KENDRIYA VIDYALAYA GACHIBOWLI, HYDERABAD – 32
SAMPLE PAPER 01 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	1(1)	6(3)	3(1)	28(7)	**38(12)**
Mensuration Surface Areas and Volumes	2(2)	--	12(4)	8(2)	**22(8)**
Statistics	--	2(1)	6(2)	4(1)	**12(4)**
Probability	1(1)	4(2)	3(1)	--	**8(4)**
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**

KENDRIYA VIDYALAYA GACHIBOWLI, HYDERABAD – 32
SAMPLE PAPER 01 FOR SA – II (2015-16)

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. If the length of a chord of a circle at a distance of 5 cm from the centre of the circle is 24 cm, find the radius of the circle.

2. The curved surface area of a cylinder of height 14 cm is 88 cm^2. Find the diameter of its circular base.

3. A bag has 4 red balls and 2 yellow balls. A ball is drawn from the bag without looking into the bag. What is probability of getting a yellow ball?

4. Base radius of two cylinder are in the ratio 2 : 3 and their heights are in the ratio 5 : 3. Find the ratio of their volumes.
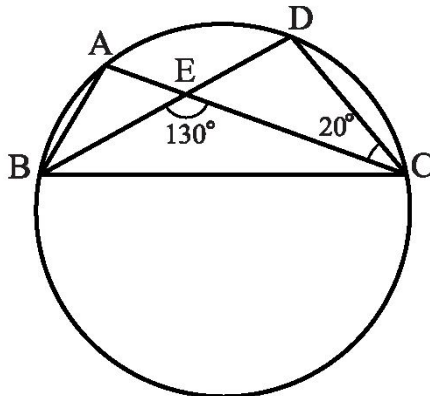
SECTION – B

5. In the below fig. O is any point on the diagonal BD of the parallelogram ABCD. Prove that ar(ΔOAB) = ar(ΔOBC).
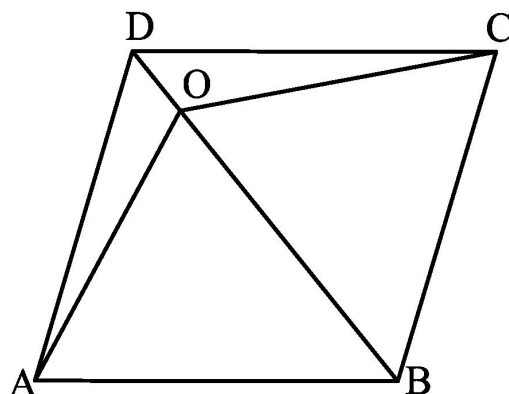
6. The record of a weather station shows that out of the past 250 consecutive days, its weather forecasts were correct 175 times. (i) What is the probability that on a given day it was correct? (ii) What is the probability that it was not correct on a given day?

7. The following observations have been arranged in ascending order as 29, 32, 48, 50, x, x + 2, 72, 78, 84, 95. If the median of the data is 63, find the value of x.

8. Angles of a quadrilateral are in the ratio 3 : 4 : 4 : 7. Find all the angles of the quadrilateral.

9. Cards are marked with numbers 4, 5, 6, …….50 are placed in the box and mixed thoroughly. One card is drawn at random from the box. What is the probability of getting (i) an even prime number (ii) a number divisible by 5?

10. In the below figure, A, B, C and D are four points on a circle. AC and BD intersect at a point E such that ∠BEC = 130° and ∠ECD = 20°. Find ∠BAC.

SECTION – C

11. A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be (i) red ? (ii) white ? (iii) not green?

12. 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.

13. The value of π upto 50 decimal places is given below:

3.14159265358979323846264338327950288419716939937510

(i) Make a frequency distribution of the digits from 0 to 9 after the decimal point. (ii) What are the most and the least frequently occurring digits?

14. In a quadrilateral ABCD, AO and BO are the bisectors of ∠A and ∠B respectively. Prove that
$\angle AOB = \dfrac{1}{2}(\angle C + \angle D)$

15. 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.

16. For the following data, draw a histogram and a frequency polygon

x	0 – 20	20 – 30	30 – 50	50 – 60	60 – 80	80 – 100
f	12	15	20	18	10	14

17. A river, 3 m deep and 40m wide, is flowing at the rate of 2km/hr. How much water will fall into the sea in a minute?

18. A conical tent is 10 m high and the radius of its base is 24 m. Find (i) slant height of the tent. (ii) cost of the canvas required to make the tent, if the cost of 1 m² canvas is Rs 70.
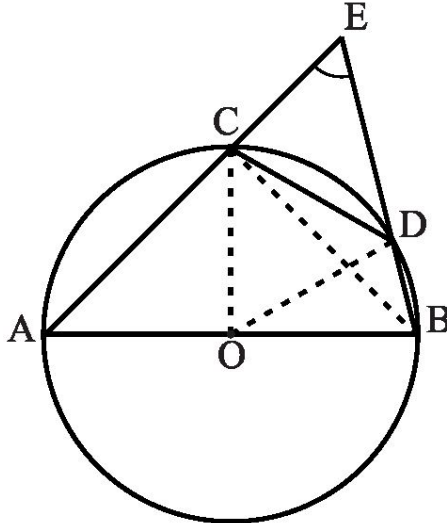

SECTION – D

19. Construct a triangle XYZ in which ∠Y = 30°, ∠Z = 90° and XY + YZ + ZX = 11 cm.

20. Find the mean of the following data:

Income	50	150	250	350	450	550	650	750
No. of persons	4	8	9	10	7	5	4	3

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 ∠AEB = 60°.

22. Prove that *"The line segment joining the mid-points of two sides of a triangle is parallel to the third side and half of it"*.

23. Prove that *"The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle."*

**24.** Prove that *"The sum of either pair of opposite angles of a cyclic quadrilateral is 180°."*

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 taking milk daily?

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. In the below figure, ABCDE is any pentagon. BP drawn parallel to AC meets DC produced at P and EQ drawn parallel to AD meets CD produced at Q. Prove that ar (ABCDE) = ar (APQ)

---
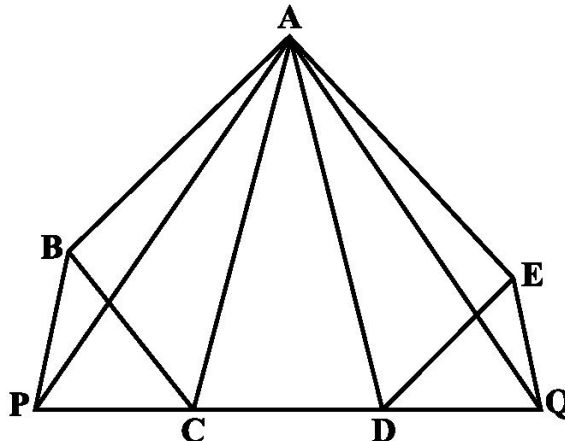
28. In fig. P is a point in the interior of a parallelogram ABCD. Show that

ar (APD) + ar (PBC) = ar (APB) + ar (PCD)
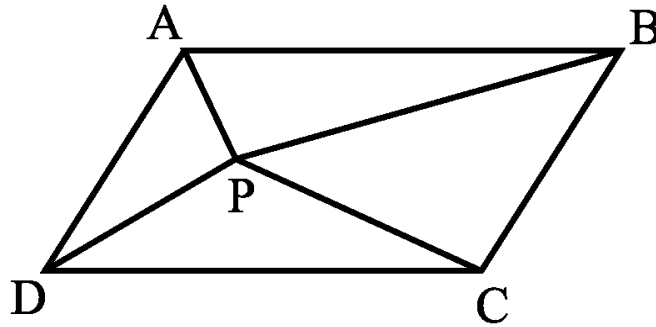
SECTION – E (OTBA)
THEME – 1: CHILDHOOD OBESITY IN INDIA

29. Body mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. Taking the height as 160 cm, form a linear equation in two variables, taking BMI as x and weight as y kg. Draw the graph also. **(3 marks)**

30. It is stated that "Children from age one onwards grows taller and heavier till they reach adolescence at a whopping rate of about 2 kg every year for weight and 3 inches for height."
Assuming weight as variable 'w' and height as 'h' and 'a' as age in years, if weight at the age 1 weighs 5 kg and its height is 24 inches, establish a linear relationship between (a) a and w (b) a and h. **(3 marks)**

31. Atul wants to burn 250 calories in a day by doing physical activity. He chooses walking and running up stairs for the same and plans to spend 't' hours in walking and 's' hours in running up stairs. Write a linear equation for the same and draw the graph. **(4 marks)**