CITY COLLEGE

Tutorial Assessment - 2021-22

B.Sc, Mathematics (GEN), Sem-I

F.M = 15

Subject : Mathematics, Paper : GE1

MTMG - GE1

Answer any three questions of the following : $5 \times 3 = 15$

1. Solve : $x^3 - 3x^2 + 12x + 16 = 0$. (5)

2. Prove that, if $\cos\alpha + \cos\beta + \cos\gamma = 0 = \sin\alpha + \sin\beta + \sin\gamma$, then

$$\sin^2\alpha + \sin^2\beta + \sin^2\gamma = \cos^2\alpha + \cos^2\beta + \cos^2\gamma = \frac{3}{2}$$ (5)

3. Discuss the continuity of the function

$$f(x) = |x| + |x-1| + |x-2| \text{ on } (-\infty, \infty).$$ (5)

4. Reduce the equation $x^2(y - px) = p^2y$ to Clairaut's form and find its general solution. (5)

5. Determine the nature of the locus represented by the following equations :

(a) $x^2 + 6xy + 9y^2 - 5x - 15y + 6 = 0$ (5)

(b) $6x^2 - 5xy - 6y^2 + 14x + 5y + 4 = 0$

N.B. Last date of Submission : 22/02/2022

Submission mail id : cu112mtmgsem1@gmail.com