157	149	175	190

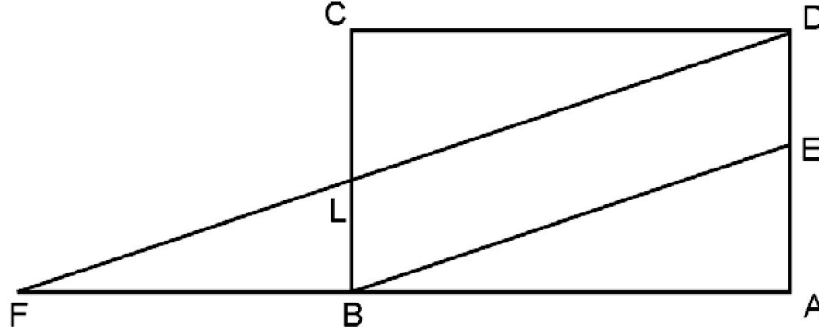
Find the probability of getting (i) an odd number (ii) a prime number and (iii) a number greater than 4.

SECTION – D

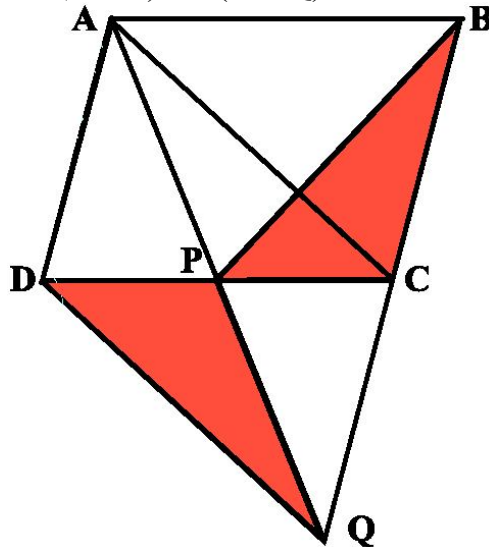
19. Prove that “Two parallelograms on the same base and between the same parallels are equal in area”.

20. Construct a triangle ABC in which $BC = 8\text{cm}$, $\angle B = 30^\circ$ and $AB - AC = 3.5\text{cm}$

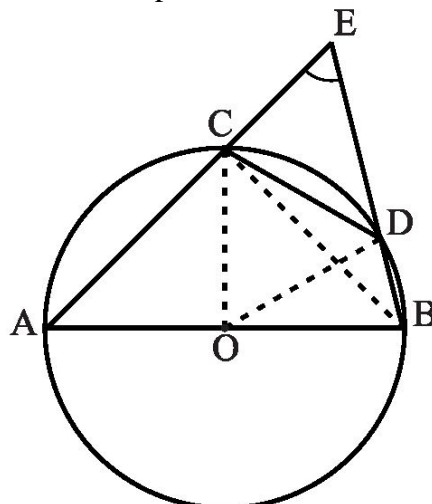
21. In the below Fig., ABCD is a parallelogram and E is the mid point of AD. $DL \parallel BE$ meets AB produced at F. Prove that B is the midpoint of AF and $EB = LF$.



22. In fig. ABCD is a parallelogram and BC is produced to a point Q such that $AD = CQ$. If AQ intersects DC at P, show that $\text{ar}(\triangle BPC) = \text{ar}(\triangle DPQ)$



23. 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 $\angle AEB = 60^\circ$.



24. 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.
25. A school provides milk to the students daily in a cylindrical glasses of diameter 7 cm. If the glass is filled with milk upto an height of 12 cm, find how many litres of milk is needed to serve 1600 students. What are the benefits of drinking milk everyday?
26. 30 circular plates, each of radius 14 cm and thickness 3cm are placed one above the another to form a cylindrical solid. Find : (i) the total surface area (ii) volume of the cylinder so formed.
27. 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 \times 12 cm \times 8 cm, how many bricks would be required?
28. 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.

SECTION – E (OTBA)

THEME – 2: ENERGY CONSUMPTION AND ELECTRICITY BILL

29. Form a linear equation if the total bill of a house in Delhi is above Rs. 3000 for a month assuming that the consumption is of 'x' units as per Delhi tariff slabs shown in actual bill. **(3 marks)**
30. Form linear equations to calculate bill for consumption of electricity units between 200 units and 400 units for all states and metro cities given in last table of the text. **(3 marks)**
31. Amit has three bedrooms flat. He installed four fans and two air conditioners of 1 ton in the house. He observed that his total consumption for light and other electrical appliances excluding fan and air conditioner is 200 units in a month. He wishes that his monthly consumption of electricity should be 550 units in a month. Establish a linear equation for the same assuming that he is using all fans for 'm' number of hours and air conditioner for 'p' number of hours. AC of 1 ton take load of 1900 W. **(4 marks)**