



Department Of CED

Mid Term Fall-2020

Subject: Applied Mathematics-II

Duration: 180 Minutes

Instructor: Anwar Shamim

Total Marks: 30

Note: Attempt all questions. Manage your time properly.

**Q.No. 1**

**(05 + 05)**

Find the partial derivatives.

**(a)**  $F(x,y,z) = 4x^3y^2 - e^zy^4 + z^3x^2 + 4y - x^{16}$

**(b)**  $W = \cos(x^2 + 2y) + y^3$

**Q.No.(02)**

**(04+03+03)**

**Find the solution of the following.**

- What positive number added to its reciprocal gives the minimum sum?
- The sum of two numbers is k. Find the minimum value of the sum of their squares.
- The sum of two positive numbers is 2. Find the smallest value possible for the sum of the cube of one number and the square of the other.

**Q.No.(03)**

**(04+03+03)**

**Find the following Integration by parts.**

a)  $\int (x \cdot \sin^2 x) dx$

b)  $\int x^2 \cdot \cos x \cdot dx$

c)  $\int (x + 1) \cdot e^x \cdot dx$