

Maheshtala College  
CU UG Intermediate Examination–2020  
SEM-II(GE–II)  
B.Sc Mathematics (General)

Time : 10AM-11AM

Full Marks : 50  
DATE : 02.12.2020

**Group-A**  
Answer any TWO questions :

1. If  $\vec{a} = 2\hat{i} + 3\hat{j} + 4\hat{k}$  and  $\vec{b} = \hat{i} - \hat{j}$ , then find  $\vec{a} + \vec{b}$ ,  $\vec{a} \cdot \vec{b}$ ,  $\vec{a} \times \vec{b}$ .
2. Find all differential equation of lines passing through  $(0, 0)$
3. Find the differential equation whose solution is  $y = a + bx$ , where  $a$ ,  $b$  are parameters.

**Group-B**  
Answer any ONE questions :

4. Solve  $\frac{dy}{dx} = \frac{2x+1}{3y}$ .
5. Solve  $(D^2 - 9)y = 0$ .

**Group-C**  
Answer any ONE questions :

6. Evaluate  $\lim_{x \rightarrow 0} \frac{x^2 - 4}{x - 2}$ .
7. Find order and degree of  $(\frac{d^2y}{dx^2} + 1)^3 = \frac{dy}{dx}$ .