

2023

ECONOMICS — MDC

Paper : CC-1

(Microeconomics - I)

Full Marks : 75

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

প্রান্তলিখিত সংখ্যাগুলি পূর্ণমান নির্দেশক।

বিভাগ - ক

১। যে-কোনো দশটি প্রশ্নের উত্তর দাও :

২×১০

- (ক) জোগানের দুটি নির্ধারক উল্লেখ করো।
- (খ) ব্যক্তিগত এবং সমষ্টিগত অর্থনীতির দুটি পার্থক্য বিবৃত করো।
- (গ) বাহ্যিকতা বলতে কী বোঝো?
- (ঘ) সুযোগ ব্যয় কাকে বলে?
- (ঙ) শ্রমের গড় উৎপাদন বলতে কী বোঝো?
- (চ) উৎপাদন সম্ভাবনা রেখার সংজ্ঞা দাও।
- (ছ) প্রান্তিক আয় বলতে কী বোঝো?
- (জ) চরম সুবিধার তত্ত্বটি বিবৃত করো।
- (ঝ) একক স্থিতিস্থাপক চাহিদা বলতে কী বোঝো?
- (ঞ) মিশ্র অর্থনীতি কাকে বলে?
- (ট) একটি পূর্ণ প্রতিযোগিতামূলক বাজারের দুটি বৈশিষ্ট্য উল্লেখ করো।
- (ঠ) বাজার অর্থনীতির সংজ্ঞা দাও।
- (ড) উপযোগিতার কার্ডিনাল এবং অর্ডিনাল তত্ত্বের দুটি পার্থক্য উল্লেখ করো।
- (ঢ) উৎপাদনে দীর্ঘকাল বলতে কী বোঝো?
- (ণ) একটি ফার্মে শ্রমের নিযুক্তি ১০ থেকে ১১ হওয়ায় মোট উৎপাদন ৭৫০ থেকে ৮২০ হয়ে গেল। শ্রমের প্রান্তিক উৎপাদন কত?

Please Turn Over

বিভাগ - খ

২। যে-কোনো পাঁচটি প্রশ্নের উত্তর দাও :

- (ক) মোট উপযোগিতা এবং প্রান্তিক উপযোগিতার সম্পর্ক নিরূপণ করো। ৫
- (খ) চাহিদার আয়গত স্থিতিস্থাপকতার সংজ্ঞা দাও। নিকৃষ্ট দ্রব্য কাকে বলে? নিকৃষ্ট দ্রব্যের আয়গত স্থিতিস্থাপকতা কত? ২+২+১
- (গ) চাহিদার সূত্রটি বিবৃত করো। চাহিদার সূত্রের তিনটি ব্যতিক্রম উল্লেখ করো। ২+৩
- (ঘ) নিরপেক্ষ রেখার সংজ্ঞা দাও। নিরপেক্ষ রেখার তিনটি বৈশিষ্ট্য উল্লেখ করো। ২+৩
- (ঙ) সরকারি দ্রব্য কাকে বলে? সরকারি দ্রব্যের দুটি বৈশিষ্ট্য উল্লেখ করো। সরকারি দ্রব্যের একটি উদাহরণ দাও। ২+২+১
- (চ) বাজেট রেখা কী? যদি আয় বৃদ্ধি পায়, বাজেট রেখায় কী প্রভাব পড়বে, চিত্রসহ দেখাও। ২+৩
- (ছ) চাহিদার পরিবর্তন এবং চাহিদার পরিমাণের পরিবর্তনের পার্থক্য করো। ৫
- (জ) চাহিদার পারস্পরিক দাম স্থিতিস্থাপকতার সংজ্ঞা দাও। এই ধারণার মাধ্যমে পরিবর্ত দ্রব্য এবং পরিপূরক দ্রব্যের পার্থক্য করো। ২+৩

বিভাগ - গ

৩। যে-কোনো তিনটি প্রশ্নের উত্তর দাও :

- (ক) চাহিদা রেখা কী? জোগান রেখা কী? চাহিদা রেখা ও জোগান রেখার যাত প্রতিঘাতে কীভাবে ভারসাম্য দাম নির্ধারিত হয়? ২+২+৬
- (খ) চাহিদার দাম স্থিতিস্থাপকতার সংজ্ঞা দাও। একটি সরলরৈখিক চাহিদারেখার মধ্যবিন্দুতে দাম স্থিতিস্থাপকতা কত? চাহিদার দাম স্থিতিস্থাপকতা নির্ধারণকারী বিষয়গুলি কী কী? ২+২+৬
- (গ) প্রান্তিক বিনিময় হার কাকে বলে? এটি কীভাবে নিরপেক্ষ রেখার উত্তলতার সঙ্গে সম্পর্কিত? ২+৮
- (ঘ) দুটি দ্রব্য-বিশিষ্ট অর্থনীতিতে যেখানে দ্রব্যের দাম এবং ক্রেতার আর্থিক আয় স্থির, সেখানে একজন ক্রেতার ভারসাম্যের শর্ত নিরূপণ করো। ১০
- (ঙ) চাহিদার সংজ্ঞা দাও। চাহিদা নির্ধারণকারী বিষয়গুলি কী কী? একটি সম্পূর্ণ স্থিতিস্থাপক এবং একটি সম্পূর্ণ অস্থিতিস্থাপক চাহিদা রেখা অঙ্কন করো। ২+৪+(২+২)

[English Version]

The figures in the margin indicate full marks.

Group - A

1. Answer any ten questions :

- (a) Mention two determinants of supply. ২×10
- (b) State two differences between microeconomics and macroeconomics.

- (c) What do you mean by externality?
- (d) What is opportunity cost?
- (e) What do you mean by average product of labour?
- (f) Define Production Possibility Frontier.
- (g) What do you mean by marginal revenue?
- (h) State the law of Absolute Advantage.
- (i) What do you mean by unit elastic demand?
- (j) What is a mixed economy?
- (k) Mention two features of a perfectly competitive market.
- (l) Define a market economy.
- (m) Mention two differences between cardinal and ordinal approach to utility.
- (n) Define long-run in production.
- (o) If the labour employment increases from 10 to 11 in a firm, the total product changes from 750 to 820 units. What is the marginal product of labour?

Group - B

2. Answer *any five* questions :

- (a) Establish the relationship between total utility and marginal utility. 5
- (b) Define income elasticity of demand. What is an inferior good? What is the income elasticity of an inferior good? 2+2+1
- (c) State the Law of Demand. Mention three exceptions to the law of demand. 2+3
- (d) Define indifference curve. Mention three properties of an indifference curve. 2+3
- (e) What is a public good? Mention two features of a public good. Give an example of a public good. 2+2+1
- (f) What is a budget line? Show with the help of a diagram, the effect on the budget line if income rises. 2+3
- (g) Distinguish between change in demand and change in quantity demanded. 5
- (h) Define cross-price elasticity of demand. Distinguish between substitute and complements with the help of this concept. 2+3

Group - C

3. Answer *any three* questions :

- (a) What is a demand curve? What is a supply curve? How is equilibrium price determined through the interaction of demand and supply curve? 2+2+6

Please Turn Over

- (b) Define price elasticity of demand. What is the price elasticity at the midpoint of a straight line demand curve? Mention the determinants of price elasticity of demand. 2+2+6
- (c) Define Marginal Rate of Substitution (MRS). How is it related to the convexity of an indifference curve? 2+8
- (d) Derive the conditions of consumer's equilibrium in an economy with two commodities, where the money income of the consumer and the prices of the commodities are fixed. 10
- (e) Define demand. What are the determinants of demand? Draw a perfectly elastic and a perfectly inelastic demand curve. 2+4+(2+2)
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2023

ECONOMICS — HONOURS

Paper : SEC-1

[Introductory Statistics and Application (I)]

Full Marks : 75

*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 :

- (a) What should be the suitable diagram to represent the data in each case?
- The daily selling prices of gold in India in a particular week.
 - The profit and losses of a business concern for a period of 10 years.
 - Revenue and expenditure of the Central Government for a period of 5 years.
 - The total production cost and its components of a manufacturing firm in a particular year.
- (b) Find the relative frequency of the third class and frequency density of the second class for the following distribution :

Height of students (in cm.)	151-155	156-160	161-165	166-185
No. of students	5	10	15	15

- (c) The average monthly production of a certain factory for the first five months is 3585 units and for the remaining seven months it is 2420 units. Calculate the average monthly production for the year. 2
- (d) Two variables X and U are related as $X = 1.5U + 2.5$ and U has the mode 20; find the mode of X. 2
- (e) (i) Find the median of 4, 5, 3, 1, 7.
(ii) Find the median of 4, 5, 3, 1, 70.
(iii) State what favourable property of the median is illustrated by comparing the answers to (i) and (ii). 2
- (f) The lower and the upper quartiles of a distribution are 14.6 and 25.2 respectively and the coefficient of skewness is 0.5. Find the median of the distribution. 2

Please Turn Over

- (g) A manufacturer of television tubes has two types of tubes, A and B. For types A and B mean lifetimes are 1495 hours and 1875 hours respectively, and the standard deviations are 280 hours and 310 hours respectively. Which tube has the greater relative dispersion? 2
- (h) Suppose that a variable X can take three values 30, 40 and 50. Find the third order central moment of X . 2
- (i) The first two moments of a distribution about the value 2, are 1 and 16 respectively. Find the first two moments about zero. 2
- (j) A distribution has a standard deviation of 2. For which value of the fourth central moment the distribution will be mesokurtic? 2
- (k) In a two-variable model, show that the correlation coefficient and the regression coefficients must be of the same sign. 2
- (l) For the variables X and Y , the regression lines were obtained as $3x + 2y - 25 = 0$ and $6x + y - 30 = 0$. Identify the regression equation of Y on X . 2
- (m) Suppose that in constructing the price index number for a certain year with a fixed base year we take the simple arithmetic mean of the price relatives. Would this be a satisfactory index number? Why? 2
- (n) What do you mean by a cost of living index number? 2
- (o) What do you mean by the Gini coefficient? 2

Group - B

Answer *any five* questions.

2. For the following frequency distribution, draw the histogram and find the number of students whose heights lie between 158 cm and 168 cm. :

Height of students (in cm.)	151-155	156-160	161-165	166-185
No. of students	5	10	15	15

2+3

3. Evaluate mode as a measure of central tendency. 5
4. A variable assumes the values 1, 2, ..., 7 with frequencies $1^2, 2^2, \dots, 7^2$ respectively. Calculate the arithmetic mean of the variable. 5
5. Examine how correlation coefficient is affected by a change of origin and scale. 5
6. The second moments about the mean of two distributions are 9 and 16, while the third moments about the mean are -8.1 and -12.8 respectively. Which distribution is more skewed to the left? Give reason. 5
7. A variable takes only two distinct values a and b , each with equal frequency. Find the second, third, and fourth central moments. 5

8. For the following data show that $r = 0$. Do you conclude that X and Y are uncorrelated? Why?

X	-3	-2	-1	0	1	2	3
Y	9	4	1	0	1	4	9

$3\frac{1}{2} + \frac{1}{2} + 1$

9. Laspeyres', Paasche's and Fisher's price index numbers satisfy the time reversal test. — Is the statement correct? Justify.

1+4

Group - C

Answer *any three* questions.

10. (a) For two positive values X_1, X_2 of a variable X , prove that A.M. \geq G.M. \geq H.M. Is this result true for any number of observations?

- (b) Find a suitable measure of central tendency for the following distribution justifying your choice.

Class-limits	Frequency
51 – 55	4
56 – 60	10
61 – 65	14
66 and above	2

(4+1)+5

11. (a) Evaluate standard deviation as a measure of dispersion.
 (b) In a factory the average daily wage of 50 workers was ₹ 500 with a standard deviation ₹ 40. Each worker is given a raise of ₹ 50. Find the new average daily wage and standard deviation.

5+(2+3)

12. (a) Obtain the appropriate regression equation from the following data :

Expenditure on food in ₹	600	750	550	1,050	1,100
Income in ₹	800	1,200	600	2,000	2,500

- (b) Show that if all people of a country have the same level of Income, then Theil's inequality measure will be zero.

6+4

13. The following table gives the various group indices and weights for 2020 with 2010 as the base year.

Group	Food	Clothing	Fuel & Light	House rent	Miscellaneous
Index No.	348.7	288.9	387.2	110.0	285.1
Weight	60	5	6	9	20

- (a) Compute the cost of living index number for 2000 with 2010 as the base year.
 (b) A worker was getting ₹ 5,000 for a job in 2010 and ₹ 9,500 in 2020. How much extra allowance she ought to have received to maintain her 2010 standard of living?

5+5

Please Turn Over

14. (a) What do you mean by skewness and kurtosis of a frequency distribution? How can those be measured?
- (b) In a distribution, the mean, median and coefficient of variation are respectively 50, 53 and 20%. Find the coefficient of skewness and interpret the result.
- (3+3)+(3+1)
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2023

ECONOMICS — HONOURS

Paper : DSCC-1

(Microeconomics-I)

Full Marks : 75

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 happens to a budget line if the price of good '2' increases, but, the price of good '1' and income of the consumer remain constant?
- (b) Calculate the marginal productivity of labour for the production function : $q = 3L + 2K$.
- (c) What do you mean by average product?
- (d) An increase in the demand for computer game raises the quantity supplied by 50 per cent. If elasticity of supply is 5, determine the change in price.
- (e) You like both oranges and milk but do not like them together. With the help of budget line and indifference curve show the consumers' equilibrium in this case.
- (f) If demand is unitary elastic, how will a decline in price affect total revenue?
- (g) Raya is always willing to trade one can of coke for one can of sprite or one can of sprite for one can of coke. Draw a set of indifference curves for Raya.
- (h) What is a production possibility frontier?
 - (i) Ajay is consuming two commodities X and Y. If he is indifferent between commodity bundles (10,15) and (12,14). Find the value of marginal rate of substitution of Y for X.
 - (j) What is the difference between giffen good and inferior good?
- (k) Can a set of indifference curves be upward sloping? If so, what can you tell about the two goods?
- (l) Mention two opportunity costs of attending economics honours classes in your college.
- (m) When is the indifference curve concave to the origin?
- (n) "An increase in the interest rate will cause a decline in investment."— Is it a positive or normative statement? Justify your answer.
- (o) Raja only cares about the amount of cash that he is holding and does not care at all about the belongings that he has in kind. Draw a set of indifference curves for Raja.

Please Turn Over

Group - B

2. Answer *any five* questions of the following :

- (a) What is market failure? Explain two main causes of market failure. 2+3
- (b) State the factors affecting price elasticity of demand. 5
- (c) Define marginal utility. How is it related to total utility? 2+3
- (d) How can you determine price elasticity at a point on a straight line demand curve? 5
- (e) Show how trade between two nations can make each country better-off. 5
- (f) What are the factors which lead to the shift of the supply curve? 5
- (g) How is the effect on total revenue due to price change related to elasticity of demand? 5
- (h) Explain the statement "the slope of a negatively sloped linear demand curve is constant, but the elasticity is not". 5

Group - C

Answer *any three* questions.

3. (a) Consider the following total utility schedule :

Quantity Consumed	0	1	2	3	4	5	6	7	8	9
Total Utility	0	8	13	17	20	22	23	23	22	20

- (i) Draw the total utility schedule and derive the marginal utility schedule from it.
- (ii) If the marginal utility of money (λ) is 0.5, plot the demand curve from marginal utility schedule.
- (iii) Find the equilibrium quantity demanded if the price of commodity is ₹ 4 per unit.
- (b) Suppose Rahul always consumes 2 spoons of sugar with each cup of coffee. The price of coffee is ₹ 20 per cup and price of sugar is ₹ 5 per spoon. If Rahul has ₹ 600 to spend on coffee and sugar, how much coffee and sugar would he like to purchase? With the help of budget line and indifference curve show the optimal choice of Rahul in a diagram. (2+3+1)+(2+2)
4. (a) Using supply and demand diagrams, show the effect of the following events on the equilibrium price and quantity of personal computers :
- (i) The price of computer chips falls.
- (ii) There is a rise in consumer income.
- (iii) The price of computer software rises.
- (iv) Universities require incoming freshmen to have their own personal computers.
- (b) During summer both the price and quantity demanded of ceiling fans rise. Is it a case of exception to the law of demand? Justify your answer. (2×4)+2

5. (a) Two drivers — Ram and Shyam — each drive to a petrol pump. Before looking at the price, each places an order.
 Ram says “I would like 20 litres of petrol”.
 Shyam says “I would like ₹ 2,000 worth of petrol”.
- What is each driver’s price elasticity of demand?
 - Draw the demand curves of Ram and Shyam.
- (b) You are the curator of a museum. The museum is running short of funds, so, you decide to increase revenue. Should you increase or decrease the price of entry ticket? Explain. (3+2)+5
- 6 (a) India and Bangladesh both produce shirts and shoes. Suppose that an Indian worker can produce 10 shirts or 5 shoes per day. Suppose that a Bangladeshi worker can produce 8 shirts or 8 shoes per day.
- Which country has the absolute advantage in the production of each good? Which country has the comparative advantage?
 - If India and Bangladesh decide to trade, which commodity will India trade to Bangladesh? Explain.
 - If a Bangladeshi worker could produce 5 shirts per day, would Bangladesh still benefit from trade? Explain.
- (b) A machine can produce 4000 backpacks or 2000 bicycles in a month.
- Draw the production possibility frontier for an economy with 10 such machines.
 - What is the opportunity cost of backpacks?
 - What is the opportunity cost of bicycles? (2+2+2)+(2+1+1)
7. (a) Let there be two consumers in an economy whose demand curves are given by :
- Consumer 1: $Q_1 = 20 - 2P$
 Consumer 2: $Q_2 = 15 - P$
 Draw the individual demand curves and the market demand curve.
- (b) The supply and demand for ice cream cones are described by the following equations :
- $Q^S = -30 + 38P$
 $Q^D = 90 - 2P$
 Q is the quantity of ice cream cones per day and P is the price per ice cream cone (in ₹).
- Graph the supply curve and demand curve.
 - What is the equilibrium price and quantity? 5+(2½+2½)