Summative Assessment II in **MATHEMATICS – Std. 9**   M. Marks : 90
29-2-2016   Time : 3 hrs.

Roll No: ☐☐

Total printed pages :	06
Total printed questions :	31

General Instructions:
i)   All questions are compulsory.
ii)   The question paper consists of 31 questions.
iii)   Section – A consists of 4 questions of 1 mark each.
iv)   Section – B consists of 6 questions of 2 marks each.
v)   Section – C consists of 8 questions of 3 marks each.
vi)   Section – D consists of 10 questions of 4 marks each.
vii)   Section – E OTBA of 10 marks.

Section – A

1.   In parallelogram ABCD, if $\angle A = 70^o$, then find $2 \angle D$.

2.   If the mean of 6, 4, 7, p and 10 is 8, find the value of p.

3.   Find the area of parallelogram whose base is 12cm and altitude is 4cm.

4.   In a cricket match, a batsman hits a boundary 5 times out of 30 balls he plays. Find the probability that he does not hit a boundary.

Section – B

5.   The opposite angles of a parallelogram are $(3x-3)^0$ and $(5x-67)^0$. Find all the angles of the parallelogram.

6.   Prove that equal chords of a circle subtend equal angles at the centre.

7.   Find the curved surface area of right circular cone, whose slant height is 25cm and radius of the base is 7cm.

8.   Show that the median of a triangle divides it into two triangles of equal area.

9.   The height of a cylinder is 18cm and the circumference of its base is 44cm. Find its curved surface area.

10.   In a parallelogram ABCD, E and F are any two points on the sides AB and BC respectively. Show that ar(ADF) =ar(DCE).
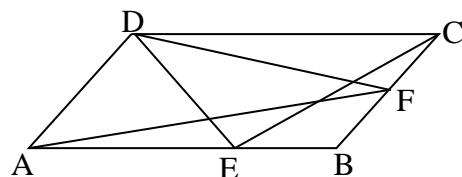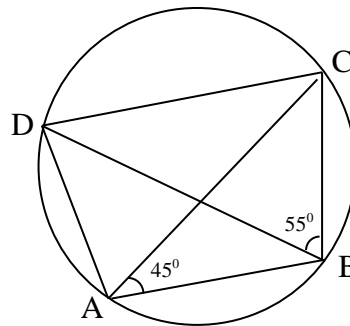
Section – C

11.   Construct a triangle ABC in which BC = 6.8cm, AB – AC = 2cm & $\angle C = 60^o$.

12.   If the volume of two spheres are in the ratio 8:27, then find the ratio of their surface areas.

13.   In triangle ABC, E is the midpoint of
       median AD. Show that ar(BED) = $\frac{1}{4}$ar(ABC).
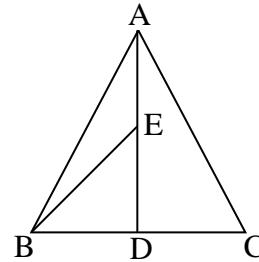
14.   ABCD is a cyclic quadrilateral in which
       AC & BD are its diagonals.
       If $\angle DBC = 55^0$ and $\angle BAC = 45^0$,
       find $\angle BCD$.

15.   Fifty seeds were selected at random from each of 5 bags of seeds and were kept for germination. After 20 days, the number of seeds which had germinated were counted.

Bag	1	2	3	4	5
No. of seeds	45	47	41	38	35

       What is the probability of germination of
   i)   more than 45 seeds in a bag.   ii)   50 seeds in a bag.
       iii)   more than 35 seeds in a bag.

16.   A 20 m deep well with diameter 7m is dug and earth from digging is spread evenly to form platform 22m X 14m. Determine the height of the platform.

17.   Show that the line segments joining the midpoints of the opposite sides of a quadrilateral bisect each other.

18.   Calculate the mean, median and mode of the marks (out of 5):
       2, 3, 1, 4, 5, 2, 3, 4, 5, 2, 2, 4, 3, 1, 4, 2.

Section – D

19. A hemispherical bowl made of brass has inner diameter 10.5 cm. Find the cost of tin plating it on the inside at the rate of Rs.16 per 100cm^2.

20. Show that the bisectors of angles of a parallelogram form a rectangle.

21. If two non-parallel sides of a trapezium are equal, prove that it is cyclic.

22. The length, breadth and height of a room are 8m, 6m and 4m respectively. Find the cost of whitewashing the walls and the ceiling of the room at the rate of Rs.15 per m^2.

23. Amit donates blood to needy patients after every six months. Past record says that the dates of donation were as follows.

6	7	21	16	18	29	6	5	4
21	18	5	5	20	29	7	6	4
21	7	18	21	20	20	7	1	8

   i) Construct a grouped frequency distribution table with classes 0 – 5, 5 – 10 etc.
   ii) What is the range of this data?
   iii) What value is depicted by Amit in doing so?

24. If E, F, G and H are respectively the midpoints of sides AB, BC, CD & DA of parallelogram ABCD, then show that ar(EFGH) = $\frac{1}{2}$ar(ABCD).
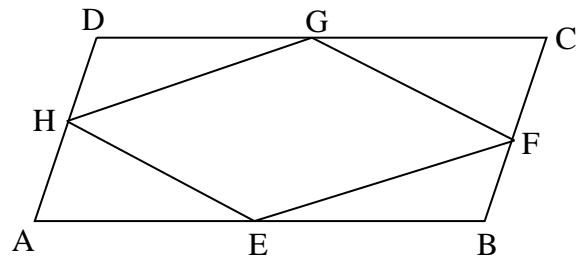
25. The ages (in years) of workers of a factory are as follows:

Age (in years):	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59	60 & above
No. of workers:	5	40	26	15	8	6

   If a worker is selected at random, find the probability that the worker is
   i) 30 years or more   ii) below 50 years
   iii) having age from 10 – 19 years   iv) below 10 years

26. A conical tent is 10m high and the radius of its base is 24m. Find
   i) the slant height of the tent.
   ii) cost of the canvas required to make the tent if the cost of 1m^2 canvas is Rs. 70.

27. The monthly profits (in Rs) of 100 shops are distributed as follows:

Profits per shop	No. of shops
0 – 50	12
50 – 100	18
100 – 150	27

150 – 200	20
200 – 250	17
250 – 300	6

Draw a frequency polygon using histogram for the above data.

28. Construct a triangle having perimeter 10cm and base angles 60^0 & 30^0.

Section – E