

## SUMMATIVE ASSESSMENT -- II MARCH 2015

### MATHEMATICS

#### CLASS - IX

Time allowed: 3½ hours

Maximum Marks: 90

General Instructions:

#### SET A

- I. All questions are compulsory.
- II. The question paper consists of 31 questions divided into five sections A, B, C, D and E. Section A comprises of 4 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 8 questions of 3 marks each. Section D comprises of 10 questions of 4 marks each. Section E comprises of three questions from Open Text theme of 10 marks.
- III. There is no overall choice.
- IV. Use of calculator is not permitted.

#### Section A

1. If the volume and surface area of a sphere are numerically equal, find the radius.
2. In a cricket match, a batsman hits a sixer 8 times out of 32 balls played. Find the probability that a sixer is not hit in a ball.
3. What is the equation of a line parallel to x-axis?
4. Distance of a chord of a circle from the centre is 4cm and length of the chord is 6cm. Find the diameter of the circle.

#### Section B

5. Find k if  $x = 2$ ,  $y = 1$  is a solution of the equation  $2x + 3k = y$ .
6. The height of a cone is 15cm. If its volume is  $1570\text{cm}^3$ , find the radius ( $\pi = 3.14$ ).
7. A and B are the only outcomes of an event. If  $P(A) = 0.56$ , find  $P(B)$ .
8. Express the equation  $y = 2x + 3$  in the standard form and find the points at which it meets x-axis and y-axis.
9. In a group of 70 persons, there are 15 boys, 20 girls, 30 men and rest women. Find the probability that a selected person is a woman.
10. Prove that the perpendicular from the centre of a circle to a chord bisects the chord.

#### Section C

11. Give the geometric representation of  $3x + 12 = 0$  as an equation
  - (i). In one variable
  - (ii). In two variables.
12. Construct  $\Delta ABC$  in which  $BC = 8\text{cm}$ ,  $\angle B = 45^\circ$ ,  $AB - AC = 3.5\text{cm}$ .
13. A solid cube of side 12cm is cut into eight cubes of equal volume. What will be the side of the new cube?

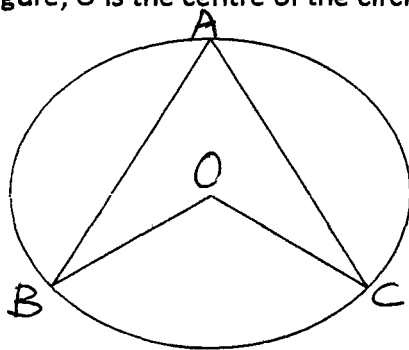
14. On a busy road, the following data was observed about cars passing through it and the number of occupants.

No: of occupants	1	2	3	4	5
No : of cars	29	26	23	17	5

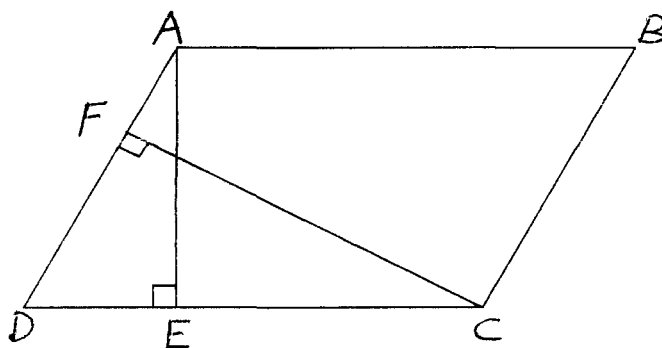
Find the probability that it has

- Exactly 5 occupants
  - Less than 5 occupants
  - More than 2 occupants.
15. Prove that a diagonal of a parallelogram divides it into two congruent triangles.

16. In the given figure, O is the centre of the circle. Prove that  $\angle BOC = 2\angle BAC$



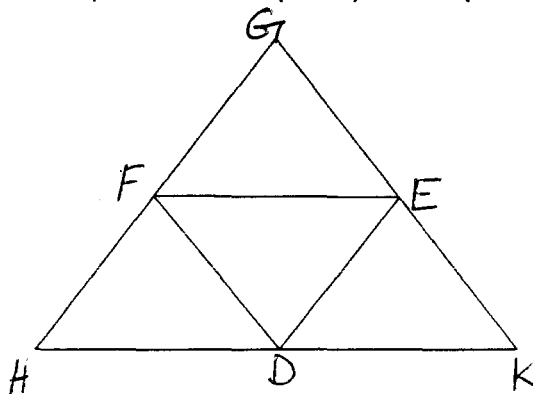
17. Prove that the line segment joining the midpoints of the opposite sides of a quadrilateral bisect each other.
18. ABCD is a parallelogram. AE is perpendicular to DC, CF is perpendicular to AD. If AB = 16cm, AE = 8cm and CF = 10 cm, find AD.



### Section D

19. Shade the triangle formed by the graphs of  $2x - y = 4$ ,  $x + y = 2$  and  $y$  axis. Write the coordinates of the vertices of the triangle so formed.
20. ABCD is a trapezium in which AB is parallel to CD and  $AD = BC$ . Show that
- $\angle A = \angle B$
  - $\angle C = \angle D$
  - $\triangle ABC \cong \triangle BAD$
  - $AC = BD$

21. The force applied on a body is directly proportional to the acceleration produced in the body. Write an equation to express this situation, taking constant as 3 units. Plot the graph of the equation.
22. ABCD is a rectangle. P, Q, R, S are midpoints of sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rhombus.
23. 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.
24. The capacity of a closed cylindrical vessel of height 1m is 15.4litres. How many square metres of metal sheet would be needed to make it?
25. It costs 2200 Rupees to paint the inner curved surface of a cylindrical vessel 10m deep. If the cost of painting is at the rate of 20 Rupees per square metre. Find
- Inner Curved Surface Area of the vessel.
  - Radius of the base
  - Capacity of the vessel
26. In  $\Delta GHK$ ; D, E and F are the midpoints of sides HK, KG, GH respectively. Show that EFHK is a trapezium and  $\text{ar}(\text{EFHK}) = \frac{3}{4} \text{ar}(\Delta GHK)$ .



27. Govind builds a room measuring 22m by 20m. He also builds a cylindrical tank having diameter of base 2m, height 3.5m adjoining the room to collect the rain water to roof for harvesting.
- If the tank is just filled with rain water, find rainfall in cm.
  - What values are depicted in Govind's plan?
28. Construct  $\Delta XYZ$  if its perimeter is 11cm,  $\angle Y = 30^\circ$ ,  $\angle Z = 90^\circ$ .

**Section E**  
**Open text based assessment**

29. On the basis of the given details about the FTAs in India during 2012, answer the following.
- I. Find the mean percentage of foreign visitors in India during the month of May to December. (using figure 1).
  - II. Which month has minimum number of FTAs in India? (3 marks)
30. Prepare a Histogram on the percentage distribution of Foreign Tourist Arrival in India according to age groups during 1996- 2012 for class size 10 (using Table 3). (3 marks)

31. The percentage of users in different languages among the FTA is given in the table below.

Language	Italian	English	Spanish	Polish	Russian	Serbian	Portuguese
Percentage of users	12	33	14	10	11	8	12

- I. Draw a bar graph for the above data.
- II. Find the mode of the above data. (3 + 1 marks)