

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

**ASSIGNMENTS
(2022-23)**

**Course Code: BECC-102
Title of Course: Mathematical Methods in Economics-I**

**School of Social Sciences
Indira Gandhi National Open University
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BECC-102
Mathematical Methods in
Economics-I
Assignment (TMA) 2022-23

Programme Code: BAECH

Course Code: BECC-102

Dear Student,

As explained in the Programme Guide for BAECH, you will have to do one assignment for this Elective course in Economics (BECC-102). 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-102
: MATHEMATICAL METHODS IN ECONOMICS-I

Programme Code: BAECH
Course Code: BECC-102
Assignment Code: BECE-141/AST/TMA/2022-23
Maximum Marks: 100

Answer all the questions

A. Long Answer Questions (word limit-500 words) 2 × 20 = 40 marks

1) A monopolist firm has the following total revenue and total cost functions:

$$R = -mQ^2 + nQ \quad (m, n > 0)$$

$$C = aQ^2 + bQ + c \quad (a, b, c > 0)$$

Suppose that the government plans to levy an excise tax on the product of this firm and wishes to maximise the total tax revenue T from this source. What tax rate t (rupees per unit of output) should the government choose?

2) Given the demand function $P_D = 27 - Q^2$ and supply function $P_S = 2Q + 3$. Assuming perfect competition, find (i) the consumers' surplus, (ii) the producers' surplus.

B. Medium Answer Questions (word limit-250 words) 3 × 10 = 30 marks

3) Given the aggregate consumption function $C = 0.9Y + 100$ (where C is aggregate consumption and Y is aggregate income)

- (a) Find the marginal propensity to consume (MPC) and average propensity to consume (APC)
(b) Find the elasticity of consumption with respect to income, and show that it equals MPC/APC

4) Let $X = \{1, 3, 5\}$ and $Y = \{2, 4, 6\}$

Find, $X \cup Y$ and the Cartesian Product of X and Y .

5) . Create a truth table for

(a) $A \Leftrightarrow B$

(b) the converse of 'A implies B'.

C. Short Answer Questions (word limit 100 words) 2 × 3 × 5 = 30 marks

6) Differentiate (with an example) between:

(a) Definite and indefinite integral

- (b) Relation and Function
- (c) Circle and parabola

4) Write short notes on the following.

- (a) Point of inflexion
- (b) Solution of linear first order difference equations.
- (c) Various methods of proof