Course Name: Mathematics II	Course Code: BS102
Course Level: First level	Course Dr. Name: Atef Faragalla
Status: Pass ☐ Not Pass: ☐	

Write on one of the following two proposals

Proposal 1

Research Title: *Selected Topics in Mathematics (1)*

Write on four points only of the following:

1. Solution of Linear Equations by Matrices.

2. Partial Derivatives:

    I.   First Partial Derivatives.

    II. Implicit Differentiation.

    III. Euler's Theorem on homogeneous functions.

3. Multiple Integrals:

    I.   Double integrals over rectangles.

    II. Double Integrals as Volumes.

    III. Double integral in polar form.

4. Ordinary differential equations:

    I.   Basic Concepts.
    II. Separable Ordinary differential equations.
    III. Bernoulli Equation.
    IV. Rules for finding complementary and Particular solutions
        (**Cases 1 and 3**) for Linear Differential Equations of
        Second and Higher Order with Constant Coefficients**.**

5. Infinite Series
    I. Convergent and divergent series.
    II. The integral and comparison tests.

<u>Proposal 2</u>

Research Title: *<u>Selected Topics in Mathematics (2)</u>*
Write on four points only of the following:

1. <u>Solution of Linear Equations by Determinants (Cramer's Rule).</u>
2. <u>Partial Derivatives:</u>

    I. Higher order partial derivatives.

    II. Chain Rules.

3. <u>Multiple Integrals:</u>

    I. Double integrals over general regions.

    II. The area by Double integration.

    III. Triple Integrals in Rectangular Coordinates.

4. <u>Ordinary differential equations:</u>

    I. Basic Concepts

    II. Linear ordinary differential equations

    III. Homogeneous Ordinary differential equations

    IV. Rules for finding complementary and Particular solutions
    (Cases 2 and 4) for Linear Differential Equations of Second
    and Higher Order with Constant Coefficients**.**

5. <u>Infinite Series:</u>

    I. Convergent and divergent series.
    II. The Ratio and Root Tests.

With my best wishes.
Dr. Atef Faragalla Hashem

Atef Faragalla Hashem

Lecturer of Mathematical Statistics