

**CBSE Sample Paper-05 (Unsolved)**  
**SUMMATIVE ASSESSMENT -II**  
**MATHEMATICS**  
**Class - IX**

Time allowed: 3 hours

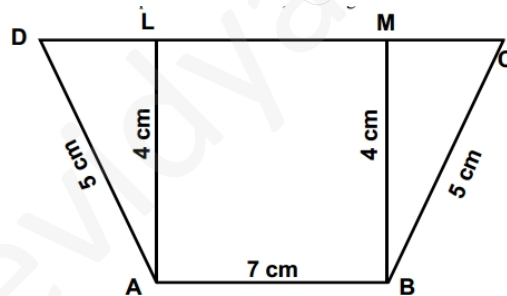
Maximum Marks: 90

**General Instructions:**

- All questions are compulsory.
- The question paper consists of 31 questions divided into five sections - A, B, C, D and E.
- Section A contains 4 questions of 1 mark each which are multiple choice questions, Section B contains 6 questions of 2 marks each, Section C contains 8 questions of 3 marks each, Section D contains 10 questions of 4 marks each and Section E contains three OTBA questions of 3 mark, 3 mark and 4 mark.
- Use of calculator is not permitted.

**Section A**

- The opposite angles of a parallelogram are equal. Write a linear equation in two variables to represent the statement.  
(a)  $x + y + 1 = 0$     (b)  $x = 2y$     (c)  $x + y = 0$     (d)  $x = y$
- In the below figure ABCD is a trapezium in which  $AB \parallel DC$ ;  $AB = 7$  cm ,  $AD = BC = 5$  cm and the distance between the parallel line is 4 cm, then the length DC =?



- (a) 12 cm    (b) 11 cm    (c) 15 cm    (d) 13 cm
- The base radii of the two cones are the same but their volumes are  $4\pi \text{ m}^3$  and  $9\pi \text{ m}^3$  respectively. The ratio of their heights is  
(a) 16 : 81    (b)  $\sqrt{2} : \sqrt{3}$     (c) 2 : 3    (d) 4 : 9
  - The distribution of weights in kg of 100 people is given below:

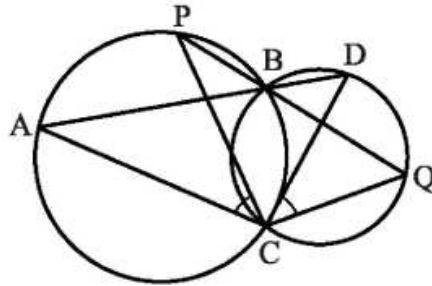
Weight (in Kg)	Frequency
40 - 45	13
45 - 50	25
50 - 55	28
55 - 60	15
60 - 65	12
65 - 70	5
70 - 75	2

Find the probability that the weight of a people selected at random is in class 45-50

- (a)  $\frac{1}{5}$       (b)  $\frac{1}{2}$       (c)  $\frac{1}{3}$       (d)  $\frac{1}{4}$

**Section B**

5. Draw the graph of the equation  $3x - 2y = 4$  and  $x + y - 3 = 0$  in the same graph paper. Find the coordinates of the point where two lines intersect.
6. Two circles intersect at two points B and C. through B two line segments ABD and PBQ are drawn to intersect the circles at A, D and P, Q respectively. Prove that  $\angle ACP = \angle QCD$



7. ABCD is a trapezium in which  $AB \parallel DC$ ,  $DC = 30$  cm and  $AB = 50$  cm. if X and Y are respectively the mid points of AD and BC, prove that  $\text{ar}(DCYX) = \frac{7}{9} \text{ar}(XYBA)$
8. ABCD is a rhombus and AB is produced to E and F such that  $AE = AB = BF$ . Prove that Ed and FC are perpendicular to each other.

Or

ABC is a triangle right angled at C. A line through the mid-point M of hypotenuse AB and parallel to BC intersects AC at D. Show that

- (i) D is the mid-point of AC  
 (ii)  $MD \perp AC$   
 (iii)  $CM = MA = \frac{1}{2} AB$ .
9. The height of the cone is 16 cm and its base radius is 12 cm. find the curved surface area and the total surface area of the cone.
10. On a particular day the number of vehicles passing through a crossing is two wheelers 57, three wheelers 33, and four wheelers 30. A particular vehicle is chosen at random. What is the probability that it is not a four wheeler?

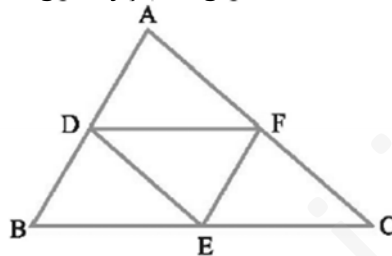
**Section C**

11. Write the equation  $y - \sqrt{3} = 8x + \sqrt{3}$  in the form  $ax + by + c = 0$ . Check whether  $(0, -1)$  and  $(\sqrt{3}, 9)$  are solutions of this equation.

Or

Give the equations of two lines passing through  $(2, 3)$ . How many more such lines are there and why?

12. Draw the line segment  $AB = 5$  cm. from the point  $A$  draw a line segment  $AD = 6$  cm making an angle of  $60^\circ$ . Draw perpendicular bisector of  $AD$ .
13. Construct the triangle  $ABC$  in which  $\angle B = 60^\circ$ ,  $\angle C = 45^\circ$  and the perpendicular of the triangle is 11 cm.
14. Prove that a cyclic parallelogram is a rectangle?
15. In the hot water system, there is a cylindrical pipe of length 28 m and diameter 5 cm. find the total radiating surface in the system?
16. Curved surface area of a right circular cylinder is  $4.4 \text{ m}^2$ . If the radius of the base of the cylinder is 0.7 m. find its height.
17. In  $\triangle ABC$ ,  $D, E$  and  $F$  are respectively the mid points of sides  $AB, BC$  and  $CA$ . show that  $\triangle ABC$  is divided into four congruent triangles by joining  $D, E$  and  $F$



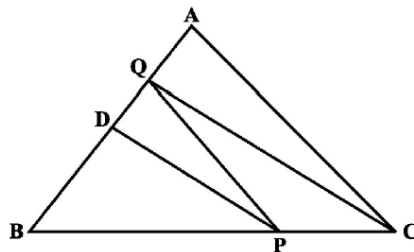
18. The weekly pocket expenses of students are given in the table:

Pocket Expense	145	140	159	171	158	147	165
No. of Students	7	4	10	6	3	8	12

Find the probability of pocket money of a solution (a) 159 (b) more than 159 and (c) less than 159.

#### Section D

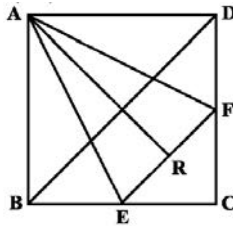
19. Draw the graph of the linear equation  $y = mx + c$  for  $m = 2$ ,  $c = 5$  and read the value of  $y$  when  $x = 3/2$ .
20. A resident welfare society has developed a land having quadrilateral shape of sides 12 cm, 5 cm, 11 cm, 5 cm and diagonal 13 cm divide the land into two parts along diagonal, in one part they developed gardening and in another they developed classical musical institute.
  - (a) Find the areas of both parts of a land.
  - (b) What conclusion you will draw through this activity?
21. The area of the parallelogram  $ABCD$  is  $90 \text{ cm}^2$ . Find (i)  $\text{ar}(ABEF)$  (ii)  $\text{ar}(ABD)$  (iii)  $\text{ar}(BEF)$



Or

In the  $\triangle ABC$ , D is the mid-point of AB and P is any point on BC, if  $CQ \parallel PD$  meets AB in Q,

then prove that  $ar(BPQ) = \frac{1}{2} ar(ABC)$



22. AC and BD are chords of a circle which bisect each other than prove that
  - (a) AC and BD are diameters
  - (b) ABCD is a rectangle
23. Construct  $\triangle ABC$  in which  $BC = 7.5$  cm,  $\angle B = 45^\circ$  and  $AB - AC = 4$ .
24. Triangle ABC is an isosceles triangle with  $AB = AC$ . A circle through B and C intersect AB and AC at D and E respectively. Prove that  $BC \parallel DE$ .
25. If a diagonal of a parallelogram bisects one of the angles of the parallelogram, it also bisects the second angle and then the two diagonals are perpendicular to each other,
26. A circular park of radius 20 m is situated in a colony. Three boys are sitting at equal distance on its boundary each having a toy telephone on his hands to talk each other. Find the length of the string of each phone.
27. Find the volume of the right circular cone with
  - (a) Radius 6 cm, height 7 cm
  - (b) Radius 3.5 cm and height 12 cm
28. When 3 to 20 numbers are put into the box. Find the probability of getting
  - (a) Greater than 6
  - (b) Less than 20
  - (c) Odd numbers
  - (d) Even numbers

### Section E

29. OTBA Question for 3 marks from Statistics. Material will be supplied later.
30. OTBA Question for 3 marks from Statistics. Material will be supplied later.
31. OTBA Question for 4 marks from Statistics. Material will be supplied later.