

MEC

**MASTER OF ARTS**  
**(ECONOMICS)**

**ASSIGNMENTS 2020-21**

First Year Courses

(For July 2020 and January 2021 Sessions)



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

## **Master of Arts (Economics)**

**(TMA)**

**(2020-21)**

Dear Student,

As explained in the programme guide for MEC, assignments carry 30 per cent weightage in a course and it is mandatory that you have to secure at least 40 per cent marks in assignments to complete a course successfully. Note that you have to submit the assignments before appearing in Term End Examination of a course.

Before attempting the assignments please read the instructions provided in the programme guide sent to you separately. In this booklet we have included the assignments for all the courses pertaining to the second year. In each course there is a Tutor Marked Assignment (TMA). You have to do the assignment for those courses for which you have registered. Do remember that you have to prepare and submit the assignments separately for each course. Make sure that you submit the assignments well in time for those courses in which you plan to appear in the Term End Examination.

### **Submission**

For **July 2020** session, you need to submit the assignments by **March 31, 2021**, and for **January 2021** session by **September 30, 2021** for being eligible to appear in the term-end examination. Assignments should be submitted to the **Coordinator of your Study Centre**. Obtain a receipt from the Study Centre towards submission.

**MEC-101: MICROECONOMIC ANALYSIS**  
**(Assignment)**

**Course Code: MEC-001**  
**Assignment Code: MEC-002/2020-21**  
**Total Marks: 100**

**SECTION A**

*Answer all questions from this section.*

**2×20 = 40**

1. (a) Elucidate price and output determination under Cournot and Stackelberg models of Oligopoly.
  - (b) Consider a market for energy drinks consisting of only one firm. The firm has a linear cost function:  $C(q) = 4q$ , where  $q$  represents quantity produced by the firm. The market inverse demand function is given by  $P(Q) = 24 - 2Q$ , where  $Q$  represents total industry output. Based on the given information answer the following:
    - (i) What price will the firm charge? What quantity of energy drinks will the firm sell?
    - (ii) Now suppose a second firm enters the market. The second firm has an identical cost function. What will be the Cournot equilibrium output for each firm?
    - (iii) What is the Stackelberg equilibrium output for each firm if firm 2 enters second?
    - (iv) How much profit will each firm make in the Cournot game? How much in Stackelberg?
    - (v) Which type of market do consumers prefer: monopoly, Cournot duopoly or Stackelberg duopoly? Why?

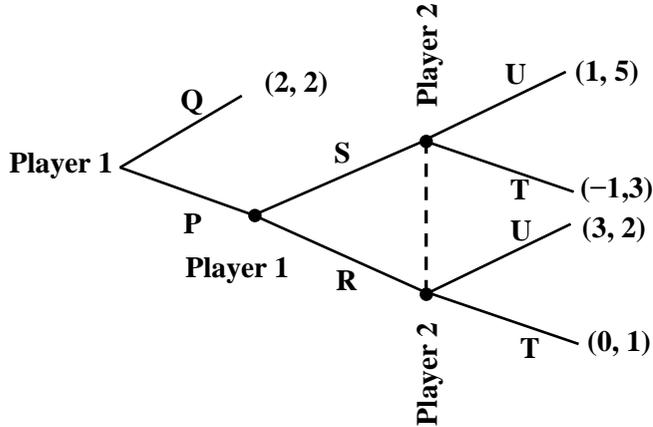
2. (a) Consider an Edgeworth box that describes a two-person, two-commodity exchange scenario. Explain how trade takes place between the two individuals starting from the initial endowment position. What is the significance of the slope of the ray passing through a Pareto optimal point and the endowment point?
- (b) Consider a pure-exchange economy of two individuals (A and B) and two goods (X and Y). Assume both the individuals are endowed with 2 units of good X and 1 unit of good Y each.
- Let utility functions of individual A and B be  $U_A = \min\{X_A, Y_A\}$  and  $U_B = \min\{\frac{X_B}{4}, Y_B\}$ , where  $X_i$  and  $Y_i$  for  $i = \{A, B\}$  represent individual  $i$ 's consumption of good X and Y respectively. Determine the aggregate excess demand functions for each good.

### SECTION B

*Answer all questions from this section.*

**5×12 = 60**

3. (a) How would you differentiate a Static game from a Dynamic game?
- (b) Consider the following game.



- i) Can Backward induction be applied in this game to find a solution?
- (ii) What will be the Subgame Perfect Nash equilibria for the given game?

4. What is Kaldor's compensation principle? How is it used to resolve Pareto non-comparability? How is it different from Hick's compensation principle?

5. (a) Explain the concept of a Homothetic production function.  
Given a production function

$$q = AL^{0.5}K^{0.4}$$

where  $q$  represents total production,  $L$  and  $K$  stands for labour and capital respectively, and  $A$  is the technology coefficient. What are the returns to scale for such a production function?

- (b) "Homothetic production function includes Homogeneous production function as a special case." Justify this statement.

6. (a) Differentiate between a Hicksian and a Walrasian demand function? Do they ever intersect? Explain.

(b) Consider a Cobb-Douglas utility function

$$U(X, Y) = X^{1/5}Y^{4/5}$$

where  $X$  and  $Y$  are the two goods that a consumer has an option to consume at per unit prices of  $P_X$  and  $P_Y$ , respectively. Assume income of the consumer to be Rs  $M$ . Determine

(a) Uncompensated demand functions for goods  $X$  and  $Y$

(b) Compensated demand functions for goods  $X$  and  $Y$

7. Raj expects his future earnings to be worth Rs 100. If there is some unfortunate event, his expected future earnings will be Rs 25. The probability of an unfortunate event to occur is  $\frac{2}{3}$ , while that of things remaining fortunate is  $\frac{1}{3}$ . Suppose his utility function is given by  $U(Y) = Y^{1/2}$ , where  $Y$  represents the amount of money. Now suppose an insurance company offers to fully insure Raj against the loss of earnings caused during an unfortunate event at an actuarially fair premium.

(i) Will Raj accept the insurance? Explain.

(ii) What would be the rate of actuarially fair premium charged in this case?

(iii) What would be the maximum amount that Raj would pay for the insurance?

**MEC-002: MACROECONOMIC ANALYSIS**  
**(Assignment)**

**Course Code: MEC-002**  
**Assignment Code: MEC-002/2020-21**  
**Total Marks: 100**

**Note: Answer all the questions. While questions in Section A carry 20 marks each (to be answered in about 500 words each) those in Section B carry 12 marks each (to be answered in about 300 words each). In the case of numerical questions word limits do not apply.**

**Section A**

1. Derive the conditions for steady state growth in the Solow model. What are its implications? In what respects is the golden rule different from the steady state?
2. What are the implications of IS and LM curves? What are the factors on which the position and the slope of IS and LM curves depend?

**Section B**

3. What does the Phillips curve signify? How do you reconcile the difference in the shape of the curve in the short run and the long run?
4. From Lucas' point of view, what are the limitations of the Keynesian model? What improvements does he suggest?
5. Bring out the salient features of the endogenous growth theory.

6. Explain the mechanism through which internal and external balance takes place under flexible exchange rate.
7. Write short notes on the following:
  - a) Permanent income hypothesis
  - b) Rational expectations and adaptive expectations

# MEC-103: QUANTITATIVE METHODS

## (Assignment)

Course Code: MEC-103  
Asst. Code: MEC-103 / TMA/2020-21  
Total Marks: 100

**Note:** Answer all the questions. While questions in Section A carry 20 marks each, those in Section B carry 12 marks each.

### *Section A*

- 1) Consider the utility function  $u = f(x_1 \dots x_n)$  where  $x_i$ ,  $i = 1, 2, \dots, n$  are the quantities of the  $n$  goods consumed. Let the price of good  $x_i$  be  $P^i$ ,  $i = 1, 2, \dots, n$ . Let  $M$  be the consumer's income. Show that the Lagrangian multiplier of the utility maximization problem equals the marginal utility of income.
  
- 2) (a) What is the normal probability distribution function? State its properties.  
(b) The concentration of impurities in a semiconductor used in the production of microprocessors for computer is a normally distributed random variable with mean 127 parts per million and standard deviation 22. A semiconductor is acceptable only if its concentration of impurities is below 150 parts per million. What proportions of the semiconductors are acceptable for use? (The area under the standard normal curve for the value of  $z = 1.5$  is 0.668).

### Section B

3) Distinguish between the characteristics of first and second order difference equations. Give examples of economic problems that are solved with the help of each category of such equations.

4) Solve the following linear programming problem:

$$\begin{aligned} \text{Min } C &= 0.6x_1 + x_2 \\ \text{subject to } 10x_1 + 4x_2 &\geq 20 \\ 5x_1 + 5x_2 &\geq 20 \\ 2x_1 + 6x_2 &\geq 12 \\ x_1 \text{ and } x_2 &\geq 0 \end{aligned}$$

5) Suppose a large jar contains eight red balls, six yellow balls, and six blue balls. Two balls are to be selected at random from the jar, and the first ball selected will not be placed back into the jar.

- (a) What is the probability that the first ball will be red and the second yellow?  
(b) What is the probability that neither will be red?

6) Suppose the technology matrix is

$$A = \begin{bmatrix} 0.2 & 0.3 & 0.2 \\ 0.4 & 0.1 & 0.2 \\ 0.1 & 0.3 & 0.2 \end{bmatrix}$$

Let the final demand vector be  $D = \begin{bmatrix} 10 \\ 5 \\ 6 \end{bmatrix}$

Find the level of production of the three goods.

- 7) (a) What is a test statistic?
- (b) Distinguish between one-tailed and two-tailed tests.
- (c) What is  $p$ -value?

**MEC-004: ECONOMICS OF GROWTH AND DEVELOPMENT**  
**Assignment**

**Course Code: MEC-004**  
**Asst. Code: MEC-004 / AST-1/2020-2021**  
**Total Marks: 100**

**Note: Answer all the questions. While questions in Section A carry 20 marks each (to be answered in about 500 words each) those in Section B carry 12 marks each (to be answered in about 300 words each). In the case of numerical questions word limits do not apply.**

**SECTION A**

- 1) Examine the effect of population growth in the Solow model of economic growth. Discuss how the Solow model could be used to explain poverty traps in developing nations.
- 2) Describe the Mankiw-Romer-Weil extension to the neoclassical model to include human capital. Explain why diminishing returns to capital do not take place in the AK model.

**SECTION B**

- 3) Distinguish between economic growth and development. Briefly mention the main benefits that economic growth confers upon society.
- 4) Describe Pasinetti's theory of economic growth and distribution.
- 5) Describe the various approaches to the measurement of total factor productivity.
- 6) What are the main propositions of the Real Business Cycle model? Describe the basic structure of a prototype Real

Business Cycle model.

7) Compare and contrast the Uzawa two-sector growth model with the Feldman model.

**MEC-005/105: INDIAN ECONOMIC POLICY**  
**Assignment (TMA)**

**Course Code: MEC-005/105**  
**Assignment Code: MEC-105/AST/2020-21**  
**Maximum Marks: 100**

**NOTE:**

1. All questions are compulsory.
2. Questions in Section A carry 20 marks each and are to be answered in about 700 words each.
3. Questions in Section B carry 12 marks each and are to be answered in about 400 words each.

**Section-A**

1. Do you think that Indian economy is on the path of transition - transition from under development to development, from poverty to prosperity and from scarcity to abundance? Explain with reasons. Evaluate the effects of economic growth on the distribution of national income.
2. “The quality of life in India is far from satisfactory”. Comment.

**Section B**

3. Analyze the rate and pattern of industrial growth during last two decades. What suggestions would you like to make for achieving high industrial growth?
4. Identify the constituents of second generation of economic reforms. To what extent the second generation of reforms will tackle the contemporary challenges of Indian's development.
5. "States should have their due share in responsibilities as well as rights". In the light of this statement, bring out the important issues in Center-State relations in India.
6. Give an account of India's balance of payment situation during last two decades. Discuss the policy implications of emerging situation of Balance of Payment.
7. What do you mean by the food security? Evaluate the various measures adopted by the Government of India towards food security.

