

**B. A. Honours (CBCS)
BAECH**

**ASSIGNMENTS
(2022-23)**

**Course Code: BECC-104
Title of Course: Mathematical Methods in Economics-II**

**School of Social Sciences
Indira Gandhi National Open University
Maidan Garhi, New Delhi-110 068**



BECC-104
Mathematical Methods in
Economics-II
Assignment (TMA) 2022-23

Programme Code: BAECH

Course Code: BECC-104

Dear Student,

As explained in the Programme Guide for BAECH, you will have to do one assignment for this Elective course in Economics (BECC-104). This is a Tutor Marked Assignment (TMA) and carries 100 marks.

It is important that you write answers to all the questions in your own words. The TMA is designed to enable you to answer different categories of questions. Here evaluation is made keeping in view your ability to present your answer in a systematic, precise and coherent manner. The assignment is divided into three Sections. All questions are compulsory. Section A comprises two long answer questions of 20 marks each. Section B comprises three questions of 10 marks each while in Section C you have to answer two questions of 15 (5×3) marks each.

Submission: The completed assignments should be submitted to the Coordinator of your Study Centre.

Last date for submission of assignment is:

30th April, 2023 **for the students appearing in June 2023 Term End Examination**
31st October, 2023 **for the students appearing in December 2023 Term End Examination**

**BECC-104: MATHEMATICAL METHODS IN
ECONOMICS-II**

Programme Code: BAECH

Course Code: BECC-104

Assignment Code: BECC-104/AST/TMA/2022-23

Maximum Marks: 100

Answer all the questions

A. Long Answer Questions (word limit-500 words)

2 × 20 = 40 marks

- 1.) Let the demand and cost functions of a monopolist be $p = 100 - 3q + 4\sqrt{A}$ and $C = 4q^2 + 10q + A$, where p denotes the price, q the quantity and A the level of advertising expenditure. Find the values of A, q and p that maximises his profit.

2) Find total differential of the following functions.

a) $u = 3x^3 - 2y^2$ b) $u = \frac{x}{x+y}$

B. Medium Answer Questions (word limit-250 words)

3 × 10 = 30 marks

3) Given $z = f(x_1, x_2) = 4x_1^2 + x_1x_2 + 3x_2^2$
find all second order partial derivatives

4) Minimise $f(x,y) = (x-1)^2 + y^2$ subject to $g(x,y) = y^2 - 4x = 0$.

5) Given two matrices:

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \text{ and } B = \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}$$

Show that $AB \neq BA$. Hence show that, in general, $AB \neq BA$ where A and B are (2×2) matrices

C. Short Answer Questions (word limit 100 words)

2 × 3 × 5 = 30 marks

6) Differentiate between:

- (a) Determinants and Matrices.
- (b) Cofactor and Adjoint of a matrix
- (c) Order and degree of a differential equation

7) Write short notes on the following.

- (d) Quadratic Form.
- (e) Maximum Value Function.
- (f) Hawkins-Simon Condition.