

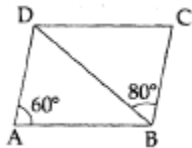
#### General Instructions:

1. All questions are compulsory.
2. The question paper consists of 32 questions divided into four 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 10 questions of 3 marks each and Section – D comprises of 11 questions of 4 marks each. Section E comprises of one question from Open Text Theme of 10 marks.
3. There is no overall choice.
4. Use of calculator is not permitted.

#### SECTION – A

Question numbers 1 to 4 carry one mark each.

1. Find  $k$ , if the line  $kx + 3y = 5$ , passes through  $(1, 1)$ .
2. The graph of linear equation in two variables is always a straight line. True or false?
3. In parallelogram ABCD of the given figure,  $\angle DAB = 60^\circ$  and  $\angle DBC = 80^\circ$ . Find  $\angle ABD$ .



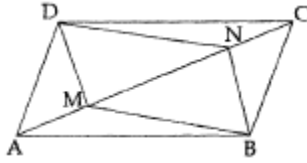
4. In a cylinder, if radius is halved and height is doubled, then find its volume.

#### SECTION – B

Question numbers 5 to 10 carry two marks each.

5. PQRS is a parallelogram and T is any point on side SR. If  $\text{ar}(\Delta PTQ) = 10 \text{ cm}^2$ , find  $\text{ar}(\text{PQRS})$ .
6. If a line intersects two concentric circles with centre O at A, B, C, D. Prove that  $AB = CD$ .





16. Prove that a cyclic parallelogram is a rectangle.
17. A heap of paddy is in the form of a cone whose radius is 2.1 m and height is 2.8 m. If the heap is to be covered exactly by a canvas to protect it from rain, then find the area of the canvas required.
18. Find the number of cubes, each having edge 3 m, that can be cut from a cuboid having dimensions  $18\text{ m} \times 12\text{ m} \times 9\text{ m}$ .
19. Construct a right angled triangle whose base is of length 4 cm and length of perpendicular is 3 cm. Now construct perpendicular bisectors of any two sides. Where these bisectors intersect?
20. A purse contains a number of Re. 1, Rs. 2 and Rs. 5 coins as given below:

Re. 1	Rs. 2	Rs. 5
10	14	14

If from the purse a coin is taken out at random, then find the probability that the coin:

- Is not a Re. 1 coin.
- Is a Rs. 3 coin.

### SECTION – D

**Question numbers 21 to 31 carry four marks each.**

21. Represent  $5x + y = 6$  by a graph. Write the coordinates of the point where it meets:
- $x$  – axis
  - $y$  – axis
22. The taxi fare in a city is as follows:  
For the first kilometre, the fare is Rs. 10 and for the subsequent distance it is Rs. 6 per km. Taking the distance covered as  $x$  km and total fare as Rs.  $y$ , write a linear equation for this information, and draw its graph. Also, find the distance travelled, if total fare is Rs. 70.
23. Circular badges are distributed in a school with a message of saving water. Each badge is designed by drawing two intersecting chords equidistant from the centre (see figure). Show that the segments of one chord are respectively equal to the segments of the other chord. Which value is depicted through this question?



24. Construct a triangle ABC in which  $BC = 8\text{ cm}$ ,  $\angle B = 45^\circ$  and  $AB - AC = 3.5\text{ cm}$ .

25. Diagonals AC and BD of a trapezium ABCD with  $AB \parallel DC$  intersect each other at O.  
Prove that  $\text{ar}(\Delta AOD) = \text{ar}(\Delta BOC)$
26. In triangle PQR, X, Y and Z are the mid – points of sides QR, PR and PQ respectively.  
Show that  $\text{ar}(\Delta ZYXQ) = \frac{1}{2} \text{ar}(\Delta PQR)$
27. The ratio of total surface area to the curved surface area of a right circular cylinder is 3:2.  
Find the volume if its total surface area is  $14784 \text{ cm}^2$ .
28. A conical tent has the area of its base as  $154 \text{ sq. m}$  and its curved surface area as  $550 \text{ sq. m}$ . Find the volume of the tent.
29. A village has a population of 4000 people. 60 litres of water is required per person per day. The village tanker of water is cuboidal in shape with dimensions  $48 \text{ m} \times 27 \text{ m} \times 5 \text{ m}$  which is completely filled with water. For how many days the water of this is sufficient?
30. In a mathematics test given to 15 students, the following marks out of 100 are recorded as:  
41, 39, 48, 52, 46, 62, 54, 40, 96, 52, 98, 40, 42, 52, 60  
Find the mean, median and mode of this data.
31. The following table gives the lifetime of 400 neon lamps:

Life time (in hours)	Number of lamps
300 – 400	14
400 – 500	56
500 – 600	60
600 – 700	86
700 – 800	74
800 – 900	62
900 – 1000	48

- Represent the given information with the help of histogram.
- How many lamps have lifetime of more than 700 hours.

### SECTION – E

#### 32. Theme – II (Adventure Camp) (1+2+3+4)

- How were days passed by the students in adventure camp?
- In Tripathi's team if a person is selected at random, then find the probability that he was successful in rock climbing in:
  - The first attempt.
  - More than two attempts.
- Calculate the ratio of volume of drink served in a cylindrical glass and hemispherical cup
- From the open text materials calculate the height of conical tent when it is given that radius of base is 7 m. Also find the volume of air available for one person in the tent.