

SS

1037

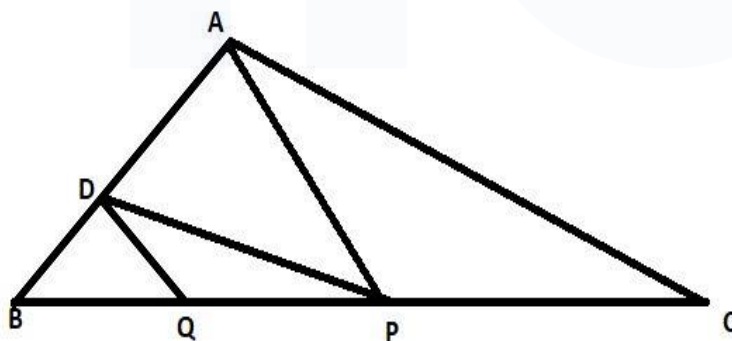
ANNUAL EXAMINATION SYSTEM

MATHEMATICS

Time allowed: 3 Hours

Maximum Marks:50

1. (i) Find the value of x in the pair of linear equations $3x - 2y = 5$ and $x + 2y = 3$. 1
 - (ii) Write first four terms of AP, when first term $a = 3$ and common difference $d=2$ 1
 - (iii) Fill in the blanks (?): 1
If, $\triangle ABC \sim \triangle DEF$ then, $\frac{ar(\triangle ABC)}{ar(\triangle DEF)} = \frac{BC^2}{?}$
 - (iv) Evaluate : $\tan 59^\circ - \cot 31^\circ$. 1
 - (v) The length, breadth and height of the hall is 16 m, 9m, 7m respectively. Find the area of its floor. 1
 2. Given that $HCF(315, 666) = 9$, find $LCM(315, 666)$. 2
 3. Find a quadratic polynomial, the sum and product of whose zeroes 1 and 4, respectively. 2
 4. Find the roots of quadratic equation $2x^2 - 3x - 3 = 0$, if they exist. 2
- Or**
- Find two consecutive odd positive integers, sum of whose squares 290. 2
5. Find the sum of the first 15 multiples of 7. 2
- Or**
- Find the 31th term of AP whose 11th term is 38 and the 16th term is 73. 2
6. In figure, if $DP \parallel AC$ and $DQ \parallel AP$. Prove that $\frac{BQ}{QP} = \frac{BP}{PC}$. 2



Let $\triangle ABC \sim \triangle DEF$ and their areas be, respectively, 64 cm^2 and 121 cm^2 . If $EF = 15.4 \text{ cm}$, find BC .

7. Draw a circle of radius 2 cm. From a point 5 cm away from its centre, construct the pair of tangents to the circle and measure their lengths. 2
8. A child has a die whose six faces show the letters as given below: 2

D

A

B

C

E

D

The die is thrown once. What is the probability of getting (i) B ? (ii) D?

9. The cost of 5 oranges and 7 apples is 50 and the cost of 7 oranges and 5 apples is 46. Find the cost of an orange and an apple. 3

Or

Solve the pair of linear equations $2x + y = 5$ and $3x - y = 5$ graphically.

10. ABCD is a trapezium in which $AB \parallel DC$ and its diagonals intersect each other at the point O. Show that $\frac{AO}{BO} = \frac{CO}{DO}$ 3

11. Find the area of the triangle ABC formed by the points A(-5, -1), B(3, -5) and C(5, 2). 3

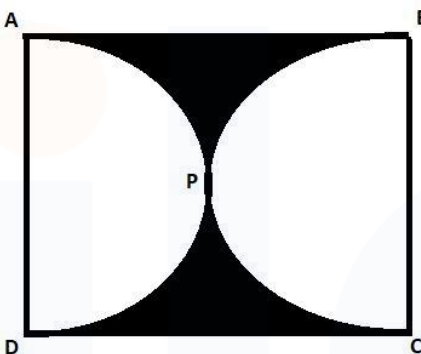
12. Given $\operatorname{cosec} A = \frac{13}{5}$ calculate all other trigonometric ratios. 3

13. A kite is flying at a height of 90 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is 60° . Find the length of the string, assuming that there is no slack in the string. 3

14. The length of the minute hand of a clock is 14 cm. Find the area swept by the minute hand in 5 minutes. 3

Or

Find the area of the shaded region in figure, if ABCD is a square of side 42 cm and APD and BPC are two semicircles.



15. The following table shows the ages of the patients admitted in a hospital during a year : 3

Age (in years)	5-15	15-25	25-35	35-45	45-55	55-65
Number of patients	14	5	21	23	11	6

Find the mode of the data given above.

Or

Consider the following distribution of daily wages of 50 workers of a factory.

Daily wages (in rs)	100-120	120-140	140-160	160-180	180-200
Number of workers	14	8	6	10	12

Find the mean daily wages of the workers of the factory.

16. If a line is drawn parallel to one side of a triangle to intersect the other sides in distinct points, the other two sides are divided in the same ratio. Prove it. 5

Or

Two tangents TP and TQ are drawn to a circle with center O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$.

17. Two cubes each of volume 64 cm^3 are joined end to end. Find the surface area of the resulting cuboid. 5

Or

A cylindrical bucket, 28 cm high and with radius of base 15 cm, is filled with sand. This bucket is emptied on the ground and a conical heap of sand is formed. If the height of the conical heap is 21 cm, find the radius and slant height of the heap. 5