2023

ECONOMICS — HONOURS

Paper : CC-8

(Intermediate Microeconomics-II)

Full Marks : 65

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words
as far as practicable.

Group - A

1. Answer *any ten* questions :

    2×10

    (a) Explain what is natural monopoly with an example.

    (b) Assume that Marginal cost of the monopolist is 10 rupees. The demand curve faced by him is p=100–3q. Find the equilibrium price and quantity.

    (c) For a profit maximising monopolist how is markup pricing related to elasticity of demand?

    (d) Define third-degree price discrimination.

    (e) Calculate the value of Lerner Index when P (= price) = Rs.10 and

    MR (= marginal revenue) = Rs. 5.

    (f) What is the implication of product differentiation in monopolistic competitive market?

    (g) According to Chamberlin why does excess capacity exist in monopolistically competitive market?

    (h) Define conjectural variation in the determination of oligopoly market.

    (i) What is the single most important characteristic in oligopolistic markets and to what problem does it lead?

    (j) What do you mean by bilateral monopoly?

    (k) Why is the production possibility curve concave to the origin?

    (l) Define public good. Give a suitable example.

    (m) Why does externality lead to market failure?

    (n) What do you mean by Free rider problem?

    (o) Explain the difference between adverse selection and moral hazard in insurance markets.

Group - B

2. Answer *any three* questions :

    (a) Explain whether a monopolist seeking to maximise profit will operate in the elastic or inelastic part of the demand curve.

    5

Please Turn Over

(b) In the Stackelberg model, the firm that sets output first has an advantage. Explain why. 5

(c) How does asymmetric information between buyers and sellers lead to market failure, when a market is otherwise perfectly competitive? 5

(d) Explain the idea of negative and positive consumption externalities with suitable examples and diagrams. Explain whether the following goods are public or private or common resources : (i) Free vaccination at public health department (ii) Education in private university. 3+2

(e) What do you understand by dead weight loss under Monopoly with reference to that of perfect competition? 5

Group - C

Answer *any three* questions.

3. (a) (i) Explain with the help of a diagram whether a monopolist has a supply curve.

    (ii) A monopolist sells his output in two distinct markets between which price discrimination is possible. His total cost and the two demand curves are given by $TC = 8Q + 100$; $Q_1 = 10 - 0.5P_1$; $Q_2 = 40 - P_2$. Calculate the profit maximising values of P_1, P_2, Q_1, Q_2. Prove that higher price is charged in the market with the lower price-elasticity of demand. 4+1+1+1+1+2

(b) (i) Mention any two factors governing the growth of monopoly.

    (ii) Suppose the cost and demand functions of a natural monopolist are $LTC = 20q - (\frac{1}{8})q^2$ and $p = 50 - q$ respectively. Determine the equilibrium level of output, price and profit / loss if the monopolist is forced to follow marginal-cost pricing rule.

    (iii) In the above problem, if the monopolist follows the average-cost pricing rule, then what will be the equilibrium level of price and output? 2+5+3

(c) (i) Define Pareto efficiency. Jack has 16 litres of coca-cola and 4 sandwiches. Bob has 4 liters of coca-cola and 8 sandwiches. With these endowments, Jack's MRS of coca-cola for sandwiches is 2 and Bob's MRS of cola for sandwiches is 1. Draw an Edgeworth box diagram to show whether this allocation is Pareto efficient. Explain your answer.

    (ii) Show that Pareto Optimality conditions are satisfied under perfect competition. (1+4)+5

(d) (i) The Kinked demand curve describes price rigidity. Explain how the model works. What are its limitations? Why does price rigidity occur in oligopolistic market?

    (ii) Suppose that two identical firms are there, whose cost functions are given by $C_1 = 60q_1$ and $C_2 = 60q_2$, where q_1 and q_2 are output of firm 1 and firm 2 respectively. The inverse demand function of firm's output is given by $p = 300 - q$, where $q = q_1 + q_2$. What are the firm's output in Nash equilibrium of the Cournot model? (3+2+1)+4

(e) Explain the concepts of monopolistic and monopsonistic exploitation of labour. Can labour union always eliminate such exploitation? 5+5

2023

ECONOMICS — HONOURS

Paper : CC-9

(Intermediate Macroeconomics-II)

Full Marks : 65

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words
as far as practicable.

Section - A

1. Answer *any ten* questions :

    2×10

    (a) According to Real Business Cycle economists what is productivity shock? Give one example each of a beneficial shock and an adverse shock.

    (b) Explain briefly the concept of credit rationing.

    (c) Distinguish between forward-looking expectations of Rational expectations model and backward-looking expectations of Keynesian model.

    (d) What is intertemporal substitution of labour in RBC theory?

    (e) What is the consumption function puzzle?

    (f) What is consumer smoothing?

    (g) How does a tax cut affect consumption spending in Permanent Income Hypothesis?

    (h) Suppose a 90-year old person and a 20-year old person each received a lottery of Rupees one crore, which one would increase consumption the most and why?

    (i) Explain the concept of Ratchet effect in Dusenbery's theory of consumption.

    (j) Mention any four events that might influence the fixed cost of transaction in the Baumol Tobin model of demand for money.

    (k) Define the concept of critical level of market rate of interest in the Regressive expectations model.

    (l) Outline the growth accounting equation and explain each component.

    (m) Explain the significance of AK model in endogenous growth theory.

    (n) What is conditional convergence in Solow model?

    (o) What is the condition for equilibrium growth in Domar model?

Section - B

2. Answer *any three* questions :   5×3

(a) Explain the efficiency wage model of Shapiro and Stiglitz.

(b) Explain how Robert Hall formulated consumption theory by incorporating the assumption of Rational Expectations.

(c) Tobin distinguished between three types of preferences that an individual might have towards risk. What are they? Explain the shape of indifference curve in each case.

(d) Why does the individual demand for money look like a step function while aggregate demand for money curve is downward sloping in the Regressive expectations model of demand for money?

(e) Explain, in Solow model, how technological progress is a source of sustained increase in output.

Section - C

Answer *any three* questions.

3. Explain diagrammatically the effects of a temporary increase in Government expenditure in the RBC model. What is the cause of unemployment? Can Government use Fiscal policy to reduce unemployment?   5+2+3

4. What are the assumptions Friedman makes in his permanent income hypothesis? Explain with the help of these assumptions, that for the above average income group, the consumption point lies below the permanent consumption line and the opposite is true for a lower than average income group. Can this analysis be used to explain the short run cyclical fluctuations in income? Explain with help of diagram.
                                                                                    3+7

5. (a) Explain the process, where a consumer takes decision on present consumption and future consumption using the intertemporal budget constraint.

   (b) If the interest rate rises, how are present and future consumption affected? How do you explain the total change in consumption in terms of the income effect and substitution effect?   4+6

6. Define steady state. Will an economy automatically achieve steady state? What is the rationale for finding the Golden Rule level of capital accumulation? Derive and intuitively explain the Golden Rule.
                                                                                    1+3+1+5

7. Present briefly Harrod's model of Growth. What will happen if —

   (a) the warranted rate of growth exceeds natural rate of growth

   (b) the warranted rate of growth falls below natural rate of growth?   6+4

2023

ECONOMICS — HONOURS

Paper : CC-10

(Introductory Econometrics)

Full Marks : 65

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Group - A

1. Answer *any ten* questions : 2×10

    (a) Determine the type of data of the following variables :

    (i) Defence expenditure in each of the Asian countries in 2020.

    (ii) Yearly automobile production in India, Japan and China in the time period 1990 to 2022.

    (b) State two reasons behind inclusion of error term in an econometric model.

    (c) What is the most salient difference between economic model and econometric model?

    (d) Mention two assumptions of CLRM.

    (e) Distinguish between ex-ante forecast and ex-post forecast.

    (f) Which of the following statements is *false*?

    (i) Heteroskedasticity does not cause bias in OLS estimator

    (ii) Heteroskedasticity does not cause inconsistency in OLS estimator

    (iii) Heteroskedasticity does not cause inefficiency in OLS estimator.

    (g) State whether the following statements are *true* or *false* :

    (i) If the correlation coefficient between two variables is zero, it means that there is no relationship between the two variables.

    (ii) In presence of multicollinearity the regression model exhibits very low coefficient of determination and very high individual slope coefficients.

    (h) On the basis of a sample survey, the 95% confidence interval for the mean systolic blood pressure for the employees of a firm is computed to be (122, 138). Which of the following statements gives a valid interpretation of this interval?

    (i) 95% of the sample employees of a firm have a systolic blood pressure between 122 and 138.

    (ii) 95% of the employees in the company have a systolic blood pressure between 122 and 138.

Please Turn Over

(iii) If the sampling procedure were repeated 100 times, then approximately 95 of the sample means would be between 122 and 138.

(iv) If the sampling procedure were repeated 100 times, then approximately 95 out of resulting 100 confidence intervals would contain the true mean systolic pressure for all employees of the company.

Which distribution will the sample mean in this case follow?

(i) Consider the following regression results and fill in the blanks :

Mean-wage$_i$ = 0.7437 + 0.6416 Education$_i$

SE = (0.8355) (?)

t = (?) (16.6)

(j) Show that the least square estimate of the slope coefficient of a two variable CLRM is unbiased.

(k) What do you mean by BLUE property of an estimator?

(l) What is dummy variable trap?

(m) What are the limitations of simple regression model?

(n) The following ANOVA table is provided :

ANOVA Table

Source of variation	Sum of Squares	Degrees of Freedom
ESS	139023	1
RSS	236894	53

Determine the value of F-statistic.

(o) Suppose we plot the Consumer Price Index (CPI) on the vertical axis and Wholesale Price Index (WPI) on the horizontal axis. *A priori* what kind of relationship do you expect between the two indices and why?

Group - B

Answer *any three* questions.

2. (a) State one reason behind heteroskedasticity.

(b) What are its consequences?

(c) Mention a test for heteroskedasticity.

(d) Which distribution does this test statistics follow? 1+2+1+1

3. The correlation between the number of nesting birds and the birth rate is $r = 0.62$. However, the area per inhabitant correlates both with the number of nesting birds ($r = 0.58$) and with the birth rate ($r = 0.92$). Find the correlation between number of nesting birds and the birth rate eliminating the effect of area per inhabitant. 5

4. Consider the following regression equation :

   $$\log C_t = -0.4677 + 0.8049 \log DPI_t + 0.2013 \log W_t - 0.0027\, r_t$$

   p-value :   (0.2)   (0.04)   (0.51)   (0.001)

   where C = consumption expenditure

       DPI = Real Disposable Personal Income

       W = Real Wealth

       r   = Interest Rate

   R squared = 0.9995; Adjusted *R* squared = 0.999533; *n* = 55.

   Durbin-Watson statistics = 1.2892

   Corresponding to 5% level of significance, *n* = 55 and no. of Regressor (k) = 3, the critical d-values are $d_L = 1.452$ and $d_U = 1.681$.

   (a) How would you interpret the slope coefficient of interest rate (r) from the estimated equation?

   (b) On the basis of the given information comment whether autocorrelation is present and if so, what is the nature of autocorrelation?

   (c) State two drawbacks of Durbin-Watson test.

   $1\frac{1}{2}+1\frac{1}{2}+2$

5. Consider the following regression equation :

   $$\text{Consumption}_i = \beta_1 + \beta_2\, \text{Income}_i + \beta_3\, \text{Wealth}_i + u_i$$

   where $\text{Income}_i = a + b\, \text{Wealth}_i$

   (a) What problem will you face in estimating the regression equation?

   (b) State any one method that solves this problem.

   3+2

6. Suppose you want to study the behaviour of sales of automobile over a number of years and somebody suggest you to try the following models:

   $$Y_t = \beta_0 + \beta_1 t \quad\text{............................ Model I}$$

   $$Y_t = \alpha_0 + \alpha_1 t + \alpha_2 t^2 \quad\text{.............. Model II}$$

   where Y_t = sales at time t and t = time, measured in years

   (a) Comment on the linearity of the two models.

   (b) How does the slope coefficients of the two models differ from one another?

   (c) How would you decide between the two models?

   1+2+2

Group - C

Answer *any three* questions.

7. (a) Consider the following estimated regression equation :

$\hat{Y} = 233621.5 + 47.99 X_1 + 9.95 X_2$

$SE = (1250364)$ (7.06) (0.98)

$R^2 = 0.981065; n = 151$

where Y = output; X_1 = labour; X_2 = capital

(i) Interpret the regression coefficients.

(ii) Which of the individual slope coefficients are significant at 1% level of significance?

(iii) Test the null hypothesis that all the coefficients are simultaneously zero against the alternative hypothesis that they are not simultaneously zero. [Given $F_{0.01,(2, 148)} = 4.71$]

(b) State the Gauss Markov Theorem.   (3+2+3)+2

8. (a) Consider the following model :

$\hat{Y}_i = -0.2610 - 2.3606 D_{2i} + 0.8028 X_i$

$SE = (1.1073)$ (0.4302) (0.08101)

$R^2 = 0.2032; n = 528$

where Y = hourly wage; X = Education (years of schooling)

$D_{2i} = 1$ if female, 0 otherwise.

(i) Interpret the meaning of the coefficients in the above model.

(ii) Test in the context of above model, whether there is any difference in hourly wage between males and females.

(iii) Test in the context of above model, whether hourly wage is significantly related to years of schooling. (Given $t_{0.01,525} = 2.576$)

(b) If $r_{12} = 0.80; r_{13} = 0.64; r_{23} = 0.79$, find the value of $R^2_{1.23}$ (3+2+2)+3

9. (a) Suppose the following model was estimated $Y_i = \alpha + \beta X_i + U_i$ where the variance error term takes the form $E(U_i^2) = \sigma^2 X_i^2$

(i) Does this model satisfy the classical linear regression assumptions? Why?

(ii) What remedial measure do you suggest?

(b) Why is the adjusted R^2 a better measure of goodness of fit compared to R^2?   (2+4)+4

10. (a) The following equation relates housing price (price) to the distance from a recently built garbage processing unit (dist):

    log(price) = 8.05 + 0.365 log (dist)

    $n = 142; R^2 = 0.180$

    (i) Interpret the coefficient of log (dist)

    (ii) Does the sign of the estimated slope coefficient match with what you expect it to be? Why?

    (iii) Can you state two more factors that may affect price of a house?

    (b) Consider the following two variable CLRM :

    $$Y_i = \alpha + \beta X_i + U_i,$$

    where $n = 7; \overline{X} = 4; \overline{Y} = 11; \sum X_i^2 = 140; \sum Y_i^2 = 875; \sum X_i Y_i = 334$

    Obtain the estimated regression equation.

    (2+2+2)+4

11. (a) What do you mean by functional form misspecification? Give an example.

    (b) Is it better to include irrelevant variables than to omit the relevant ones? Justify your answer.

    (c) Mention a test used to detect presence of specification error in estimating regression equations. What is the null hypothesis associated with this test? Which distribution is followed by this test statistics?

    (2+1)+4+3

2023

ECONOMICS — HONOURS

Paper : SEC-B2

(Managerial Economics)

Full Marks : 80

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words
as far as practicable.

Group - A

1. Answer *any ten* questions :   2×10

    (a) What do mean by the replacement demand for durable goods?

    (b) What is imputed cost? Give example.

    (c) Mention any two techniques for demand forecasting.

    (d) Distinguish between Shutdown Costs and Abandonment Costs.

    (e) What do you mean by Book Costs?

    (f) Let the Cost function be $C = Q^2 + 5Q + 36$. Show that AC = MC when AC becomes minimum.

    (g) What is Delphi method of demand forecasting?

    (h) What is differential pricing?

    (i) State the need for Capital Budgeting.

    (j) How do you define the NPV of any investment project?

    (k) What is profitability index?

    (l) What is Skimming price?

    (m) What is meant by Cost of retained earnings?

    (n) What is inventory carrying cost? Give some examples.

    (o) State the formula for determining the optimum number of days' supply of any firm per year.

Group - B

Answer *any four* questions.

                                                                          5×4

2. Write the difference between Incremental cost and Marginal cost with suitable examples.

3. What do you mean by (i) cyclical pricing, and (ii) product line pricing?

Please Turn Over

4. What is capital rationing?

5. Make a brief comparison beween NPV method and IRR method when we have two mutually exclusive capital projects.

6. Explain the factors which determine the inventory stock of a firm.

7. The inventory carrying cost and the ordering cost for a company have been computed to be 15% and ₹ 24 per order respectively. If the annual requirement of an item having unit price of ₹ 10 is 1,200 units, calculate the quantity to be bought to optimise the total cost.

Group - C

Answer *any four* questions.

8. (a) Indicate the impact of the following factors on the break-even level of output :

 (i) An increase in the average price of the product sold by the firm.

 (ii) A fall in the fixed costs of the firm.

 (b) From the following information, calculate —

 (i) Total Contribution margin

 (ii) Contribution margin per unit

 (iii) break-even volume of sales

 (iv) margin of safety

 (v) Profit of the firm

 • Total fixed Costs ₹ 4,500

 • Total Variable Costs ₹ 7,500

 • Total Sales Value ₹ 15,000

 • Total Sales Volume 5000 units. $(2\frac{1}{2}+2\frac{1}{2})+5$

9. What is price forecasting? Describe the factors involved in price forecasting. 3+7

10. What is profit-volume graph? Explain the concept with the help of a diagram. What are the uses of this graph? 2+6+2

11. (a) What is the time value of Money? Why does it arise?

 (b) A firm is considering the purchase of a new machine. It has a lifetime of 5 years. After 5 years it will have no scrap value. The machine will yield ₹ 2,000 annually for 5 years. If the cost of the machine is ₹ 7,000 and if the desired rate of return is 10%, examine on the basis of net present value whether the machine should be purchased. (2+3)+5

12. (a) What are the major limitations of the internal rate of return method of capital budgeting?

(b) The following is the summary of financial data in respect of five investment proposals :

Project	Initial Outlay (₹)	Net Annual Cash inflow (₹)	Life in years
A	50,000	15,000	5
B	90,000	12,000	10
C	5,000	800	10
D	24,000	3,000	12
E	5,00,000	1,00,000	20

Rank these proposals according to —

(i) The pay-back period

(ii) Rate of return on original investment.

4+(3+3)

13. (a) What is Economic Order Quantity (EOQ)?

(b) Explain the process of finding out the EOQ with the help of a diagram.

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3+7