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

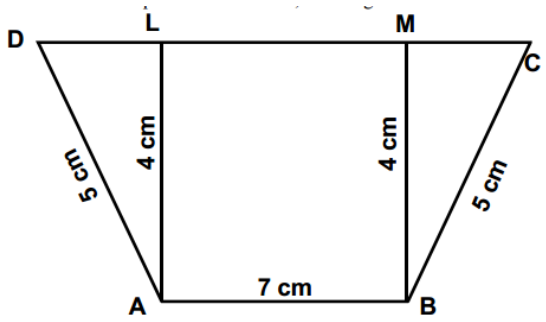
Time allowed: 3 hours Maximum Marks: 90

General Instructions:

a) All questions are compulsory.
b) The question paper consists of 31 questions divided into five sections – A, B, C, D and E.
c) 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.
d) Use of calculator is not permitted.

Section A

1. 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) $x=y$
2. In the below figure ABCD is a trapezium in which AB || 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
3. The base radii of the two cones are the same but their volumes are 4 π m^3 and 9 π m^3 respectively. The ratio of their heights is
   (a) 16 : 81 (b) $\sqrt{2}:\sqrt{3}$ (c) 2 : 3 (d) 4 : 9
4. The distribution of weights in kg of 100 people is given below:

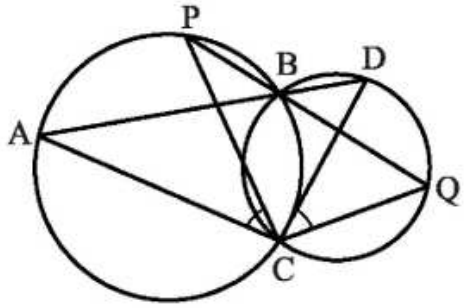
Weight (in Kg)	Frequency
40 – 45	13
45 – 50	25
50 – 55	28
55 – 60	15
60 – 65	12
65 – 70	5
70 – 75	2

   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 || DC, DC = 30 cm and AB = 50 cm. if X and Y are respectively the mid points of AD and BC, prove that ar(DCYX) = $\frac{7}{9}$ 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?

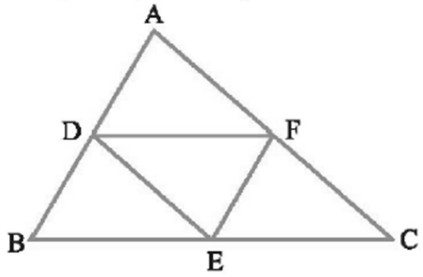
Section C

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 = 6cm making an angle of 60^0. Draw perpendicular bisector of AD.
13. Construct the triangle ABC in which $\angle B = 60^0, \angle C = 45^0$ 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 m^2. If the radius of the base of the cylinder is 0.7 m. find its height.
17. In ΔABC, D,E and F are respectively the mid points of sides AB, BC and CA. show that ΔABC is divided into four congruent triangles by joining D,E and F



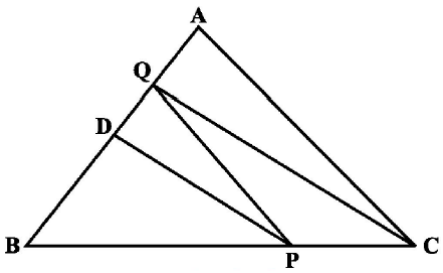
18. The weekly pocket expenses of students are given in the table:

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 than159.

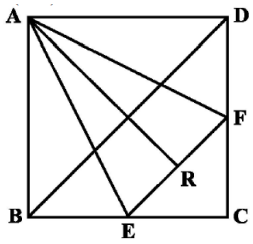
Section D

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 cm^2. Find (i) ar(ABEF) (ii) ar(ABD) (iii) ar(BEF)



Or

In the ΔABC, D is the mid- point of AB and P is any point on BC, if CQ || 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 bisects each other than prove that
    (a) AC and BD are diameters
    (b) ABCD is a rectangle
23. Construct ΔABC in which BC = 7.5 cm, $\angle B = 45^0$ and AB – AC = 4.
24. Triangle ABC is an isosceles triangle with AB = AC. A circle through B and C intersect AB and AC and D and E respectively. Prove that BC || 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.