



Answers and Comments

This version of the Multiple-Choice Questions was initially intended for both the MainTrack and OpenTrack. However, due to technical difficulties at the venue, it was replaced with a new set for the MainTrack.

MCQ 1. Specialization and Gains from Trade

The table below displays the maximum annual production possibilities for Country X and Country Y, using all available resources.

Country	VR Headsets	Smart Watches
X	21,500	21,500
Y	56,000	56,000

The amount of resources available in both countries is roughly the same, opportunity cost of production is constant. Each country can produce enough of both products to satisfy its own demand.

Based on the information above, which of the following is correct?

- A.** Applying import tariffs by any country would increase overall gains from trade.
- B.** There are no opportunity costs for either country in producing VR Headsets or Smart Watches.
- C.** Country X has a comparative advantage over Country Y in both goods.
- D.** Country Y has an absolute advantage over Country X in producing either VR Headsets or Smart Watches.

Correct answer: D.

Explanation: Country Y can produce more of both products than Country X with the same resources, so it has an absolute advantage. Both countries face identical trade-offs (opportunity costs), so neither has a comparative advantage.

MCQ 2. Firm Behavior in Perfect Competition

Forty identical firms supply a homogeneous product in a perfectly competitive market. Each firm's short-run total cost (in \$) is $TC(q) = 50 + 2q + 0.01q^2$. (The \$50 is a sunk fixed cost.) Inverse market demand is $Q = 150,000 - 5,000P$, where Q is total industry output (units per year) and P is in dollars.

The government plans to levy a specific tax t per unit on suppliers.

What is the largest tax t that can be imposed without driving all firms to shut down in the short run? Assume that if a firm is indifferent, it decides not to shut down and produces a positive amount.

- A.** \$18 **B.** \$22 **C.** \$28 **D.** \$30

Correct answer: C.

Explanation: The shutdown price is minimum AVC, which is 2 ($AVC(q) = 2 + 0.01q$). Profit maximization condition: $P = MC(q) \rightarrow P = 2 + 0.02q \rightarrow q = 50P - 100$ — the supply function of an individual firm.

$Q = 2,000P - 4,000$ — the market supply function. If the tax t is imposed, it becomes $Q = 2,000(P - t) - 4,000$. Equating to the market demand, we obtain the equilibrium price: $P = 22 + 2t/7$. This is the consumers' price (before tax), so the after-tax price is $(22 + 2t/7 - t) = 22 - 5t/7$. This should be greater or equal to 2, so that the firms do not shut down: $22 - 5t/7 \geq 2 \rightarrow t \leq 28$.

Any higher tax would cut the net price below \$2, triggering complete shutdown.

MCQ 3. Game theory: Nash Equilibrium, cooperation, and coordination

Two technology firms, NovaTech and Pulse Systems, are deciding which type of processor to use in their upcoming product lines. Each can choose either a high-speed processor (H) or a low-cost processor (L). The table below shows the profits (in millions of dollars) for each combination, in the form (NovaTech profit, Pulse Systems profit). The parameter x represents a profit value for certain outcomes.

	Pulse: High-speed (H)	Pulse: Low-cost (L)
NovaTech: High-speed (H)	(x , 15)	(7, x)
NovaTech: Low-cost (L)	(3, 8)	(x , 9)

For which range of values x is (H, H) the only Nash equilibrium?

- A.** $x \leq 3$ **B.** $x \geq 7$ **C.** $x \geq 3$ and $x < 7$ **D.** $x \geq 3$ and $x \leq 15$

Correct answer: C.

Explanation: (H, H) is a Nash equilibrium when neither firm can gain by deviating. NovaTech will not want to switch from High-speed to Low-cost if $x \geq 3$. If $x \geq 7$, then (L, L) is also an equilibrium. (H, L) is never an equilibrium, because it is impossible that $x \leq 7$ and $x \geq 15$ simultaneously.

MCQ 4. Saving and Investment

A country in which the equilibrium real interest rate is well above zero introduces a new type of savings account that offers tax-free interest. What is the effect on total investment in the country's economy?

- A. Total investment will not decrease
- B. Total investment will not increase
- C. Investment will first decrease, then increase
- D. The effect on investment is unpredictable

Correct answer: A

Explanation: Tax-exempt savings accounts encourage households to save more, which increases the funds available for investment, thereby boosting overall investment in the economy.

MCQ 5. Firms, Production, and Costs

There are two possible technologies to prepare 100 servings of tomato sauce in a restaurant kitchen:

- Technology A uses 1 human-hour and 4 kg of fresh tomatoes.
- Technology B uses a slow-roasting method that requires 4 human-hours and 2 kg of fresh tomatoes.

In Period 1, the wage rate is $w = \$10$ per hour, and the price of tomatoes is $p = \$20$ per kg. In Period 2, prices change to $w = \$20$, $p = \$10$.

The market price of tomato sauce remains constant at \$2 per serving. The restaurant uses technology B in Period 1.

Which of the following statements is correct?

- A. In period 1, a restaurant's profit per 100 servings of sauce is \$100.
- B. If the restaurant uses technology B in both periods, its profit would be the same in both periods.
- C. The economic rent from switching to technology A in period 1 would be \$60.
- D. There is a positive economic rent from switching from technology B to A in period 2.

Correct answer: D.

Explanation: In Period 1, if the restaurant uses Technology A, then its average cost of 100 servings is $1 \times \$10 + 4 \times \$20 = \$90$; for Technology B its average cost of 100 servings is $4 \times \$10 + 2 \times \$20 = \$80$.

In Period 2, if the restaurant uses Technology A, then its average cost of 100 servings is $1 \times \$20 + 4 \times \$10 = \$60$; for Technology B its average cost of 100 servings is $4 \times \$20 + 2 \times \$10 = \$100$.

So, Technology B is better in Period 1 (**C** is incorrect); Technology A is better in Period 2 (**D** is correct). Provided different costs in 2 periods for every technology, **B** is wrong. Revenue is \$200 per 100 servings, so **A** is incorrect as well.

MCQ 6. Externalities and Market Failures

A fertilizer factory produces 400 kg of fertilizer daily, polluting a nearby river and reducing the income of local fishermen by some fixed amount per unit of fertilizer production. This income loss to the fishermen is the only externality that needs to be considered. The Pareto efficient output is 250 kg of fertilizer. Which statement is correct?

- A.** Under Coasean bargaining, if fishermen have the right to clean water, they must pay the factory to reduce fertilizer production.
- B.** Government intervention in any form would benefit the factory.
- C.** At an output of 400 kg, the marginal private cost exceeds the marginal social cost.
- D.** Imposing a tax per kilogram of fertilizer equal to the marginal external cost will result in Pareto efficient output.

Correct answer: D.

Explanation: A Pigovian tax internalizes the externality by aligning private and social costs, reducing output to the efficient level.

MCQ 7. Monetary Policy and Exchange Rates

In an economy experiencing large foreign capital inflows, which central bank action is most efficient for preventing inflationary pressure and currency appreciation, while also allowing the central bank to maintain independent control over domestic interest rates?

- A.** Allowing the exchange rate to float freely, enabling the currency to appreciate and reducing imported inflation
- B.** Purchasing foreign assets to increase foreign reserves, then issuing government securities to absorb the corresponding increase in the money supply
- C.** Tightening fiscal policy through reduced government spending to offset demand-side inflation
- D.** Implementing capital controls to limit the volume of foreign investments entering the country

Correct answer: B.

Explanation: This policy—known as sterilized intervention—allows the central bank to manage both currency appreciation and inflation without sacrificing independent monetary policy. A and C are incorrect because they result in currency appreciation. D can achieve both inflationary control and prevent currency appreciation, but is more difficult to implement, hence less efficient.

MCQ 8. Markets and Contracts

Read the following statements about contracts in labour and product markets and select the correct one.

- A.** An order given in a company is simply a suggestion that the employee can freely refuse.
- B.** In a market, prices motivate and constrain people's actions, and are determined as a result of the actions of a large number of participants.
- C.** Contracts for all goods and services sold in markets are concluded under symmetric information.
- D.** Asymmetric information in a firm refers to differences in authority among managers and workers.

Correct answer: B.

Explanation: This describes how markets function: prices reflect and influence actions through decentralized interactions. The other statements are incorrect or misunderstand the nature of contracts and information.

MCQ 9. Technology and Long-Run Growth

Country A's GDP per capita grows at a constant rate of 3% per year. Approximately how many years will it take for GDP per capita to grow 8 times?

- A.** 45 years
- B.** 60 years
- C.** 70 years
- D.** 99 years

Correct answer: C.

Explanation: Rule of 70: $(70/3)$ years to double, so 70 years to double three times.

MCQ 10. Labor Market (Macroeconomic Perspective)

Which of the following is true about the natural rate of unemployment?

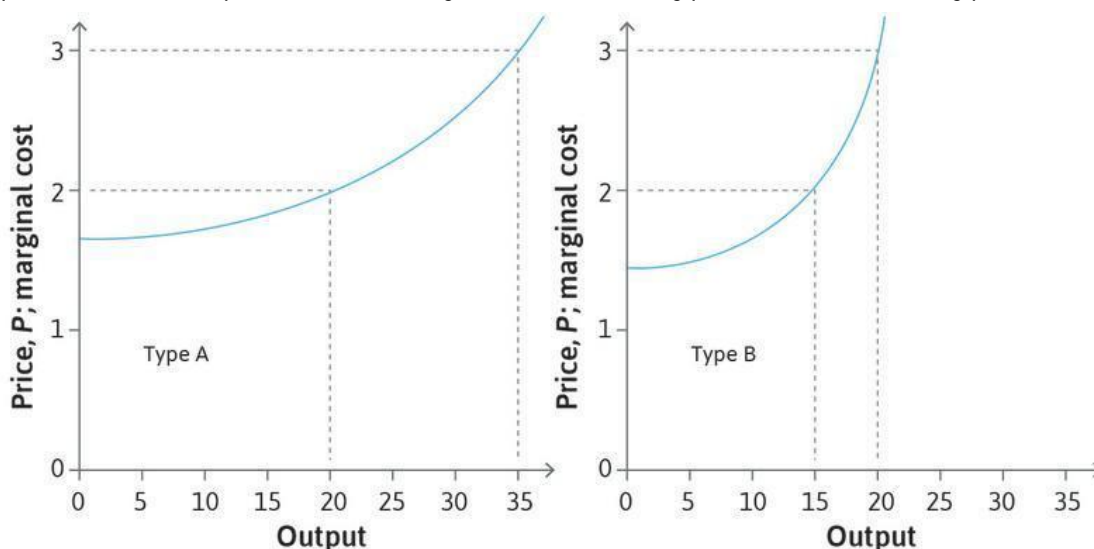
- A.** It includes frictional and structural unemployment
- B.** It is zero in a healthy economy
- C.** It rises in recessions and falls in booms
- D.** It can never change

Correct answer: A.

Explanation: The natural rate consists of normal job turnover and mismatches, not cyclical unemployment.

MCQ 11. Firm's behavior

The graphs show the marginal cost curves for two types of firms—Type A and Type B—in a competitive industry. There are 10 Type A firms and 8 Type B firms.



Based on this information, choose the correct statement.

- A. At a price of \$2, the market supply is 450 units.
- B. The market will supply 510 units at a price of \$3.
- C. At a price of \$2, the market's marginal cost of supplying one more unit depends on the type of firm that produces it.
- D. The market marginal cost curve cannot be determined.

Correct answer: B.

Explanation: At a price of \$3, each Type A firm supplies 35 units ($10 \times 35 = 350$), each Type B firm supplies 20 units ($8 \times 20 = 160$) → the market supply is 510 units.

MCQ 12. Protectionism: Winners and Losers

A large economy X imposes an import tariff on good A, which it currently imports from another large economy Y. Which statement is most likely to be correct?

- A. Producers of good A in economy Y will receive a lower net price for each unit exported to economy X.
- B. Consumers in economy X will pay a lower price for good A.
- C. The government of economy Y will collect additional tariff revenue.
- D. None of the above statements is correct.

Correct answer: A.

Explanation: Because economy X imposes the tariff, exporters in economy Y must pay it and can pass on only part of the tariff to buyers in economy X. Their net revenue per unit therefore falls.

MCQ 13. Consumer's Choice

A consumer with stable preferences faces the following situations:

- **Situation 1:** Apples cost \$2 each and oranges \$1 each. The consumer buys bundle X: 3 apples and 4 oranges.
- **Situation 2:** Apples cost \$1 each and oranges \$2 each. The consumer buys bundle Y: 5 apples and 2 oranges.

Assume the consumer always spends all their money.

Which statement is true according to the revealed preferences?

- A.** Both bundle X and bundle Y are affordable in Situation 2.
- B.** None of the other statements is true
- C.** Bundle X is preferred to bundle Y.
- D.** Bundle Y costs less than bundle X in both situations.

Correct answer: B.

Explanation: The consumer's income is \$10 in Situation 1 and \$9 in Situation 2.

Bundle X in Situation 2 is worth \$11, bundle Y in Situation 1 is worth \$12. So, none of the bundles is affordable in the other situation (A and D are wrong), thus we cannot tell which one is preferred (C is wrong).

MCQ 14. Innovations

An entrepreneur currently operating in the perfectly competitive market can spend \$F on R&D to invent a process that lowers her constant marginal cost from \$60 to \$20 per unit. Market inverse demand is: $P = 120 - Q$ (price in dollars, annual quantity Q). In case of innovation, she receives a three-year patent that makes her the sole producer in the market. After the patent expires, the industry becomes perfectly competitive at the new constant marginal cost of \$20.

The discount rate is 5 % per year, and the entrepreneur ignores risk and receives all the profit at the end of the year. What is the highest R&D cost F she would be willing to pay?

- A.** $\approx$ \$2.50 thousand
- B.** $\approx$ \$6.81 thousand
- C.** $\approx$ \$7.15 thousand
- D.** $\approx$ \$7.50 thousand

Correct answer: B.

Explanation: The firm does not receive any economic profit now (perfect competition with constant MC) and will not receive it after the patent expires. So, maximum F is equal to the discounted monopoly profit of three years of operation.

Every year, the optimal output solves $MR = MC$, that is, $120 - 2Q = 20$; $Q^* = 50$. The maximum annual profit is $(120 - 50) \times 50 - 20 \times 50 = \$2,500$. Discounting it with $r = 5\%$, we get: $2,500/(1.05) + 2,500/(1.05)^2 + 2,500/(1.05)^3 \approx 6,808$.

MCQ 15. Relevant Research in Economics

In applied economics, what is the principal advantage of conducting a randomized controlled experiment rather than relying solely on observational data?

- A.** It guarantees a statistically significant correlation between the treatment and the outcome.
- B.** It is less expensive than administering a survey.
- C.** It eliminates the need for subsequent statistical analysis.
- D.** It enables researchers to draw credible causal conclusions about the treatment's effect.

Correct answer: D.

Explanation: Random assignment minimises selection bias, so any systematic difference in outcomes between the treatment and control groups can be interpreted as the causal effect of the treatment (subject to sufficient sample size and proper implementation). Statistical analysis is still required to estimate the magnitude and precision of that effect.

MCQ 16. Relevant Research in Economics

According to the recipients of the 2024 Nobel Memorial Prize in Economic Sciences – Daron Acemoglu, Simon Johnson and James A. Robinson – which factor most convincingly explains why some countries achieve sustained economic growth while others remain trapped in poverty?

- A.** Long-run differences in climate and physical geography
- B.** The design and quality of their political and economic institutions
- C.** Variations in natural-resource endowments
- D.** Divergent consumer preferences and cultural tastes

Correct answer: B.

Explanation: The laureates' research shows that inclusive institutions—those that secure property-rights, limit elite power and create broad opportunities—encourage investment, innovation and long-term growth. Extractive institutions do the opposite, siphoning resources to a narrow elite and stifling development.

MCQ 17. Inequality

Country X levies a flat 35% income tax on every household. Before income taxes, the bottom 40% of the population receive 12% of the \$2 trillion (pre-income-tax) national income. The government re-distributes the entire amount of collected income taxes back as cash transfers. Afterwards, the share of the bottom 40% rises to 30% of the disposable income. The bottom 40% comprise 20 million people living in households of average size 2.5.

Ignoring any other fiscal instruments, what is the average annual transfer per household that the government pays to the bottom 40 % to achieve the observed disposable income distribution?

- A. \$44,400 B. \$46,000 C. \$55,500 D. \$90,000

Correct answer: C.

Explanation: There are $20M/2.5 = 8$ million households in the bottom 40% population group. Together, they receive $\$2,000 \text{ bn} \times 0.12 = \240 bn income before taxes, that is, \$30,000 per household. Each household on average pays tax equal to $\$30,000 \times 0.35 = \$10,500$.

Also, they receive $\$2,000 \text{ bn} \times 0.3 = \600 bn *disposable* income (after taxes and transfers), or \$75,000 per household.

$\$75,000 = \$30,000 - \$10,500 + \text{Transfer}$.

So, the transfer must be equal to \$55,500.

MCQ 18. Monetary and fiscal policy

Potential output is \$600 bn. A negative demand shock lowers actual output to \$540 bn. If the marginal propensity to consume is 0.8 and there is no crowding out, what minimum rise in government spending would restore potential output?

- A. \$12 bn B. \$15 bn C. \$60 bn D. \$75 bn

Correct answer: A.

Explanation: Multiplier = $1/(1 - 0.8) = 5$. Required spending = $(600 - 540)/5 = \$12 \text{ bn}$.

MCQ 19. Economics of the environment and sustainable development

A country currently emits 100 million tonnes (Mt) of CO₂ per year. The marginal external cost is $MEC(E) = 50 - 0.25E$ (\$ per tonne). The marginal abatement cost (MAC) of cutting emissions is $MAC(E) = 20 + 0.5E$ (\$ per tonne).

In both equations, E is the number of Mt abated (so E=0 means no abatement). E is measured in megatonnes (1 Mt = 10⁶ t); the coefficients in the MEC and MAC formulas are calibrated so that the result is expressed in dollars per tonne.

Assuming the government sets a Pigouvian carbon tax to ensure the optimal level of abatement, which pair of outcomes is obtained?

- A. Tax = \$25 / t; emissions after tax = 75 Mt
- B. Tax = \$40 / t; emissions after tax = 60 Mt
- C. Tax = \$50 / t; emissions after tax = 50 Mt
- D. Tax = \$40 / t; emissions after tax = 40 Mt

Correct answer: B.

Explanation: We can find optimal abatement E* by equating marginal abatement cost and marginal external cost: $20 + 0.5E = 50 - 0.25E \Rightarrow E^* = 40$ Mt. That is, emissions after tax are 100 Mt – 40 Mt = 60 Mt. The tax level equals $MEC(E^*) = MAC(E^*) = 40$.

MCQ 20. Oligopoly

Two startups, QuickDrop and SpeedBox, operate in the same city and compete by offering same-day delivery services. The inverse demand for total deliveries is given by: $P(Q) = 100 - Q$, where $Q = q_1 + q_2$ is the total number of deliveries per day, and q_1, q_2 are the quantities chosen by QuickDrop and SpeedBox, respectively. Each firm has a constant marginal cost of $c = 40$ per delivery and no fixed costs. Both firms simultaneously choose how many deliveries to make per day, and they do so non-cooperatively.

Which of the following statements is correct?

- A. In the Cournot-Nash equilibrium, each firm delivers 30 packages per day.
- B. In equilibrium, total profit in the industry is \$1,800.
- C. If QuickDrop acquires SpeedBox and acts as a monopolist, it will serve more customers and make its profit \$500 higher than its profit before the acquisition.
- D. In equilibrium, the price charged is equal to marginal cost, reflecting perfect competition.

Correct answer: C.

Explanation: Firm 1's profit is given by $(100 - q_1 - q_2) \times q_1 - 40q_1$, which yields the best response function: $q_1 = 30 - q_2/2$. Symmetrically, $q_2 = 30 - q_1/2$, and in equilibrium, $q_1 = q_2 = 20$ (**A** is incorrect). Price equals $100 - 40 = 60$ (**D** is incorrect) and each firm's profit is $60 \times 20 - 40 \times 20 = 400$ (**B** is incorrect).

If QuickDrop becomes a monopolist, its profit is given by $(100 - q_1) \times q_1 - 40q_1$. Maximization yields $q_1 = 30$ (increased) and maximum profit = 900 (also increased) — **C** is correct.