

SS

1037

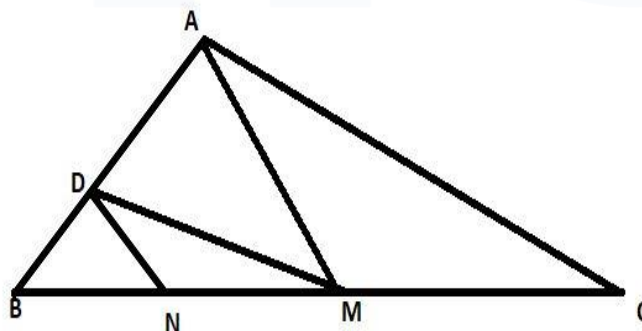
ANNUAL EXAMINATION SYSTEM

MATHEMATICS

Time allowed: 3 Hours

Maximum Marks:50

1. (i) Find the value of x in the pair of linear equations $2x - 2y = 8$ and $3x + y = 2$. 1
 - (ii) Write first four terms of AP, when first term $a = -2$ and common difference $d=0$ 1
 - (iii) Fill in the blanks (?): 1
If, $\Delta ABC \sim \Delta DEF$ then, $\frac{ar(AABC)}{ar(ADEF)} = \frac{AB^2}{?}$
 - (iv) Evaluate : $\cos 48^\circ - \sin 42^\circ$. 1
 - (v) The length, breadth and height of the hall is 15 m, 9m, 7m respectively. Find the area of its floor. 1
 2. Given that $HCF(306, 657) = 9$, find $LCM(306, 657)$. 2
 3. Find a quadratic polynomial, the sum and product of whose zeroes 2 and -3, respectively. 2
 4. Find the roots of quadratic equation $2x^2 - 7x + 3 = 0$, if they exist. 2
- Or**
- Find two consecutive odd positive integers, sum of whose squares 130. 2
5. Find the sum of the first 15 multiplies of 9. 2
- Or**
- Find the 29 th term of AP whose 11th term is 38 and the 16th term is 73. 2
6. In figure, if $DM \parallel AC$ and $DN \parallel AP$. Prove that $\frac{BN}{NM} = \frac{BM}{MC}$. 2



Let $\Delta ABC \sim \Delta DEF$ and their areas be, respectively, 64 cm^2 and 121 cm^2 . If $MN = 2.1 \text{ cm}$, find BC.

7. Draw a circle of radius 2.5 cm. From a point 6 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

E

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 3 apples is Rs 46 and the cost of 3 oranges and 5 apples is Rs 74. 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. 3

10. D and E are points on the sides CA and CB respectively of a triangle ABC right angled at C. Prove that $AE^2 + BD^2 = AD^2 + BE^2$ 3

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

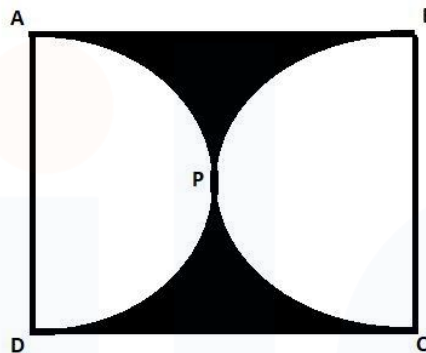
12. Given $\operatorname{cosec} A = \frac{13}{12}$ calculate all other trigonometric ratios. 3

13. A kite is flying at a height of 60 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 10 minutes. 3

Or

Find the area of the shaded region in figure, if ABCD is a square of side 28 cm and APD and BPC are two semicircles. 3



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	11	6	21	23	5	14

Find the mode of the data given above.

Or

Consider the following distribution of daily wages of 50 worker factory. 3

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

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

16. In a right triangle, the square of the hypotenuse is equal to the squares of the other two sides. Prove it. 5

Or

In an equilateral triangle ABC, D is a point on side BC such that $BD = \frac{1}{3} BC$. Prove that $9AD^2 = 7AB^2$ 5

17. Two cubes each of volume 125 cm^3 are joined end to end. Find the surface area of the resulting cuboid. 5

Or

A cylindrical bucket, 32 cm high and with radius of base 18 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 24 cm, find the radius and slant height of the heap. 5