

Internal Assessment - 2021

Exam Date: 26/07/21

Subject - Mathematics (MTM2)

Sem - II / Paper - GE2

Full marks - 10

Time - 30 min

Answer all the questions carefully (write the correct option only in your answer scripts).

1) If  $f(x) = \cos x$  and  $-\pi/2 < \alpha < \pi/2$ , then the value of  $\alpha$  in Rolle's theorem is given by

- (a)  $\pi/3$ , (b)  $\pi/4$ , (c)  $\pi$ , (d) 0.

2)  $z = f(y/x)$  be the solution of the equation,

- (a)  $x \frac{\partial z}{\partial x} - y \frac{\partial z}{\partial y} = 0$ , (b)  $x \frac{\partial z}{\partial x} + y \frac{\partial z}{\partial y} = 0$   
(c)  $x \frac{\partial z}{\partial y} - y \frac{\partial z}{\partial x} = 0$ , (d)  $x \frac{\partial z}{\partial y} + y \frac{\partial z}{\partial x} = 0$ .

3) If  $\vec{a} = 2\hat{i} + 3\hat{j} - 4\hat{k}$  and  $\vec{b} = 5\hat{i} + 2\hat{j} + 4\hat{k}$ , then the angle between  $\vec{a}$  and  $\vec{b}$  is

- (a)  $45^\circ$ , (b)  $60^\circ$ , (c)  $90^\circ$ , (d) none of these.

4) The value of  $\phi(260)$  is equal to,

- (a) 259, (b) 130, (c) 96, (d) 72.

5) If  $a, b$  are positive integers such that  $\gcd(a, b) = 1$ , then the value of  $\gcd(a+b, a-b) = ?$

- (a) 1, (b) 2, (c) 1 or 2, (d) none of these.