

5/H-16 (v) (Syllabus-2017)

2019

(October)

ECONOMICS

(Honours)

(**Advance Economic Theory**)

Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. Show the decomposition of price effect for a fall in the price of good X using Slutsky's approach. 15
2. Critically examine the Revealed Preference Theory. 15

UNIT—II

3. Verify the properties of a linearly homogeneous production function using $Q = AK^\alpha L^{1-\alpha}$. 15

20D/124

(Turn Over)

4. What is producer's equilibrium? Explain how a producer achieves equilibrium through least cost combination method. 3+12

ECONOMICS
UNIT—III
(Honours)

5. When is price discrimination possible? Explain the condition(s) under which price discrimination is profitable. 5+10

6. Assuming a Pareto-efficient situation, discuss the following : 5+5+5

- (a) Efficiency in exchange
- (b) Efficiency of production
- (c) Efficiency in the product-mix

UNIT—IV

7. Discuss the Cambridge equations. Why is it considered superior to the Cash Transaction approach? 10+5

8. Explain the various causes of inflation. What fiscal measures can be undertaken to control inflation? 8+7

UNIT—V

9. Critically discuss Keynes's view on trade cycle. 15

10. Differentiate between balance of trade and balance of payments. What methods are employed to correct disequilibrium in the balance of payments? 5+10

5/H-16 (v) (Syllabus-2015)

2017

(October)

ECONOMICS

(Honours)

(**International Economics**)

Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

Answer **five** questions, taking at least
one from each Unit

UNIT—I

1. (a) What are offer curves? Explain the determination of trade with the help of offer curves. 3+6=9
- (b) Write short notes on the following : 3+3=6
 - (i) Production possibility curves
 - (ii) Community indifference curves
2. (a) State the Heckscher-Ohlin theory of international trade. 3

(2)

- (b) What are the assumptions of the Heckscher-Ohlin theory of international trade? 3
- (c) Define factor abundance in price terms and physical terms. 4
- (d) Explain factor abundance in terms of factor prices. 5

UNIT—II

3. (a) Distinguish between net barter terms of trade and gross barter terms of trade. 5
- (b) What are the factors affecting terms of trade? 4
- (c) Discuss briefly the theory of reciprocal demand. 6
4. (a) Define gains from trade. 3
- (b) Distinguish between potential and actual gains from international trade. 4
- (c) How do we measure the gains from international trade? 8

UNIT—III

5. (a) Distinguish between tariffs and quotas. 5
- (b) Discuss the theory of optimum tariff. 10

8D/219

(Continued)

(3)

6. (a) What are the different types of import quotas? 6
- (b) Explain the effects of import quotas under partial equilibrium analysis. 9

UNIT—IV

7. Explain the workings and limitations of the foreign trade multiplier. 10+5=15
8. Write short notes on the functions of (a) IMF and (b) World Bank. 7+8=15

8D—3400/219

5/H-16 (v) (Syllabus-2015)

2018

(October)

ECONOMICS

(Honours)

(International Economics)

Marks : 75

Time : 3 hours

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Answer **five** questions, taking at least **one** from each Unit

UNIT—I

1. Discuss the comparative advantage theory of international trade. What are its assumptions and criticisms? 8+7=15
2. Explain the Leontief paradox. How and to what extent can it be reconciled with the Heckscher-Ohlin theory of international trade? 8+7=15

UNIT—II

3. Define terms of trade. Discuss the various concepts of terms of trade. $3+12=15$
4. Explain the theory of immizerizing growth. What conditions are essential for producing the case of immizerizing growth? $8+7=15$

UNIT—III

5. Show with the help of diagram, the price, protective, consumption, revenue and redistribution effects of a tariff under partial equilibrium. $3+3+3+3+3=15$
6. Define quotas. What are the objectives of import quotas? For less developed countries, which is more suitable—tariffs or quotas? Explain with the help of suitable examples. $3+5+7=15$

UNIT—IV

7. Discuss the mechanism of the absorption approach to the balance of payments adjustment. What are its limitations? $10+5=15$
8. Critically examine the purchasing power theory of exchange rates. 15

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2019
(October)

ECONOMICS

(Honours)

(International Economics)

Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. What are community indifference curves? Explain their uses in International Trade Theory. 3+12
2. Critically discuss the Heckscher-Ohlin Theorem of International Trade. 15

UNIT—II

3. Critically discuss Mill's theory of reciprocal demand. 15

4. Define terms of trade. Discuss the factors affecting terms of trade. 3+12

UNIT—III

5. What are tariffs? Discuss tariff-quota controversy with reference to developing countries like India. 3+12
6. Define quotas. Explain the effects of import quotas under partial equilibrium. 2+13

UNIT—IV

7. Explain the working and limitations of the Foreign Trade Multiplier. 15
8. Critically examine the purchasing power parity theory of exchange rates. 15

UNIT—V

9. Explain the objectives and functions of the IMF. What are the benefits which have flowed to India as one of the members? 5+5+5
10. What is World Trade Organisation? Explain its objectives and functions. How does it differ from the GATT? 2+5+5+3

5/H-16 (vi) (Syllabus-2015)

2 0 1 7

(October)

ECONOMICS

(Honours)

(Mathematics for Economists)

Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

Answer **five** questions, taking at least **one**
from each Unit

UNIT—I

1. (a) Differentiate between equal and
equivalent sets with examples. 3

(2)

(b) Represent the following with Venn diagrams : $2+2=4$

(i) $B \subset A$ and $A \cap B = B$

(ii) $A \cap (B \cup C)$

(c) In an examination, 32 percent students failed in Economics, 30 percent in Political Science, 46 percent in History, 12 percent in Economics and Political Science, 9 percent in Political Science and History, 10 percent in Economics and History and 3 percent in all three subjects. How many students passed in all the three subjects? How many failed in exactly one subject? $3+5=8$

2. (a) Distinguish between domain and range of a function. 5

(b) If the domain of the function $y = 1 + 2x$ is the set $\{x/2 \leq x \leq 7\}$, find the range of the function and express it as a set. 2

(c) Can you always find the domain of a function if the range is given? Explain. 2

8D/220

(Continued)

(3)

(d) (i) What are homogeneous functions? 2

(ii) Examine if the following functions are homogeneous and if so, of what degree : $2+2=4$

(1) $f(x, y) = x^3 - xy + y^3$

(2) $f(x, y, w) = \frac{xy^2}{w} + 2xw$

UNIT—II

3. Solve the following system of simultaneous equations using (a) Matrix inversion and (b) Cramer's rule : $8+7=15$

$$2x_1 + 3x_2 - x_3 = 15$$

$$4x_2 + 2x_3 = 16$$

$$3x_1 + 2x_2 = 18$$

4. (a) Discuss any three properties of determinants with examples. 6

(b) Show the following without expanding : 3

$$\begin{vmatrix} 2 & 2^2 & 2^3 \\ 2^2 & 2^3 & 2^4 \\ 2^3 & 2^4 & 2^5 \end{vmatrix} = 0$$

8D/220

(Turn Over)

(4)

(c) If

$$A = \begin{bmatrix} -1 & 3 \\ 0 & 1 \end{bmatrix}, B = \begin{bmatrix} 1 & 0 & 2 \\ 2 & -1 & 0 \end{bmatrix} \text{ and}$$

$$C = \begin{bmatrix} 4 & -2 \\ 1 & 0 \\ 0 & 1 \end{bmatrix}$$

then show that $AB(C) = A(BC)$. 6

UNIT—III

5. (a) Explain left-hand limit and right-hand limit of a function. 3
- (b) State the conditions for continuity of a function at a point $x = a$. 3
- (c) Evaluate any three of the following : $3 \times 3 = 9$

(i) $\lim_{x \rightarrow 1} \frac{x^2 - 4x + 3}{x^2 + 2x - 3}$

(ii) $\lim_{x \rightarrow a} \frac{x^9 - a^9}{x^6 - a^6}$

(iii) $\lim_{x \rightarrow \infty} \frac{5x^3 + 2}{3x^3 + x + 1}$

(iv) $\lim_{x \rightarrow 0} \frac{\sqrt{(1+x)} - \sqrt{(1-x)}}{x}$

8D/220

(Continued)

(5)

6. (a) Find dy/dx of the following (any three) : $2 \times 3 = 6$

(i) $y = (2x - 5)(x^2 + x + 1)$

(ii) $y = \log \left[\frac{x^2 + 1}{x^2 - 1} \right]$

(iii) $y = e^{\sqrt{(1+x^3)}}$

(iv) $y = \frac{x^2}{\sqrt{(1+x^2)}}$

(v) $y = (2x^2 + 7)^{10}$

- (b) Find the first- and second-order partial derivatives of the following function :

$$z = 2x^3 + 5x^2y + xy^2 + y^2$$

Verify that $\frac{\partial^2 z}{\partial x \partial y} = \frac{\partial^2 z}{\partial y \partial x}$. 4

- (c) Find the optimum output of a firm whose total revenue and total cost functions are given by

$$R = 30Q - Q^2$$

$$C = 20 + 4Q$$

where $Q =$ output. 5

8D/220

(Turn Over)

(6)

UNIT—IV

7. (a) Find the integral of the following : $3 \times 2 = 6$

(i) $\int \left(4x^3 + \frac{1}{\sqrt{x}} - 3 \right) dx$

(ii) $\int 4(e^{2x} + x)(e^{2x} + x^2)^2 dx$

(b) (i) What is meant by 'integration by parts'? 4

(ii) Using the above concept, find

$$\int \frac{x+5}{x+2} dx \quad 5$$

8. (a) Explain the difference between indefinite and definite integral. 4

(b) (i) State the procedure for evaluating a definite integral of $f(x)$ from a to b . 3

(ii) Find

$$\int_2^4 3x^2(x^2 + 1) dx \quad 4$$

8D/220

(Continued)

(7)

(c) A consumer's demand function is given by

$$Q = f(P) = \sqrt{(60 - 2P)}$$

Find consumer's surplus when market price $P = 12$. 4

8D—3400/220

5/H-16 (vi) (Syllabus-2015)

2018

(October)

ECONOMICS

(Honours)

(**Mathematics for Economists**)

Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking at least **one** from each Unit

UNIT—I

1. (a) Find the equation of the straight line passing through the points (2, 2) and (4, 8). 2
- (b) Determine the equation of the line having intercept a on x -axis and intercept b on y -axis. 2

(2)

- (c) What are the differences between an ordered pair (1, 2) and a set {1, 2}? 3
- (d) Prove the distributive laws using Venn diagrams. 4+4=8
2. (a) Differentiate between explicit and implicit functions. 3
- (b) Three daily newspapers are published in a city with a literate population of 4000. Following are the reading habits :
- 48% read A, 54% read B, 64% read C, 28% read A and B, 32% read B and C, 30% read C and A and 6% do not read any of the newspapers
- Find the number of persons who read (i) all three newspapers and (ii) B and C not A. 4+4=8
- (c) Briefly explain the methods of denoting a set. 4

(3)

UNIT—II

3. (a) Distinguish between a symmetric matrix and a skew-symmetric matrix. 4
- (b) Prove that $(ABC)^T = B^T C^T A^T$. Given
- $$A = \begin{bmatrix} 2 & 1 \\ 4 & 2 \end{bmatrix}, B = \begin{bmatrix} 3 & 0 \\ 1 & 5 \end{bmatrix}, C = \begin{bmatrix} 1 & 2 \\ 2 & 3 \end{bmatrix} \quad 7$$
- (c) Prove that matrix multiplication is not commutative. 4
4. (a) Solve the following linear programming problem graphically : 5
- Maximize $Z = 45x + 80y$
subject to
 $5x + 20y \leq 400$
 $10x + 15y \leq 450$
 $x \geq 0, y \geq 0$
- (b) A factory has 90, 80 and 50 running feet respectively of teak, pinewood and rosewood. Product A requires 2, 1 and 1 running feet and product B requires 1, 2 and 1 running feet of teak, pinewood and rosewood respectively.

(4)

If A could sell for ₹ 48 and B could sell for ₹ 40 per unit, how much of each should be produced and sold to maximize gross income out of his stock of wood? Give a mathematical formulation of this linear programming problem and solve by graphical method. 5+5=10

UNIT—III

5. (a) Given the demand and average cost functions of a monopolistic firm as $P = 32 - 3Q$, $AC = Q + 8 + \frac{5}{Q}$. What level of output will maximize total profit and what are the corresponding values of MC and MR? 6+2+2=10
- (b) Find the elasticity of demand (ϵ) and MR at $p = 2$, if the demand function $q = 30 - 5p - p^2$. 5
6. (a) Explain an inflection point with suitable illustrations from economics. For the given function $y = x^3 - 3x^2 + 7$, find the point of inflection. 3+3=6

D9/93

(Continued)

(5)

- (b) Find the total differential of the following : 3×3=9

(i) $Z = \frac{x^2 - y^2}{x^2 + y^2}$

(ii) $Z = (x^2 + y)(2x - y^2)$

(iii) $Z = \log(x^2 + y^2)$

UNIT—IV

7. (a) Use the substitution rule to find

$$\int \frac{4x^3 + 2}{(4x^4 + 8x)^5} dx \quad 3$$

- (b) Find the total revenue function and the demand function from the given marginal revenue function

$$MR = 3 - 2x - x^2 \quad 2+3=5$$

- (c) What is producer's surplus? If a producer's supply function is given by $Q = \sqrt{-4 + 4p}$ and the market price is 10, find the producer's surplus. 2+5=7

D9/93

(Turn Over)

8. (a) The demand and supply functions are $P_d = (6 - q)^2$ and $P_s = 14 + q$ respectively. Find the consumer's surplus under perfect competition. 9

(b) Find the integrals of the following :

3×2=6

(i) $\int \frac{I_n(x)}{x} dx$

(ii) $\int \frac{8x}{(2x^2 + 1)} dx$

5/H-16 (vi) (Syllabus-2015)

2019

(October)

ECONOMICS

(Honours)

(Mathematics)

Marks : 75

Time : 3 hours

The figures in the margin indicate full marks
for the questions

Answer **five** questions, taking at least **one** from
each Unit

UNIT—I

1. (a) Define slope of a straight line. 2
 - (b) Find the gradient and the intercept
made by the straight line $x - y - 6 = 0$
on the y -axis. 2
 - (c) Using the sets given below, prove the
associative and distributive laws of set
operations : 5
- $A = \{ 1, 2, 3, 4 \}$
 $B = \{ 2, 4, 5, 6 \}$
 $C = \{ 3, 4, 7, 8 \}$

20D/127

(Turn Over)

(2)

(d) In an examination, 53% students passed in Mathematics, 61% passed in Economics and 60% passed in Statistics. 24% passed in Mathematics and Economics, 35% passed in Mathematics and Statistics and 27% passed in Economics and Statistics. 5% passed in none of the subjects. How many students passed in all the 3 subjects? How many students failed in exactly one subject? 3+3=6

2. (a) Distinguish between Logarithmic and Exponential functions. 3

(b) Define homogeneous function. Show that the Cobb-Douglas function $Q = AL^\alpha K^{1-\alpha}$ is linearly homogeneous. 3

(c) The mathematical statement of a linear market model is given as

$$Q_d = Q_s$$

$$Q_d = a - bP \quad (a, b > 0)$$

$$Q_s = -c + dP \quad (c, d > 0)$$

where Q_d is the quantity demanded of the commodity, Q_s is the quantity supplied and its price is P . Find out the equilibrium price and output. 4

(d) Explain some of the uses of different functions in Economics. 5

20D/127

(Continued)

(3)

UNIT—II

3. (a) Given $A = \begin{bmatrix} 1 & 2 \\ 3 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 0 \\ 2 & 1 \end{bmatrix}$
Prove that $(A \cdot B)^T = B^T \cdot A^T$. 4

(b) Is the following matrix a singular matrix? 2

$$A = \begin{bmatrix} 2 & -2 & 3 \\ 1 & 0 & -3 \\ 3 & 4 & 0 \end{bmatrix}$$

(c) Solve for x, y, z by matrix inversion method :

$$2x + 3y - z = 9$$

$$x + y + z = 9$$

$$3x - y - z = -1$$

Verify the answer. 9

4. (a) Briefly explain the following linear programming concepts : 2×5=10

(i) Objective function

(ii) Constraints

(iii) Feasible region

(iv) Feasible solution

(v) Optimum solution

20D/127

(Turn Over)

(4)

- (b) Solve the following linear programming problem by graphical method : 5

$$\text{Maximize } Z = 5x_1 + 3x_2$$

subject to constraints

$$x_1 + x_2 \leq 2$$

$$5x_1 + 2x_2 \leq 10$$

$$3x_1 + 8x_2 \leq 12$$

$$x_1 \geq 0, x_2 \geq 0$$

UNIT—III

5. (a) Evaluate the limits of the following (any three) : 2×3=6

$$(i) \lim_{x \rightarrow a} \frac{x^{10} - a^{10}}{x^6 - a^6}$$

$$(ii) \lim_{x \rightarrow 3} \frac{x^2 - 2x - 3}{x^2 + x - 12}$$

$$(iii) \lim_{x \rightarrow \infty} \frac{3x^2 + x - 1}{x^2 - x + 7}$$

$$(iv) \lim_{x \rightarrow 0} \frac{\sqrt{3+x} - \sqrt{3-x}}{3x}$$

(Continued)

(5)

- (b) Given the function

$$f(x) = 5x - 4, \quad 0 < x \leq 1$$

$$= 4x^2 - 3x, \quad 1 < x < 2$$

Examine its continuity at $x = 1$. 5

- (c) Find the first- and second-order partial derivatives of the function

$$z = 2x^3 + 5x^2y + xy^2 + y^2$$

Verify that $\frac{\partial^2 z}{\partial x \partial y} = \frac{\partial^2 z}{\partial y \partial x}$.

4

6. (a) Find $\frac{dy}{dx}$ of any three of the following : 2×3=6

$$(i) x^3 - 7xy + y^3 = 10$$

$$(ii) f(x) = x^3 + \log_a x$$

$$(iii) y = (2x^2 + 7)^{10}$$

$$(iv) y = e^{\sqrt{1+x^3}}$$

- (b) The demand function is

$$x = 25 - 4P + P^2$$

Determine price elasticity, if $P = 4$. 4

20D/127

(Turn Over)

(6)

- (c) Find the optimum output of a firm whose total revenue and total cost functions are $R = 30Q - Q^2$ and $C = 20 + 4Q$, where $Q =$ output. 5

UNIT—IV

7. Integrate any five of the following : 3×5=15

(i) $\int xe^x dx$

(ii) $\int \left(x^3 - 6e^{-x} + \frac{5}{x} \right) dx$

(iii) $\int (8+7x)^7 dx$

(iv) $\int \frac{1}{ax+b} dx$

(v) $\int \frac{2ax+b}{ax^2+bx+c} dx$

(vi) $\int \frac{x^3 - 6x + 9}{x+3} dx$

(vii) $\int_0^3 (x^2 + 6) dx$

8. (a) Explain the uses of integration in Economics. 3
(b) Calculate the consumer's surplus, if the demand function is $p = 35 - 2x - x^2$ and the demand $x = 3$. 6

20D/127

(Continued)

(7)

- (c) Find the producer's surplus when the demand function is $P_d = 3x^2 - 20x + 5$ and the supply function is $P_s = 15 + 9x$, where x is the quantity demanded and supplied. 6

20D—3800/127

5/H-16 (vi) (Syllabus-2015)