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01

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Easy | PYQ · 2021 · Q67

PYQ — 2021, Q67

Perfect competition is characterized by all of the following, *except*

A. well-informed buyers and sellers with respect to prices

B. a large number of buyers and sellers

C. no restrictions on entry into or exit from the industry

D. considerable advertising by individual firms

EXPLANATION

Correct answer: D

In perfect competition, firms sell a homogeneous product. Buyers can obtain an equivalent unit from many sellers, so an individual firm takes the market price as given. Considerable advertising by individual firms is associated with trying to make one brand stand out, which is more typical of markets with differentiated products.

- **A:** Informed buyers can compare sellers' prices, and informed sellers know the going market price.
- **B:** With many small buyers and sellers, each individual transaction has little influence on the market price.
- **C:** Free entry allows firms to enter when they see a profit opportunity. Free exit allows firms to leave when continuing is unprofitable.

KEYWORDS: perfect competition | homogeneous product | price information | free entry and exit

02

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2026 · Q32

PYQ — 2026 (30 March, Shift 2), Q32

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : The budget line indicates all combinations of goods for which the total amount of money spent is equal to income.

Reason (R) : The consumer spends all his income always on one commodity.

In the light of the above statements, choose the most appropriate answer from the options given below :

A. Both (A) and (R) are correct and (R) is the correct explanation of (A)

B. Both (A) and (R) are correct but (R) is not the correct explanation of (A)

C. (A) is correct but (R) is not correct

D. (A) is not correct but (R) is correct

EXPLANATION

Correct answer: C

The assertion describes the budget line correctly. With prices p_x and p_y, income m, and quantities x and y, the line is $p_x x + p_y y = m$. It includes every bundle that uses the whole budget. Affordable bundles that leave some income unspent are in the budget set but below the line.

The reason is false. Spending all income need not mean buying only one commodity. For example, if two goods each cost ₹2 and the budget is ₹12, buying 3 units of each spends all ₹12. That mixed bundle is on the budget line.

- **A:** Spending all income on just one good gives one of the two intercepts. The budget line also includes combinations of the two goods.
- **B:** A consumer can spend the full budget on two goods, as the bundle of 3 units of each shows. The reason incorrectly restricts full-budget spending to one commodity.
- **D:** The assertion depends on the equality between total spending and income, which holds at every point on the line. A rule requiring every consumer to choose an intercept would be unjustified.

KEYWORDS: budget line | budget set | consumption bundle | budget constraint

03

MICRO ECONOMICS

Production Theory

Difficulty: Easy | PYQ · 2026 · Q6

PYQ — 2026 (12 March, Shift 2, Domestic), Q6

Total cost curve of a firm is a

A. Flow concept

B. Stock concept

C. Neither flow nor stock

D. Either flow or stock

EXPLANATION

Correct answer: A

A flow is measured over a period. The total cost curve gives the cost of producing different quantities of output over a chosen period, such as a week. At any point on the curve, the output and its production cost refer to that same period. Total cost in this sense is a flow.

- **B:** A stock is measured at a point in time. The value of the firm's machines on the last day of the month is a stock.
- **C:** Plotting total cost against output still leaves each cost figure tied to the production period. The horizontal axis can show units produced that week even without displaying time directly.
- **D:** Choosing a different period, such as a month, still measures costs over time. Both weekly and monthly production costs are flows.

KEYWORDS: total cost | flow variable | stock variable

04

MICRO ECONOMICS

General Equilibrium, Efficiency and Welfare

Difficulty: Easy | PYQ · 2021 · Q94

PYQ — 2021, Q94

If ‘A’ imposed an externality on ‘B’ and if ‘B’ imposed externality on ‘A’ as well it is

A. unidirectional

B. reciprocal

C. marginal unidirectional

D. multidirectional

EXPLANATION

Correct answer: B

An externality occurs when someone's action affects another party outside a market transaction. Here A's activity affects B, and B's activity also affects A. Each party both causes and receives a spillover. This mutual relation is a reciprocal externality.

- **A:** A unidirectional externality would run from one party to the other only, for example from A to B.
- **C:** “Marginal” would refer to the effect of a small change in activity. It leaves the one-way meaning of “unidirectional” intact.
- **D:** “Multidirectional” describes effects going in several directions broadly. “Reciprocal” identifies the specific pattern in which the same two parties affect each other.

KEYWORDS reciprocal externality | unidirectional externality

05

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Medium | PYQ · 2023 · Q54

PYQ — 2023 (6 June, Shift 1), Q54

Given below are two statements :

Statement—I: The price consumption curve is negatively sloped for a Giffen good.

Statement—II: All Giffen goods are inferior goods but all inferior goods are not Giffen goods.

In the light of the above statements, choose the correct answer from the options given below :

A. Both Statement I and Statement II are true

B. Both Statement I and Statement II are false

C. Statement I is true but Statement II is false

D. Statement I is false but Statement II is true

EXPLANATION

Correct answer: A

Statement I. A price consumption curve joins the chosen bundles when the price of one good changes, with income and the other price fixed. Let X be the Giffen good whose price changes. A rise in its price makes the consumer buy more X. Paying more per unit and buying more units raises expenditure on X. In the usual two-good model, the consumer spends the whole budget: $p_X X + p_Y Y = M$. With income M and the price of Y fixed, higher spending on X leaves less to spend on Y, so the quantity of Y falls. The two quantities move in opposite directions and the price consumption curve slopes down over this range.

Statement II. A price rise makes the consumer poorer in purchasing power. For an inferior good this loss of purchasing power raises demand for the good. The good is Giffen only if this income effect outweighs the tendency to substitute away from the good that has become dearer. Every Giffen good is therefore inferior, but some inferior goods still have a downward sloping demand curve because substitution dominates.

- **B:** A higher Giffen-good price raises spending on it in the setup above, leaving less for the other good. Also, an income effect that works against substitution in this direction requires inferiority.
- **C:** An inferior good can have a small income effect and an ordinary price response. The stronger Giffen case is a subset of inferior goods, as Statement II says.
- **D:** An upward slope in the Giffen demand graph is a relationship between price and quantity. The price consumption curve instead relates the two chosen quantities; they move in opposite directions.

KEYWORDS: giffen good | price consumption curve | inferior good | income effect | substitution effect

06

MICRO ECONOMICS

Production Theory

Difficulty: Easy | PYQ · 2026 · Q22

PYQ — 2026 (12 March, Shift 2, Domestic), Q22

If $TC = \frac{Q^3}{3} + 20$, What will be MC?

A. $3Q^2$

B. Q^2

C. $Q/3$

D. 20

EXPLANATION

Correct answer: B

Marginal cost tells us how quickly total cost rises as output increases. For a differentiable total cost function, take its derivative with respect to Q. The constant 20 is a fixed cost. It stays the same when output changes, so its derivative is zero.

$$MC = \frac{d}{dQ}\left(\frac{Q^3}{3} + 20\right) = \frac{3Q^2}{3} = Q^2.$$

- **A:** The derivative of Q^3 is $3Q^2$. The original cubic term is divided by 3, so that factor of 3 cancels.
- **C:** The power rule lowers the exponent from 3 to 2 and multiplies the coefficient by 3. Both changes are needed.
- **D:** The 20 is paid even at zero output. Producing more leaves that part of total cost unchanged.

KEYWORDS: marginal cost | total cost | power rule | fixed cost

07

MICRO ECONOMICS

General Equilibrium, Efficiency and Welfare

Difficulty: Easy | PYQ · 2024 · Q9

PYQ — 2024, Q9

An allocation for agents in an economy, x is said to be Pareto superior to another allocation y if moving from allocation y to allocation x

A. Increases some people's welfare while reducing others' welfare

B. Increases all agents' welfare

C. Increases no agents' welfare

D. Creates a fiscal deficit

EXPLANATION

Correct answer: B

Allocation x is Pareto superior to y if moving to x leaves every person at least as well off and gives someone a strict gain. When every person's welfare increases, both conditions are met. A Pareto improvement can also occur when some people stay at the same welfare level and others gain.

- **A:** It allows some people to lose. Their loss makes the move fail the Pareto test, even if others gain.
- **C:** The move must benefit at least one person. A move with no gains cannot make x Pareto superior.
- **D:** A fiscal deficit means government spending exceeds revenue over a period. That budget figure does not tell us who gains or loses from the allocation.

KEYWORDS pareto improvement | individual welfare

08

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2024 · Q19

PYQ — 2024, Q19

A utiltiy maximizing consumer has a utility function given by $U(X, Y) = 2X + Y$. He has a budget constrant given by $X + 2Y = 10$. In equilibrium he purchases

A. $X^* = 10, Y^* = 10$

B. $X^* = 0, Y^* = 5$

C. $X^* = 10, Y^* = 0$

D. $X^* = 5, Y^* = 5$

EXPLANATION

Correct answer: C

The coefficients in $X + 2Y = 10$ say that X costs 1 per unit, Y costs 2, and the total budget is 10. The utility function gives 2 utility units for each unit of X and 1 for each unit of Y.

Compare what an extra unit of budget buys. Spending it on X gives $2/1 = 2$ utility units. Spending it on Y gives $1/2$ utility unit. These returns are fixed, so every transfer of spending from Y to X raises utility. Spend all 10 on X to get $X = 10$ and $Y = 0$.

- **A:** Buying 10 units of each would cost $10 + 2(10) = 30$, three times the budget.
- **B:** Five units of Y use the available budget but give only 5 utility units. Spending the same amount on X gives 20 utility units.
- **D:** Buying 5 of each would cost $5 + 2(5) = 15$. Equal quantities are neither affordable here nor required to maximize utility.

KEYWORDS: perfect substitutes | marginal utility per rupee | corner solution | budget constraint

09

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Medium | Adapted practice

Adapted PYQ — 2026 (30 March, Shift 2), Q3

In a copper market, newly mined copper supplies 80% of the quantity at the initial price, and recycled copper supplies the remaining 20%. The own-price elasticities of primary supply are 0.20 in the short run and 1.60 in the long run. The corresponding elasticities of secondary supply from scrap are 0.40 and 0.30. All four elasticities are evaluated at the initial price and the stated quantity shares.

What are the short-run and long-run price elasticities of total copper supply, respectively, and in which horizon is secondary supply itself more elastic?

A. 0.24 and 1.34; the short run

B. 0.24 and 1.34; the long run

C. 0.30 and 0.95; the short run

D. 0.40 and 0.30; the short run

EXPLANATION

Practice-key note: Reviewed adaptation. The solution and key apply to this version.

Correct answer: A

Price elasticity of supply measures the percentage change in quantity supplied for a 1% change in price. The change in the total quantity of copper is the sum of the changes from mining and recycling. Measured as a percentage of total supply, each change counts according to that source's initial share. Here, newly mined copper has weight 0.80 and recycled copper has weight 0.20.

$$\text{Short-run total elasticity} = 0.80(0.20) + 0.20(0.40) = 0.24,$$
$$\text{Long-run total elasticity} = 0.80(1.60) + 0.20(0.30) = 1.34.$$

For secondary supply on its own, the short-run elasticity is 0.40 and the long-run elasticity is 0.30. Secondary supply is therefore more responsive to price in the short run.

- **B:** The two totals are correct. The short-run elasticity of scrap supply, 0.40, exceeds its long-run elasticity of 0.30.
- **C:** Giving both sources equal weight yields 0.30 and 0.95. Newly mined copper supplies four times as much as recycled copper at the stated price, so it has four times the weight.
- **D:** The values 0.40 and 0.30 are the elasticities of recycled copper alone. Total supply also includes changes in mine output.

KEYWORDS: price elasticity of supply | market supply | weighted average

10

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2026 · Q6

PYQ — 2026 (30 March, Shift 2), Q6

A curve relating the quantity of good consumed and income is known as :

A. Demand curve

B. Engel curve

C. Interior goods curve

D. Indifference curve

EXPLANATION

Correct answer: B

An Engel curve shows how a consumer's purchases of one good change with income, with prices held fixed. It can show purchases rising with income for a normal good or falling over an income range for an inferior good.

- **A:** The usual demand curve for a good relates its own price to quantity demanded, with income held fixed.
- **C:** Interior can describe a choice with positive quantities of both goods. It is not the name of the graph relating income to purchases of one good.
- **D:** An indifference curve compares bundles that give the same satisfaction. Its axes are quantities of goods, rather than income and one quantity.

KEYWORDS engel curve | income effect | demand curve

11

MICRO ECONOMICS

Production Theory

Difficulty: Easy | PYQ · 2020 · Q34

PYQ — 2020, Q34

In stage third, which is also known as negative returns

A. AP becomes negative

B. TP becomes negative

C. MP becomes negative

D. AP and TP both becomes negative

EXPLANATION

Practice-key note: Independently reviewed answer. An authenticated 2020 final key has not been recovered.

Correct answer: C

In the law of variable proportions, one input such as labour varies while other inputs are fixed. Total product (TP) is the total quantity produced. Marginal product (MP) measures how much output changes when one more unit of the variable input is used.

Stage III begins after total product reaches its maximum. An extra unit of labour then reduces total output, so its marginal product is negative. If adding an 11th worker reduces output from 100 to 96 units, that worker's marginal product is $96 - 100 = -4$ units.

- **A:** Average product (AP) is total output per unit of the variable input. In the example it is $96/11$ units per worker, which is positive.
- **B:** Total product is falling in Stage III. The firm in the example still produces 96 units after adding the worker.
- **D:** With a positive amount of labour, average and total product share the same sign. Both can stay positive while the output change from an extra worker is negative.

Answer note: No authenticated official answer key for this 2020 paper has been recovered; the answer above has been independently checked.

KEYWORDS: law of variable proportions | negative marginal product | total product | average product of labour

12

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Easy | PYQ · 2023 · Q61

PYQ — 2023 (6 June, Shift 1), Q61

A kinked demand curve under oligopoly necessarily implies

A. a discontinuity in the marginal revenue schedule

B. a gap in the marginal cost schedule

C. formal collusion in price determination

D. the price need not be above marginal revenue

Choose the most appropriate answer from the options given below :

A. A and B only

B. A only

C. C and D only

D. A and D only

EXPLANATION

Correct answer: B

In the kinked demand model, a firm expects rivals to match price cuts more readily than price rises. That makes the demand curve change slope at the current price and quantity.

Marginal revenue is the change in total revenue from a small increase in output. Since total revenue is price times quantity, marginal revenue depends on both the price and the slope of the demand curve. At the kink the price is the same when approached from either side, while the slopes differ. That gives two different one-sided marginal revenues and a jump in the marginal revenue schedule. Statement A is true and gives choice B.

- **A:** The jump comes from the change in the slope of demand. Marginal cost reflects the firm's production costs and can pass through the gap while remaining smooth.
- **C:** A firm can expect rivals to respond to its price without any formal agreement. Also, on either downward-sloping part at positive output, extra sales require a lower price, leaving marginal revenue below price.
- **D:** The jump creates a range of marginal costs compatible with the same price and output. It gives no reason for price to fall to or below marginal revenue. On each downward-sloping part, selling more lowers the price received on the units the firm would already have sold.

KEYWORDS: kinked demand curve | marginal revenue discontinuity | price rigidity

13

MICRO ECONOMICS

General Equilibrium, Efficiency and Welfare

Difficulty: Medium | PYQ · 2023 · Q47

PYQ — 2023 (6 June, Shift 1), Q47

Given below are two statements, one is labelled as Assertion (A) and the other is labelled as Reason (R) :

Assertion (A): According to the first theorem of welfare economics, a competitive equilibrium is Pareto efficient.

Reason (R): According to the Walras law, the value of aggregate excess demand is zero for all prices.

In the light of the above statements, choose the correct answer from the options given below :

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true but (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

EXPLANATION

Correct answer: B

The assertion is true. The first welfare theorem says that a competitive equilibrium is Pareto efficient under its standard assumptions, including competitive price taking and markets covering the relevant goods and effects. At an efficient allocation, no feasible change can make someone better off while leaving everyone else at least as well off.

The reason is also true. Walras's law says that, at any admissible price vector, the sum of price times excess demand across all markets is zero. Excess demand is the quantity demanded minus the quantity supplied. The identity follows from the economy's budget constraints when agents spend their available incomes.

The identity alone can hold even when markets fail to clear. For two goods with the same price, excess demand of 1 in one market and excess supply of 1 in the other cancel in value. The first theorem instead uses the choices made by consumers and firms at a competitive equilibrium to conclude that its allocation is efficient.

- **A:** Balancing the value of excess demands allows a shortage in one market to offset a surplus in another. It cannot by itself establish an efficient allocation.
- **C:** Even away from equilibrium, agents can satisfy their budgets. Their combined excess demands therefore still sum to zero in value.
- **D:** In the standard competitive model, the decisions of price-taking consumers and firms at market-clearing prices yield a Pareto-efficient allocation. This is the result stated in the assertion.

KEYWORDS: first welfare theorem | pareto efficiency | walras law | excess demand

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MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2026 · Q1

PYQ — 2026 (12 March, Shift 2, Domestic), Q1

Which among the following is not an assumption of Indifference Curve?

A. Completeness

B. Transitivity

C. More is better than less

D. Unequal Satisfaction

EXPLANATION

Correct answer: D

Every bundle on a given indifference curve leaves the consumer equally satisfied. If two bundles give different satisfaction, they cannot lie on that same curve. Unequal satisfaction is therefore not part of the standard assumptions used to draw it.

- **A:** Completeness means the consumer can compare any two bundles, either preferring one or finding them equally good.
- **B:** Transitivity keeps comparisons consistent. If the consumer is indifferent between the first and second bundles and between the second and third, the first and third must also be equally good.
- **C:** In the usual model with two desirable goods, the consumer prefers more of one when the amount of the other does not fall. This is the monotonicity assumption. It is a standard assumption for that model, though indifference curves can also be drawn for goods that do not satisfy it.

KEYWORDS: indifference curve | completeness | transitivity | monotonic preferences

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MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Easy | PYQ · 2026 · Q8

PYQ — 2026 (12 March, Shift 2, Domestic), Q8

The following two characteristics define a particular type of market

A. Close substitute products are sold by firms

B. Free entry and exit of firms

Select the correct option from below:

A. Perfect Competition

B. Monopoly

C. Oligopoly

D. Monopolistic Competition

EXPLANATION

Correct answer: D

In monopolistic competition, each firm sells its own version of a product. Two cafés can both serve lunch and still attract different customers because of their menus, prices or service. They sell close substitutes. If one café earns a high profit, another firm is free to enter with its own version. Firms can also leave if operating is unprofitable. The combination of close, differentiated substitutes and free entry and exit identifies monopolistic competition.

- **A:** Perfect competition also has free entry and exit. Its firms sell a homogeneous product that buyers regard as perfectly interchangeable.
- **B:** A monopoly has a single seller with no close substitute for its product. Entry barriers help preserve that position.
- **C:** An oligopoly can have close substitutes, but a few firms dominate the market and free entry is not a defining condition.

KEYWORDS: monopolistic competition | imperfect substitutes | free entry and exit | product differentiation

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MICRO ECONOMICS

Production Theory

Difficulty: Easy | PYQ · 2024 · Q8

PYQ — 2024, Q8

For a manufacturing firm, the cost function is given by $C = q^3 + 2q^2 + q + 1$. The marginal and average costs at $q = 10$ units are respectively given by:

A. 300 and 100

B. 340 and 125

C. 341 and 121.1

D. 328 and 110.1

EXPLANATION

Correct answer: C

Marginal cost is the rate at which total cost changes with output. Differentiate the cost function and then put $q = 10$.

$$MC(q) = 3q^2 + 4q + 1, \qquad MC(10) = 300 + 40 + 1 = 341.$$

Average cost measures total cost per unit. At the same output, total cost is $1000 + 200 + 10 + 1 = 1211$. Therefore $AC(10) = 1211/10 = 121.1$.

- **A:** These are the marginal and average costs from the cubic term q^3 alone. The remaining terms also contribute to the cost function.
- **B:** The marginal cost of 340 omits the derivative of the linear term q. Average cost must also be the actual total of 1211 divided by 10, which gives 121.1.
- **D:** At 10 units the marginal-cost terms sum to 341, which rules out 328. An average cost of 110.1 would imply total cost of 1101, below the actual total of 1211.

KEYWORDS: marginal cost | average total cost | total cost

17

MICRO ECONOMICS

General Equilibrium, Efficiency and Welfare

Difficulty: Easy | PYQ · 2026 · Q64

PYQ — 2026 (12 March, Shift 2, Domestic), Q64

Match the LIST-I with LIST-II

LIST-I	LIST-II
A. Contract Curve	I. Shows all efficient allocation of goods
B. Utility Possibility Frontier	II. Shows all efficient allocations of resources measured in term of utility
C. Social Welfare Function	III. Measure the well being of society as whole in term of utilities of individual
D. Production Possibility Frontier	IV. Shows the combination of two goods that can be produced with given input

Choose the correct answer from the options given below:

A. A-I, B-II, C-III, D-IV

B. A-I, B-III, C-II, D-IV

C. A-I, B-II, C-IV, D-III

D. A-I, B-IV, C-III, D-II

EXPLANATION

Correct answer: A

(A) Contract curve → I. In an exchange economy, the contract curve contains the efficient ways to divide goods among the consumers.

(B) Utility possibility frontier → II. Convert feasible allocations into the utility levels they deliver to each person. The frontier contains the utility combinations where one person's utility cannot be raised without reducing another's.

(C) Social welfare function → III. This function takes individual utilities as inputs and assigns a measure or ranking of welfare for society as a whole. For example, one rule could add the individual utilities.

(D) Production possibility frontier → IV. This frontier displays the maximum attainable combinations of two outputs with the available inputs and technology.

- **B:** It puts the social welfare measure where the utility frontier belongs. The frontier lists combinations of individual utilities, while a welfare function ranks them.
- **C:** It switches the production frontier and the welfare function. The former measures attainable quantities of goods and the latter evaluates the utilities attained.
- **D:** The production frontier describes efficient combinations of goods in output units. The utility frontier represents combinations in units of individual welfare, so switching them changes what the axes measure.

KEYWORDS: contract curve | utility possibility frontier | social welfare function | production possibility frontier

18

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Medium | Adapted practice

Adapted PYQ — 2026 (12 March, Shift 2, Domestic), Q43

Arrange these contributions to consumer choice and decision theory in order of first publication, from earliest to latest.

A. Hicks and Allen's *A Reconsideration of the Theory of Value*

B. Marshall's *Principles of Economics*

C. Samuelson's *A Note on the Pure Theory of Consumer's Behaviour*

D. Slutsky's *On the Theory of the Budget of the Consumer* (original Italian article)

E. Kahneman and Tversky's *Prospect Theory: An Analysis of Decision under Risk*

A. B, A, D, C, E

B. B, D, C, A, E

C. B, D, A, C, E

D. D, B, A, C, E

EXPLANATION

Practice-key note: Reviewed adaptation. The solution and key apply to this version.

Correct answer: C

- **1890 — Alfred Marshall (B).** The first edition of *Principles of Economics* brought marginal utility and demand into his account of how prices are determined.
- **1915 — Eugen Slutsky (D).** The original Italian article on the consumer's budget distinguished the substitution response to a price change from the response to changed purchasing power.
- **1934 — John Hicks and Roy Allen (A).** Their reconsideration of value theory used indifference curves and the marginal rate of substitution. These describe a ranking of bundles without requiring satisfaction to be measured in absolute units.
- **1938 — Paul Samuelson (C).** His paper showed how choices from observed budgets could supply evidence about preferences. This was the starting point for revealed preference theory.
- **1979 — Daniel Kahneman and Amos Tversky (E).** Prospect theory explained patterns in choices under risk by looking at gains and losses relative to a reference point and using decision weights for probabilities.

The order is B, D, A, C, E.

- **A:** Slutsky's consumer-budget article was published in 1915, before Hicks and Allen's 1934 paper on value theory. The English translation of Slutsky's article came later than the Italian original.
- **B:** The 1934 Hicks–Allen paper predates Samuelson's 1938 move towards basing consumer theory on choices observed in the market.
- **D:** Marshall's book was already in print in 1890. Slutsky's 1915 article therefore cannot come first.

KEYWORDS: marshallian demand | slutsky decomposition | ordinal utility | revealed preference | prospect theory

19

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2024 · Q16

PYQ — 2024, Q16

If a consumer definitely prefers a payment of INR 50 for sure to a lottery which promises rewards of INR 100 or INR 0 with probabilities of 1/2 each, then we can say that the consumer is

A. Risk lover

B. Risk averse

C. Risk neutral

D. Satisficer

EXPLANATION

Correct answer: B

Start with the lottery's expected payoff, the average of the possible payments weighted by their probabilities:

$$\frac{1}{2}(100) + \frac{1}{2}(0) = 50.$$

The lottery and the sure payment both have an expected payoff of ₹50. The difference is that the lottery may pay ₹100 or nothing, while the sure payment cannot vary. Preferring the sure ₹50 shows risk aversion for this choice.

- **A:** A risk lover would prefer the chance of ₹100 in the lottery even though its average payoff matches the certain payment.
- **C:** A risk-neutral consumer would be indifferent here because the two expected payoffs match.
- **D:** Satisficing means choosing an option that meets a satisfactory threshold. No threshold is given; what we observe is a preference for certainty at the same average payoff.

KEYWORDS: risk aversion | expected payoff | lottery

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MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Medium | PYQ · 2023 · Q41

PYQ — 2023 (25 June, Shift 2), Q41

Given below are two statements:

Statement I: In the extreme case of perfect price discrimination the dead weight loss of monopoly is completely eliminated and all the surplus in the market goes to the monopolist.

Statement II: Imperfect price discrimination necessarily increases welfare compared to the outcome of a single monopoly price.

In the light of the above statements, choose the most appropriate from the options given below:

A. Both Statement I and Statement II are correct

B. Both Statement I and Statement II are incorrect

C. Statement I is correct but Statement II is incorrect

D. Statement I is incorrect but Statement II is correct

EXPLANATION

Correct answer: C

Statement I is true. With perfect price discrimination, the monopolist charges each buyer their maximum willingness to pay for each unit. The firm sells every unit for which the buyer's willingness to pay covers the extra cost of production. Those are exactly the mutually beneficial sales, so the lost gains from trade that make up deadweight loss disappear. Buyers pay away all their surplus, leaving the gains from trade with the seller.

Statement II is false. Imperfect discrimination can charge different prices to different groups. For example, if total sales stay fixed while units shift from buyers with higher willingness to pay to buyers with lower willingness to pay, production cost stays the same and the value generated by the sales falls. The seller can earn more profit even as total surplus falls.

This gives choice C.

- **A:** A seller able to set group prices can always replicate its old common price. Having better choices for profit gives no guarantee that its new decisions also raise total surplus.
- **B:** When the seller can collect each buyer's willingness to pay, every unit worth more than its extra cost is profitable to sell. The beneficial trades lost under a single monopoly price can all occur.
- **D:** Under perfect discrimination, buyers keep no difference between their willingness to pay and the amount charged. With imperfect discrimination, the change in who buys and how many units sell determines the welfare effect.

KEYWORDS: first degree price discrimination | third degree price discrimination | deadweight loss | total surplus

21

MICRO ECONOMICS

Production Theory

Difficulty: Easy | PYQ · 2020 · Q57

PYQ — 2020, Q57

When capital increases by DK units, output increases by

A. DL units.

B. $MPK \times DK$ units

C. DK units.

D. $MPL \times DL$ units.

EXPLANATION

Practice-key note: Independently reviewed answer. An authenticated 2020 final key has not been recovered.

Correct answer: B

The marginal product of capital, MPK, is the extra output per unit of an increase in capital at the current input levels, holding labour fixed. Read DK as a small change in capital. Multiplying the marginal product by the size of this change gives the approximate change in output.

$$\Delta Y \approx MPK \times DK.$$

For a large increase in capital, the marginal product can change over the interval, so the initial MPK may give a poor estimate of the gain.

- **A:** DL measures a change in labour, which is held fixed when measuring the contribution of extra capital.
- **C:** DK is measured in units of capital. Multiplying by MPK, measured in output units per unit of capital, converts the change into units of output.
- **D:** MPL is the marginal product of labour. The product $MPL \times DL$ measures the contribution of a small change in labour instead of capital.

Answer note: No authenticated official answer key for this 2020 paper has been recovered; the answer above has been independently checked.

KEYWORDS: marginal product of capital | first order approximation

22

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Easy | PYQ · 2022 · Q33

PYQ — 2022, Q33

The best or optimum level of output for a perfectly competitive firm is given by the point where

A. MR equals MC

B. MR equals AC

C. MR exceeds MC by the greater amount

D. MR equals MC and MC is rising

EXPLANATION

Correct answer: D

A perfectly competitive firm takes the market price as given, so its marginal revenue MR is that fixed price. Marginal cost MC is what producing a little more costs. At an interior maximum, $\mathrm{MR} = \mathrm{MC}$. The direction in which marginal cost crosses that fixed revenue matters.

When rising marginal cost crosses marginal revenue, producing a little below the crossing leaves $\mathrm{MR} > \mathrm{MC}$, so expanding output raises profit. Producing a little above it leaves $\mathrm{MR} < \mathrm{MC}$, so expanding output lowers profit. This is the standard output condition for a competitive firm that operates.

- **A:** The equality alone could also hold where marginal cost crosses the fixed price from above. Profit falls just before such a crossing and rises just after it, giving a local minimum.
- **B:** With MR equal to price, equality with average cost means revenue covers total cost at that quantity. It does not establish which output maximises profit.
- **C:** The gap $\mathrm{MR} - \mathrm{MC}$ is the change in profit from a small increase in output. A positive gap signals that increasing output can still raise profit.

KEYWORDS: competitive firm | marginal revenue | marginal cost | second order condition

23

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2026 · Q7

PYQ — 2026 (30 March, Shift 2), Q7

What is the income elasticity of demand ?

A. $Ei = \frac{I}{Q} \cdot \frac{\Delta Q}{\Delta I}$

B. $Ei = \frac{Q}{I} \cdot \frac{\Delta Q}{\Delta I}$

C. $Ei = \frac{I}{Q} \cdot \frac{\Delta I}{\Delta Q}$

D. $Ei = \frac{\Delta I}{Q} \cdot \frac{I}{\Delta Q}$

EXPLANATION

Correct answer: A

Income elasticity of demand measures how much quantity demanded changes in percentage terms when income changes by a given percentage, with prices fixed. Let I be income and Q quantity demanded. Use the original amounts to express each change relative to its base. Dividing the relative change in quantity by the relative change in income gives

$$E_I = \frac{\Delta Q/Q}{\Delta I/I} = \frac{I}{Q} \cdot \frac{\Delta Q}{\Delta I}.$$

For example, if income rises by 10% and purchases rise by 5%, the elasticity is $5/10 = 0.5$. It is negative if purchases fall when income rises.

- **B:** The raw change ratio $\Delta Q/\Delta I$ points in the right direction. The conversion to relative changes multiplies it by I/Q, because the quantity change is divided by Q and the income change by I.
- **C:** The raw change ratio is reversed. Quantity demanded is the response, so ΔQ goes on top and ΔI below.
- **D:** Regrouping this product gives $(I/Q)(\Delta I/\Delta Q)$. It makes the same mistake of treating income as the response and quantity as the cause.

KEYWORDS: income elasticity of demand | percentage change | income effect

24

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Easy | PYQ · 2024 · Q71

PYQ — 2024, Q71

Which of the following statements are correct?

(I) Monopolistic firms face a horizontal market demand curve

(II) Perfectly competitive firms sell differentiated products

(III) Output of one Cournot duopoly firm depends on the output of the other firm.

(IV) Monopolistic firms do not have a supply curve.

A. (I) and (II)

B. (II) and (III)

C. (III) and (IV)

D. (I) and (IV)

EXPLANATION

Correct answer: C

I is false. A monopolist faces the demand of the market it serves. In the standard model this demand slopes downward, so selling more requires a lower price.

II is false. Perfectly competitive firms sell a homogeneous product. Buyers regard the units sold by different firms as interchangeable.

III is true. A Cournot firm chooses its most profitable output for a given output of its rival. The rival's output helps determine total market supply and the price, so it enters the firm's output decision.

IV is true. An ordinary supply curve specifies how much a firm supplies at each given price. A monopolist sets price and quantity together. Its quantity depends on its marginal revenue, which changes with the demand it faces, so price alone cannot determine how much it supplies.

Only III and IV are true, giving choice C.

- **A:** A horizontal demand line is the standard demand facing an individual price-taking firm. Those firms compete to sell units that buyers treat as identical.
- **B:** Product differentiation is characteristic of monopolistic competition. Competitive firms in the perfectly competitive benchmark sell the same product.
- **D:** Having no separate supply curve is consistent with market demand being downward-sloping. The monopolist uses demand to determine the price associated with its chosen quantity.

KEYWORDS: monopoly supply curve | cournot duopoly | best response | homogeneous product

25

MICRO ECONOMICS

Production Theory

Difficulty: Easy | PYQ · 2024 · Q2

PYQ — 2024, Q2

If a Production Function is given as $Q(x, y) = Ax^a y^b$, where $(a + b) = 2$, the function is said to display

A. Decreasing returns to scale

B. Constant returns to scale

C. Increasing returns to scale

D. Zero returns to scale

EXPLANATION

Correct answer: C

To test returns to scale, change both inputs by the same factor and compare the factor by which output changes. In this Cobb–Douglas function, doubling x and y multiplies the x term by 2^a and the y term by 2^b.

$$Q(2x, 2y) = A(2x)^a(2y)^b = 2^{a+b}Q(x, y) = 4Q(x, y).$$

Output quadruples when both inputs double. This more-than-proportional increase is increasing returns to scale.

- **A:** With decreasing returns, output would grow by less than twice when both inputs double. The exponent sum would have to be below 1.
- **B:** Constant returns would give exactly twice the original output and require an exponent sum of 1.
- **D:** Scaling up both inputs has a clear positive effect. At a doubling, the function gives four times the original output.

KEYWORDS: cobb douglas production function | returns to scale | increasing returns to scale | homogeneous function

26

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Easy | PYQ · 2024 · Q3

PYQ — 2024, Q3

Assume firm i and firm j have constant marginal cost = c for an identical good in an oligopolistic market. They compete to set prices P_i and P_j. They face a total market demand Q, where if $P_i > P_j$, the demand for firm i is 0. If $P_i < P_j$, the demand for firm i is Q. If $P_i = P_j$, then they share the market equally and hence the demand for firm i is Q/2. In equilibrium, the prices of firms i and j are

A. $P_i > P_j = c$

B. $P_i > P_j > c$

C. $P_i < P_j < c$

D. $P_i = P_j = c$

EXPLANATION

Correct answer: D

For two sellers of an identical good, the lower-priced seller gets all the customers. Each firm earns its price minus its unit cost c on every unit it sells.

Suppose both firms charge c. A firm that cuts its price can win the whole market, but it would lose money on every unit. A firm that raises its price sells nothing while its rival stays at c. Both choices leave the firm no better off than matching the rival. Since neither firm can gain by changing its price alone, $P_i = P_j = c$ is a Nash equilibrium.

- **A:** Firm j sells at cost while firm i charges more. Firm j could raise its price to a level between c and P_i, keep the customers, and earn a positive margin.
- **B:** Firm i currently sells nothing. It can set a price just below P_j and still charge more than c, winning all customers at a profit.
- **C:** Firm i makes a loss on every unit while it serves the market. Raising its price above P_j would eliminate its sales and avoid those losses.

KEYWORDS: bertrand duopoly | nash equilibrium | marginal cost pricing | price undercutting

27

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2022 · Q29

PYQ — 2022, Q29

A fall in the price of a commodity whose demand curve is a rectangular hyperbola causes total expenditures on the commodity to

A. Increase

B. Decrease

C. Remain unchanged

D. Increase with constant rate

EXPLANATION

Correct answer: C

In the standard demand diagram, a rectangular hyperbola with the price and quantity axes as its asymptotes has the form $PQ = k$, where P is price, Q is quantity demanded and k is constant. You can write it as $Q = k/P$: when price falls, quantity rises in inverse proportion.

Total expenditure is the price paid per unit multiplied by the number of units bought. For instance, halving the price doubles the quantity, leaving their product unchanged. This is unit elastic demand.

- **A:** An increase would require quantity to rise more than enough to offset the price cut.
- **B:** A fall would require quantity to rise too little to offset the price cut.
- **D:** Spending stays at k, so an increase at any rate is excluded.

KEYWORDS: rectangular hyperbola | unit elastic demand | total expenditure

28

MICRO ECONOMICS

Production Theory

Difficulty: Medium | Adapted practice

Adapted PYQ — 2021, Q64

With capital and technology fixed, total product is $Q(L) = 12L^2 - L^3$ for $0 < L < 12$. Which labour interval lies strictly inside Stage II of the law of variable proportions?

A. $6 < L < 8$

B. $4 < L < 8$

C. $0 < L < 6$

D. $6 < L < 12$

EXPLANATION

Practice-key note: Reviewed adaptation. The solution and key apply to this version.

Correct answer: A

With capital fixed, the three production stages describe what happens as labour alone changes. Stage II begins after average product reaches its maximum and ends when total product reaches its maximum. Within it, marginal product is positive but below average product.

Average product is output per labour unit:

$$AP_L = \frac{Q}{L} = 12L - L^2.$$

Its slope is $12 - 2L$, which changes from positive to negative at $L = 6$. This is the first boundary. Marginal product is

$$MP_L = \frac{dQ}{dL} = 24L - 3L^2 = 3L(8 - L).$$

For positive labour it becomes zero at $L = 8$, where total product stops increasing. Thus the interior of Stage II is $6 < L < 8$. Throughout this range, output is still rising, but output per labour unit is falling.

Equivalently, compare marginal and average product directly: $MP_L - AP_L = 2L(6 - L)$. The conditions $MP_L < AP_L$ and $MP_L > 0$ give $L > 6$ and $L < 8$, respectively.

- **B:** Marginal product reaches its own maximum at $L = 4$, since its slope is $24 - 6L$. Diminishing marginal product starts there, but average product continues rising until 6. The first part of this interval is still Stage I.
- **C:** For $0 < L < 6$, marginal product exceeds average product and average product rises. This is the interior of Stage I, not Stage II.
- **D:** The function keeps positive total output until $L = 12$, but marginal product becomes negative beyond 8. The portion $8 < L < 12$ is Stage III, where adding labour reduces total output.

KEYWORDS: variable proportions | stage two production | average product maximum | total product maximum

29

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Easy | PYQ · 2022 · Q82

PYQ — 2022, Q82

Given below are two statements :

Statement I : Monopolistic competition involves many sellers of homogeneous products.

Statement II : The oligopoly involves some producers of standardized or differentiated products.

In the light of the above statements, choose the correct answer from the options given below:

A. Both Statement I and Statement II are true

B. Both Statement I and Statement II are false

C. Statement I is true but Statement II is false

D. Statement I is false but Statement II is true

EXPLANATION

Correct answer: D

Monopolistic competition has many sellers whose products differ in ways buyers care about, such as flavour or service. An individual seller competes with close substitutes and can still attract buyers who prefer its product. Statement I gets the large number of sellers right and the homogeneous-product part wrong.

Oligopoly has a small number of important producers. Their products may be standardised, as in a market for steel of a given grade, or differentiated, as in a market for cars. Statement II correctly allows both possibilities.

- **A:** A market with many sellers of a homogeneous good fits the usual perfect-competition description. Monopolistic competition adds product differentiation.
- **B:** Product homogeneity is optional in oligopoly. The key feature is that a few firms account for much of the market.
- **C:** This reverses the product distinction. Many sellers in monopolistic competition offer differentiated goods, and a few oligopolists can offer standardised goods.

KEYWORDS: monopolistic competition | product differentiation | oligopoly | homogeneous product

30

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2024 · Q6

PYQ — 2024, Q6

Keeping a consumer's income constant, if bundle X is chosen by a consumer when bundle Y is available, then when bundle Y is chosen, X must not be a feasible alternative. This property of consumer behaviour is known as

A. The generalized axiom of consumer preference

B. The weak axiom of revealed preference

C. The feasibility property

D. The strong axiom of revealed preference

EXPLANATION

Correct answer: B

When the consumer chooses bundle X while Y is affordable, X is directly revealed preferred to Y. This means we observed the consumer pass up Y in favour of X. The weak axiom of revealed preference (WARP) checks for a direct reversal. If the consumer chooses Y under a different price situation, X cannot still be affordable in that situation. Otherwise the two choices would each put one bundle ahead of the other.

- **A:** The related generalised axiom of revealed preference checks chains of choices and rules out a strict reversal at the end of a chain. This example only requires the direct two-bundle rule.
- **C:** Feasibility determines what a consumer can afford at one set of prices. The rule described here is about consistency across two observed choices.
- **D:** The strong axiom rules out cycles involving indirect comparisons too, such as a comparison from X to Z through Y. No such chain is needed to identify this direct violation.

KEYWORDS: weak axiom of revealed preference | direct revealed preference | budget set | strong axiom of revealed preference

31

MICRO ECONOMICS

Production Theory

Difficulty: Easy | PYQ · 2026 · Q1

PYQ — 2026 (30 March, Shift 2), Q1

Marginal rate of technical substitution of labour for capital is the amount of the input of _____ should be _____ when one extra unit of _____ is used.

A. Labour, reduced, capital

B. Labour, increased, capital

C. Capital, reduced, labour

D. Capital, increased, labour

EXPLANATION

Correct answer: C

The marginal rate of technical substitution measures how much of one input a firm can give up when it uses a little more of another input and keeps output unchanged. An isoquant shows combinations of inputs that produce this same output.

In "labour for capital," labour is the input being added. When both inputs contribute to output, the firm can offset the extra labour by using less capital. The blanks are capital, reduced, labour.

- **A:** This adds capital and gives up labour. That is substitution of capital for labour.
- **B:** This starts with an extra unit of capital and adds labour as well. Using more of both productive inputs increases output.
- **D:** This starts with more labour but also increases capital. To stay on the same isoquant, the firm needs to reduce its use of capital.

KEYWORDS: marginal rate of technical substitution | isoquant | factor substitution

32

MICRO ECONOMICS

General Equilibrium, Efficiency and Welfare

Difficulty: Easy | PYQ · 2023 · Q40

PYQ — 2023 (25 June, Shift 2), Q40

Which of the following are correct in presence of negative externalities?

A. Negative externalities lead to an inefficient allocation of resources.

B. Marginal external cost curve is added vertically to the private marginal cost curve to yield the social marginal cost curve.

C. The efficient level of output attained is more than the market equilibrium output.

D. The intersection of the marginal social cost curve with the demand curve gives the efficient level of output

Choose the correct answer from the options given below:

A. A, C only

B. C, D only

C. A, B and D only

D. B, C, D only

EXPLANATION

Correct answer: C

Consider an unpriced negative production externality, such as a factory imposing pollution damage on nearby households. The firm bears its own marginal cost, the impact of another unit on its production costs. An extra unit also creates harm for others, called marginal external cost.

Statement A is correct. Without a charge for the harm, firms make output decisions using their private costs. The market therefore produces more than the socially efficient amount.

Statement B is correct. At each output level, add marginal external cost to private marginal cost. Adding their heights at the same quantity gives the social marginal cost curve.

Statement C is incorrect. At the market output, the benefit of the last unit equals private marginal cost. Social marginal cost is higher, so society gains by reducing output.

Statement D is correct. In this production example, buyers' willingness to pay measures the marginal social benefit of output. Efficient output is where that demand curve meets social marginal cost.

The correct set is A, B and D.

- **A:** It includes the claim that efficient output is higher. When harm is unpriced, producers instead supply too much.
- **B:** The demand and social-cost curves do identify the efficient quantity, but it is below market output. The market curve leaves out the external cost.
- **D:** It adds the cost curves correctly and identifies the efficient intersection. The added harm shifts the relevant marginal cost up, which makes the efficient quantity smaller.

KEYWORDS: negative externality | marginal external cost | social marginal cost | private marginal cost | socially efficient output

33

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Medium | PYQ · 2023 · Q51

PYQ — 2023 (6 June, Shift 1), Q51

Given below are two statements :

Statement—I: When the demand curve shifts : if the supply curve is steeper, then the price change is larger and the change in the amount bought and sold is smaller, as compared to the flatter supply curve.

Statement—II: When the supply curve shifts : if the demand curve is steeper, then the price change is larger and the change in the amount bought and sold is smaller, as compared to the flatter demand curve.

In the light of the above statements, choose the correct answer from the options given below :

A. Both Statement I and Statement II are true

B. Both Statement I and Statement II are false

C. Statement I is true but Statement II is false

D. Statement I is false but Statement II is true

EXPLANATION

Correct answer: A

Use the usual graph with price on the vertical axis and quantity on the horizontal axis. Compare the same shift from the same starting equilibrium. A steeper curve means that a small movement in quantity along it goes with a larger movement in price.

Statement I. If demand shifts right, buyers want more at the old price and the new equilibrium moves up along the supply curve. With a steep supply curve, a small increase in production goes with a large price increase. That higher price limits how much extra buyers purchase on the new demand curve. A flatter supply curve allows more adjustment through quantity.

Statement II. If supply shifts right, firms offer more at the old price and the new equilibrium moves down along the demand curve. With a steep demand curve, it takes a large price cut to persuade buyers to absorb even a little more output. A flatter demand curve allows a larger rise in sales with a smaller price cut. For leftward shifts, the directions reverse and the same comparisons hold for the sizes of the changes.

Both statements are true, so the answer is A.

- **B:** Both effects follow from moving along the unchanged curve. A steeper one requires more vertical price movement per unit of horizontal quantity movement.
- **C:** A steep demand curve makes the price cut after an outward supply shift larger because buyers absorb fewer extra units per unit decrease in price.
- **D:** When demand increases, a steep supply curve allows relatively little extra output at a given price increase, so equilibrium adjusts more through price.

KEYWORDS: market equilibrium | comparative statics | supply curve slope | demand curve slope

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MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2021 · Q59

PYQ — 2021, Q59

The indifference curve means

A. equal consumption of two goods

B. equal utility from the consumption of two combinations of goods

C. equal consumer income

D. equal prices of the goods consumed

EXPLANATION

Correct answer: B

A bundle is a combination of quantities, such as 2 apples and 1 banana. An indifference curve joins bundles the consumer likes equally well. If the consumer finds 2 apples and 1 banana just as satisfying as 1 apple and 3 bananas, those two bundles lie on the same indifference curve. Utility here expresses the consumer's ranking: a tie means equal utility.

- **A:** Quantities can differ across bundles. What stays the same along the curve is how much the consumer likes each bundle.
- **C:** At given prices, income helps determine which bundles are affordable. Two bundles affordable with the same income can give different levels of satisfaction.
- **D:** Prices affect affordability, but equality of prices tells us nothing about whether two combinations are equally preferred.

KEYWORDS: indifference curve | ordinal utility | consumption bundle

35

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2026 · Q54

PYQ — 2026 (30 March, Shift 2), Q54

Select the correct combination :

A. According to law of diminishing marginal utility, as a consumer consumes more units of a goods, total utility always decreases

B. If marginal utility becomes zero, total utility becomes maximum

C. A normal good yields downward sloping demand because marginal utility diminishes as consumption increases

D. An inferior good contradicts the concept of diminishing marginal utility

E. Income effect and substitution effects together explains the law of demand for a normal good

Choose the correct answer from the options given below :

A. B, C and E Only

B. A and D Only

C. A, B and E Only

D. B, C and D Only

EXPLANATION

Correct answer: A

Marginal utility is the extra utility from an additional unit. Total utility adds up what the units provide. Keep the extra gain separate from the total.

- **Statement A:** A falling marginal utility means each extra unit adds less than the last. As long as that addition is positive, total utility still rises. So A is false.
- **Statement B:** In the usual diminishing-marginal-utility case, total utility rises while marginal utility is positive and stops rising when the extra gain reaches zero. If marginal utility turns negative next, total utility is at its maximum at that point.
- **Statement C:** In the classical explanation, hold the marginal utility of money fixed. If later units bring less extra satisfaction, the consumer will pay less per additional unit, giving a downward sloping demand curve. Being a normal good means demand rises with income; that classification by itself does not tell us how marginal utility changes.
- **Statement D:** Inferiority is about the response to higher income at fixed prices. The utility from one extra unit can still diminish as consumption increases. D is false.
- **Statement E:** A lower price makes a normal good cheaper relative to other goods and increases real purchasing power. Substitution favours the cheaper good, and greater purchasing power raises demand for a normal good. The two effects support the usual downward slope.

On the classical interpretation used here, B, C and E are the correct combination.

- **B:** Each successive unit can add less utility and still add something. Also, whether income raises or lowers purchases does not determine how utility changes as more units are consumed.
- **C:** The declining marginal gain does not make total utility fall while that gain is still positive. The claim of a fall in total utility at every step is incorrect.
- **D:** Higher income reducing purchases of a good is compatible with extra units yielding smaller utility gains. Inferiority does not contradict diminishing marginal utility.

KEYWORDS: diminishing marginal utility | total utility | normal good | inferior good | income effect | substitution effect

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MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Easy | Adapted practice

Adapted PYQ — 2020, Q35

Which function has price elasticity of magnitude one at $P = 6$?

A. Demand: $Q_d = 10$

B. Demand: $\log Q_d = 100 - 3 \log P$

C. Demand: $Q_d = 24 - P$

D. Supply: $Q_s = 5P$

EXPLANATION

Practice-key note: Reviewed adaptation. The solution and key apply to this version.

Correct answer: D

Point price elasticity multiplies the slope dQ/dP by the price-to-quantity ratio P/Q. For demand, compare its magnitude with one.

Under $Q_s = 5P$, the slope is 5 and quantity at $P = 6$ is 30. Supply elasticity is therefore

$$5\frac{6}{30} = 1.$$

Quantity supplied changes in the same proportion as price, giving unit elasticity.

- **A:** Quantity demanded is fixed at 10. Its slope and price elasticity are zero.
- **B:** The coefficient of $\log P$ in a log demand equation is its price elasticity. Here it is -3, whose magnitude is 3.
- **C:** At $P = 6$, quantity is $24 - 6 = 18$ and the slope is -1. Demand elasticity is $(-1)(6/18) = -1/3$, with magnitude $1/3$.

Adaptation note: C uses $Q_d = 24 - P$ here. The printed 2020 alternative reads $Q_d = 24 - 2$.

Answer note: No authenticated official answer key for this 2020 paper has been recovered; the answer above has been independently checked.

KEYWORDS: point price elasticity | linear demand | log log demand | unit elastic supply

37

MICRO ECONOMICS

General Equilibrium, Efficiency and Welfare

Difficulty: Easy | Adapted practice

Firms have smooth technologies with substitutable labour and capital. In an interior competitive equilibrium, must each firm know the others' production functions to allocate inputs efficiently?

A. No; its own technology and common input prices can guide its cost-minimising choice.

B. Yes; it must copy the input quantities used by the largest firm.

C. Yes; it must equalise total output with every other firm.

D. No; it can choose fixed input proportions without considering input prices.

EXPLANATION

Practice-key note: Reviewed adaptation. The solution and key apply to this version.

Correct answer: A

A firm can minimise the cost of its output using information about its own production process and the wages and capital-rental prices it faces. It does not need to observe another firm's full technology.

At an interior cost minimum, its marginal rate of technical substitution—the capital it can replace with a little more labour at unchanged output—matches the wage-to-rental-price ratio:

$$\frac{MP_L}{MP_K} = \frac{w}{r}.$$

Common competitive input prices give every firm the same ratio to match. Their marginal substitution rates therefore agree, which is the input-efficiency condition. Prices coordinate their decisions despite different technologies.

- **B:** Equal input quantities are not required. Different technologies and output levels can justify different input bundles.
- **C:** Efficient input allocation does not require equal outputs across firms. It concerns the extra output obtainable by reallocating inputs.
- **D:** Ignoring input prices does not generally minimise cost. With substitutable inputs, their relative prices matter for the chosen proportions.

KEYWORDS: decentralised allocation | factor prices | marginal rate of technical substitution

38

MICRO ECONOMICS

Price and Output determination in Market

Difficulty: Medium | PYQ · 2026 · Q40

PYQ — 2026 (30 March, Shift 2), Q40

Sequence the evolution of competition concepts (Earliest to latest) :

A. Smith's competition

B. Marshall partial equilibrium

C. Perfect competition

D. Chamberlin product differentation

E. Robinson imperfect competition

Choose the correct answer from the options given below :

A. E, A, B, C, D

B. D, A, B, C, E

C. A, B, C, D, E

D. A, B, D, C, E

EXPLANATION

Correct answer: C

The choices follow a common sequence of landmarks in the analysis of competition.

1. **Smith's competition (A), 1776.** In *The Wealth of Nations*, Adam Smith described how competition moves market prices towards a natural price over time.
2. **Marshall's partial equilibrium (B), 1890.** Alfred Marshall's *Principles of Economics* analysed how demand and supply determine price in a particular market. The analysis holds conditions in other markets fixed.
3. **Perfect competition (C).** This became a formal benchmark in which individual firms take price as given. Frank Knight's *Risk, Uncertainty and Profit* set out its conditions in 1921, before the two 1933 books in this sequence.
4. **Chamberlin's product differentiation (D), 1933.** Edward Chamberlin's *The Theory of Monopolistic Competition* showed how sellers can compete through distinct varieties while having some control over price.
5. **Robinson's imperfect competition (E), 1933.** Joan Robinson's *The Economics of Imperfect Competition* analysed pricing and output when firms have market power. Robinson recalled that Chamberlin's book appeared a few months before hers.

This gives the sequence **A, B, C, D, E**, choice C.

- **A:** Robinson's study of imperfect competition appeared in 1933. Smith had already described competitive price adjustment in 1776.
- **B:** Chamberlin's theory of differentiated products came after the early analysis of competition by Smith and the development of single-market equilibrium by Marshall.
- **D:** The perfect-competition benchmark was already developed before Chamberlin's 1933 treatment of differentiated sellers. Knight's 1921 book gives a clear example.

KEYWORDS: classical competition | partial equilibrium | perfect competition | product differentiation | imperfect competition

39

MICRO ECONOMICS

Consumer Theory or Behavior

Difficulty: Easy | PYQ · 2020 · Q98

PYQ — 2020, Q98

For an inferior goods, income consumption curve and Engles curves are

A. Positively sloped

B. Negatively sloped

C. Are the same

D. Income consumption curve positively sloped and the Engles curve is negatively sloped

EXPLANATION

Practice-key note: Independently reviewed answer. An authenticated 2020 final key has not been recovered.

Correct answer: B

A good is inferior over an income range if the consumer buys less of it as income rises, with prices unchanged. The Engel curve relates income to the quantity bought of that one good. Here those two variables move in opposite directions, so the Engel curve slopes down.

The income consumption curve joins the chosen bundles at different incomes. Its axes show the quantities of the two goods. In the usual diagram, the consumer spends the full budget. When income rises and the consumer buys less of the inferior good, more money is available for the other good: both the extra income and the amount saved by buying less of the first good. The quantity of the other good rises while the quantity of the inferior good falls, so this curve also slopes down over that income range.

- **A:** An upward sloping Engel curve would mean that a higher income brings greater demand for the good, which is the behaviour of a normal good over that range.
- **C:** The income consumption curve compares quantities of two goods; the Engel curve compares one quantity with income. One can be derived from the other using the budget at each chosen bundle, but they do not have the same axes.
- **D:** The Engel curve does slope down. The income consumption curve cannot slope up in the usual two-good diagram here: the two chosen quantities move in opposite directions as income rises.

Answer note: No authenticated official answer key for this 2020 paper has been recovered; the answer above has been independently checked.

KEYWORDS: inferior good | engel curve | income consumption curve | income effect

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MICRO ECONOMICS

Production Theory

Difficulty: Easy | PYQ · 2021 · Q61

PYQ — 2021, Q61

Which of the following statements about a fixed input is correct?

A. Its price is fixed.

B. Its quantity in the long-run is fixed.

C. Its quantity in the short-run is fixed.

D. The quantity of output that the firm can produce is fixed.

EXPLANATION

Correct answer: C

A fixed input is an input whose quantity the firm cannot adjust in the short run. For example, a factory may have a fixed number of machines while it changes the hours of labour it uses. The firm can adjust its machinery in the long run.

- **A:** Fixity concerns the amount of the input used. The rental price of a machine can change even when the factory keeps the same number of machines.
- **B:** In the long run, the firm has enough time to change the amount of the input, for example by installing additional machines.
- **D:** The firm can change production by increasing or reducing variable inputs while its fixed inputs stay at the same level.

KEYWORDS fixed input | short run production | variable input

Coverage at a glance.

40 questions · 48 practice minutes · Correct answers earn 4 marks, wrong answers lose 1 mark, and unanswered questions score 0.

Subject	Questions
Micro Economics	40

Answer key

1 · D	2 · C	3 · A	4 · B	5 · A	6 · B	7 · B	8 · C	9 · A	10 · B
11 · C	12 · B	13 · B	14 · D	15 · D	16 · C	17 · A	18 · C	19 · B	20 · C
21 · B	22 · D	23 · A	24 · C	25 · C	26 · D	27 · C	28 · A	29 · D	30 · B
31 · C	32 · C	33 · A	34 · B	35 · A	36 · D	37 · A	38 · C	39 · B	40 · C

Selected from the reviewed CUET PG Economics question bank. Source labels and answer notes are included in the solutions.

Topic breakdown.

Question counts in this practice resource, not predicted exam weightages.

Price and Output determination in Market	12	Consumer Theory or Behavior	13
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