MWC(O)-ECO-I/2023

2023
ECONOMICS
PAPER-I

Time Allowed — 3 Hours   *Full Marks — 200*

*If the questions attempted are in excess of the prescribed number, only the questions
attempted first up to the prescribed number shall be valued
and the remaining ones ignored.*

*Answer may be given either in **English** or in **Bengali** but all answers
must be in one and same language.*

Answer *any five* questions taking at least two from each group.

Group-A

1. (a) A consumer spends his/her entire income on two goods. The consumer faces a given income and prices.

    (i) Show that both goods cannot simultaneously be inferior or luxury.

    (ii) Show that if with the increase in income, the share of expenditure on a good rises, then the good is income elastic in demand.

    (b) "Diminishing marginal utility is neither necessary nor sufficient for convexity of indifference curves". Examine the validity of the statement.   (10+10)+20=40

2. (a) What are the properties of Cobb-Douglas production function?

    (b) Consider the production function $Q = 2L^{0.75} \cdot K^{0.25}$

    What will be the percentage change in output (Q) when

    (i) L rises by 8% and K rises by 6%?

    (ii) L rises by 4% and K falls by 12%?

    (c) Derive the value of the elasticity of input substitution for the production function

    $$Q = A\left[\alpha L^{-\beta} + (1-\alpha)K^{-\beta}\right]^{-\frac{1}{\beta}}, \ 0 < \alpha < 1, A > 0, \beta > 0 \qquad 10+(5+5)+20=40$$

3. (a) Determine the maximum profit and the corresponding marginal price and quantity for a perfectly discriminating monopolist whose demand and cost functions are $P = 2200 - 60Q$ and $C = 0 \cdot 5Q^3 - 61 \cdot 5Q^2 + 2740Q$, respectively.

(b) In a duopoly market (without product differentiation) the market demand and cost functions are given by

$$P = 100 - 0 \cdot 5(Q_1 + Q_2), C_1 = 5Q_1, C_2 = 0 \cdot 5Q_2^2$$

Where Q_1 and Q_2 are outputs of the two firms.

Derive profit maximizing values of Q_1, Q_2 and P under Cournot competition.

(c) What are externalities and what is the consequence of the presence of externalities in the context of resource allocation? Explain with suitable examples from production and consumption. 10+20+10=40

4. (a) What is Balanced Budget Multiplier theorem and what is its significance? Analyse the situations when the value of the balanced budget multiplier is (i) one, (ii) less than one and (iii) greater than one.

(b) What is crowding out? Explain. What is the role of the interest elasticity of money demand in crowding out? Under what circumstances the LM curve may be positively sloped even in the absence of the speculative demand for money? Explain. 20+20=40

5. (a) State and prove the knife-edge problem in the Harrod growth model.

(b) What do you mean by steady state? Derive the fundamental equation of growth in Solow model in the absence of depreciation. 20+20=40

Group-B WBCS MADE EASY

6. (a) State and prove the Heckscher-Ohlin theorem in terms of physical definition of factor abundance.

(b) What is Rybczynski Theorem? Establish it in terms of a 2-good-2factor model. 20+20=40

7. (a) Examine the effects of imposition of import tariff by a small country in terms of a partial equilibrium model.

(b) Show that in the presence of perfect capital mobility and fixed exchange rate regime, while monetary policy is ineffective, fiscal policy is effective. 20+20=40

8. (a) Examine situations that may require government intervention in an economy.

(b) Discuss Lindahl model in the context of optimal provision of a public good. What are the limitations of Lindahl model? 20+20=40

WBCS MADE EASY

9. (a) State and explain the significance of the assumptions of classical linear regression model (CLRM).

   (b) The table below gives the real per capita income in thousands of U.S. dollars (Y) with the percentage of labour force in agriculture (X_1) and the average years of schooling of the population over 25 years of age (X_2) for 15 countries in 1981.

N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Y	6	8	8	7	7	12	9	8	9	10	10	11	9	10	11
X_1	9	10	8	7	10	4	5	5	6	8	7	4	9	5	8
X_2	8	13	11	10	12	16	10	10	12	14	12	16	14	10	12

   (i) Find the least-squares regression equation of Y on X_1 and X_2.

   (ii) Calculate R^2 and interpret the equation.   20+20=40

10. Write short notes on *any two* of the following: 20+20=40

   (a) Ricardian Equivalence Theorem

   (b) Coase Theorem

   (c) Canons of taxation

   (d) Relative measures of dispersion