INTERNATIONAL ECONOMICS OLYMPIAD

# 2024 Economics Multiple choice questions

**Answers**

## MCQ 1. Price Discrimination

| In the case of a monopolist applying price discrimination, the deadweight loss: | | |
|---|---|---|
| A | can be zero | *Correct* |
| B | will always be higher than in the case of perfect competition | |
| C | will always be higher than in the case of a monopolist that does not price discriminate | |
| D | is equal to the total consumer surplus in the case of perfect competition | |

**Explanation:**

- **Option A:** With perfect price discrimination, the monopolist can eliminate deadweight loss by producing the socially optimal output.
- **Option B:** Deadweight loss can be zero with perfect price discrimination, not always higher than in perfect competition.
- **Option C:** Deadweight loss can be lower with price discrimination compared to a non-discriminating monopolist.
- **Option D:** Deadweight loss is not equal to total consumer surplus in perfect competition.

## MCQ 2. Entry Game

| Consider a game with an entrant and an incumbent. The entrant moves first, and the incumbent observes this decision. The entrant can either enter the market or stay out. If the entrant stays out, the game ends with the entrant receiving a payoff of 0 and the incumbent receiving a payoff of 3. If the entrant enters the market, the incumbent must decide whether to prevent or allow entry. If the incumbent prevents entry, the entrant receives -2, and the incumbent receives −1. If the incumbent allows entry, the entrant receives 3, and the incumbent receives 2. What are the payoffs for each player if they both follow their optimal strategy? | | |
|---|---|---|
| A | The entrant receives 0, the incumbent receives 3. | |
| B | The entrant receives −2, the incumbent receives −1. | |
| C | The entrant receives 3, the incumbent receives 2. | *Correct* |
| D | The entrant receives 0, the incumbent receives 2. | |

**Explanation.** This game can be solved by backward induction. The incumbent decides to allow the entry because it receives 2 instead of −1 (if it prevents the entry). The entrant decides: if it says out, it receives 0, if it enters, it receives 3. Entrant decides to enter.

**MCQ 3. Opportunity Cost**

| In a city, there are two car factories, Factory A and Factory B. Factory A can produce 100 red cars or 200 yellow cars per batch, while Factory B can produce 50 red cars or 150 yellow cars per batch. Which factory has the higher opportunity cost of producing one yellow car? | | |
|---|---|---|
| A | Both factories have the same opportunity cost | |
| B | Factory A | *Correct* |
| C | There is not enough information to answer | |
| D | Factory B | |

**Explanation:** For Factory A, opportunity cost of 1 yellow car = 100 red cars / 200 yellow cars = 0.5 red cars. For Factory B, it is 50 red cars / 150 yellow cars = 0.33 red cars. 0.5 is higher.

**MCQ 4. Consumer Behavior**

| There are 4 consumers in the market for sweaters. Consumer 1 is willing to spend £40 on a sweater, Consumer 2 is willing to spend £35, Consumer 3 is willing to spend £25, and Consumer 4 is willing to spend £20. Each consumer only wants to buy one sweater. If the market price for sweaters is £28, what is the total consumer surplus in this market? | | |
|---|---|---|
| A | Consumer surplus is equal to £19. | *Correct* |
| B | Consumer surplus is equal to £16. | |
| C | Consumer surplus is equal to £8. | |
| D | It is impossible to calculate consumer surplus in this market without more information about the market demand curve. | |

**Explanation.** Consumer 1: Surplus = £40 − £28 = £12; Consumer 2: Surplus = £35 − £28 = £7. Consumers 3 and 4 will not get any surplus because they will not buy. Total consumer surplus = £12 + £7 + £0 + £0 = £19.

**MCQ 5. Taxes**

| In a market of price-taking firms, the market (inverse) supply curve is P = (1/2)Q and the (inverse) demand curve is P = 100 – (1/3)Q, where P refers to price and Q refers to quantity. 'Tax burden' refers to how the tax on each unit sold is shared between producers and consumers. If the government imposes a per-unit tax on this market, then: | | |
|---|---|---|
| A | the consumers will bear more of the tax burden than the firms | |
| B | the firms will bear more of the tax burden than the consumers | *Correct* |
| C | the tax burden on consumers and firms will be the same | |
| D | the distribution of the tax burden cannot be determined from the information given. | |

**Explanation.** To determine the tax burden, we compare the absolute values of elasticities of supply and demand. The supply curve is less elastic, since a change in price leads to a smaller change in quantity supplied, than demand. Since the supply is less elastic than demand, firms will bear more of the tax burden.

**MCQ 6. Price Elasticity of Demand**

| | | |
|---|---|---|
| The price of apples decreases from USD 2.00 per kilogram to USD 1.82 per kilogram, causing the quantity demanded to increase from 100 kilograms to 118 kilograms. Calculate the price elasticity of demand for apples and determine if the demand is elastic, inelastic, or unit elastic. | | |
| A | Elasticity = −1.5; Demand is elastic. | |
| B | Elasticity = −0.5; Demand is inelastic. | |
| C | Elasticity = −1.0; Demand is unit elastic. | |
| D | Elasticity = −2.0; Demand is elastic. | *Correct* |

**Explanation.** Price changed by −9%, quantity changed by 18%, so the elasticity is 18%/(−9%)=−2.0.

**MCQ 7. Price Elasticity of Demand**

| | | |
|---|---|---|
| Alvin, Simon, and Theodore are neighbors taking their families for a weekend trip to a mountain chalet an hour's drive from the city. They meet at the neighborhood gas station before starting their trip. Before seeing the gas prices, they discuss their plans. Alvin says he will definitely fill his tank because it is empty. Simon wants to buy as much gas as he can, spending €50. Theodore says he still has some gas but would buy a few more liters if the price per liter is exactly €2. Which of the following statements about their price elasticity of demand for gas is correct? | | |
| A | Price elasticity demand for gas is 0 for Alvin, demand is unitary elastic for Simon and perfectly elastic for Theodore. | *Correct* |
| B | Price elasticity demand for gas is 1 for Alvin, 0 for Simon and 2 for Theodore. | |
| C | Price elasticity demand for gas is −1 for Alvin, unitary elastic for Simon and demand for gas is perfectly elastic for Theodore. | |
| D | Price elasticity demand for gas 1 for Alvin, 0 for Simon and demand for gas is perfectly price inelastic for Theodore. | |

**Explanation:**
**Alvin:** His demand is perfectly inelastic (elasticity = 0) because he will fill his tank regardless of the price.
**Simon:** His demand is unitary elastic (elasticity = −1) because he will spend a fixed amount (€50) regardless of the price (percentage change in quantity demanded will exactly compensate for the percentage change in price to make it a fixed sum).
**Theodore:** His demand is perfectly elastic (elasticity = −∞) because he will only buy at €2 per liter, so his demand curve is flat.

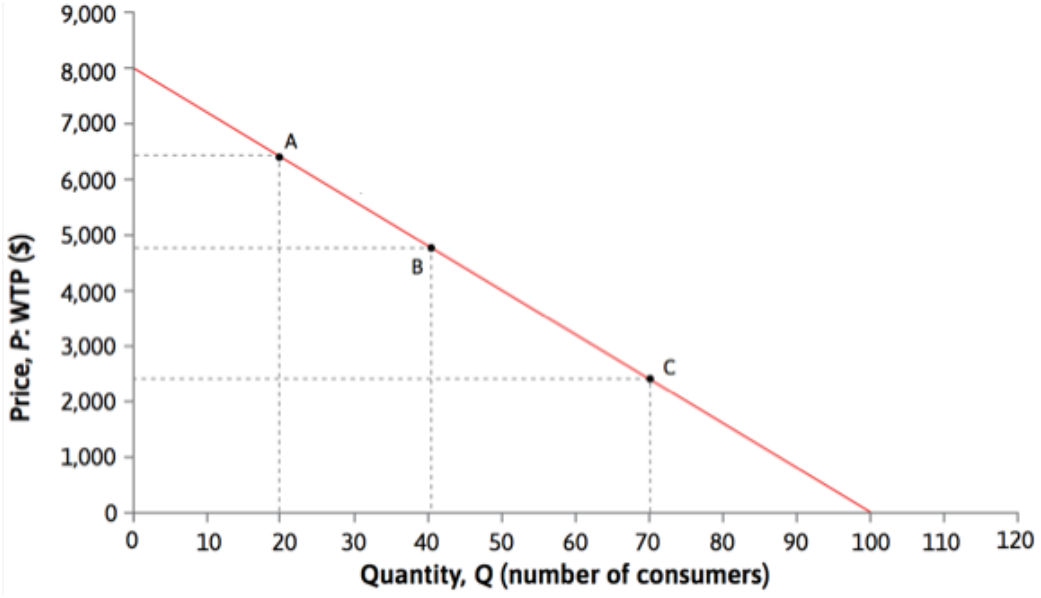
**MCQ 8. Taxes**

| Which of the following statements is correct regarding the impact of taxes? | | |
|---|---|---|
| A | a tax on gasoline has a greater deadweight loss in the short run than in the long run and a tax on alcohol generates a larger deadweight loss than a tax on luxury watches | |
| B | a tax on gasoline has a greater deadweight loss in the long run than in the short run and a tax on alcohol generates a smaller deadweight loss than a tax on luxury watches | *Correct* |
| C | a tax on gasoline has a greater deadweight loss in the short run than in the long run and a tax on alcohol generates a smaller deadweight loss than a tax on luxury watches | |
| D | a tax on gasoline has a greater deadweight loss in the long run than in the short run and a tax on alcohol generates a larger deadweight loss than a tax on luxury watches | |

**Explanation:**
**Gasoline Tax:** In the short run, demand for gasoline is inelastic because consumers cannot quickly change their consumption habits. In the long run, demand becomes more elastic as consumers find alternatives, leading to a greater deadweight loss.
**Alcohol vs. Luxury Watches Tax:** Alcohol typically has a more inelastic demand compared to luxury watches. Therefore, a tax on alcohol generates a smaller deadweight loss than a tax on luxury watches, which have more elastic demand.

**MCQ 9. Monopoly Pricing**

The demand curve of a price-setting firm is shown below.




A price-setting firm (monopoly) may find it optimal to produce at

| A | points A or B only | *Correct* |
|---|---|---|
| B | points A, B, and C | |
| C | point A only | |
| D | points B and C only | |

**Explanation.** Point C is on the inelastic part of the demand curve (increase in output will cause larger percentage decrease in price), where MR < 0. Thus, setting MR = MC there is impossible.

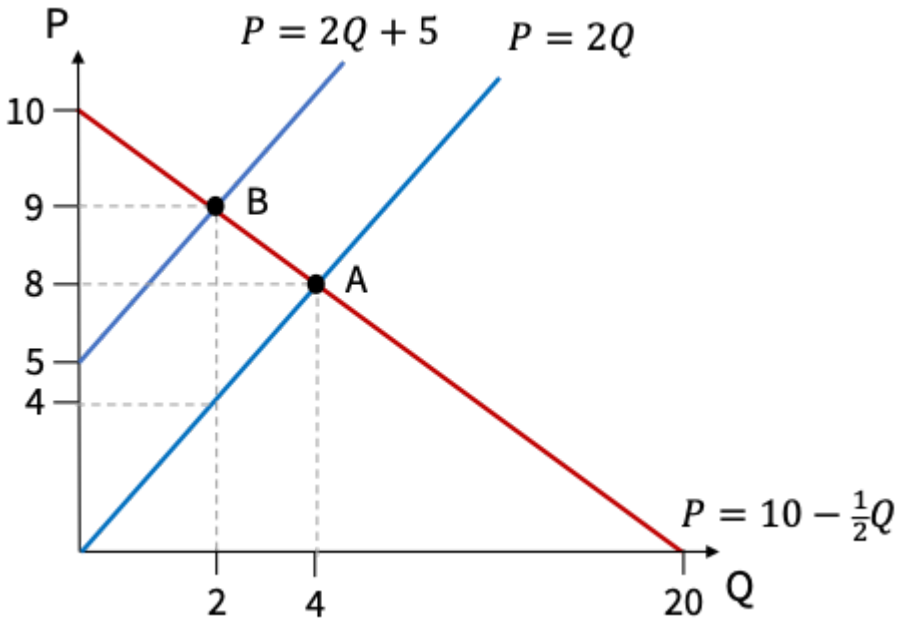
**MCQ 10. Output Gap**

| Which of the following best describes the concept of the "output gap"? | | |
|---|---|---|
| A | The difference between total imports and total exports | |
| B | The difference between actual output and potential output | *Correct* |
| C | The gap between the rich and the poor | |
| D | The difference between government revenue and expenditure | |

**Explanation:** The output gap measures the difference between the actual output of an economy and its potential output. A positive output gap indicates an economy operating above its potential, while a negative gap indicates underperformance.

**MCQ 11. Taxes**

The diagram below shows the effect of a per-unit tax of $5 on suppliers, where A represents the pre-tax equilibrium and B represents the after-tax equilibrium. P refers to price and Q refers to quantity.




If the government imposed a proportional tax of 50%, then compared to the outcomes under the per-unit tax,

| | | |
|---|---|---|
| A | consumer surplus would be smaller | |
| B | the tax revenue would be lower | *Correct* |
| C | the equilibrium quantity would be lower | |
| D | producer surplus would be lower | |

**Explanation.** The tax revenue under existing tax is (9 − 4) × 2 = 10, and this is the largest possible tax revenue in this market. So, under any other tax, the tax revenue will be smaller. You can find the tax revenue under the proportional tax to make sure that it is smaller than 10.

**MCQ 12. Free-rider problem**

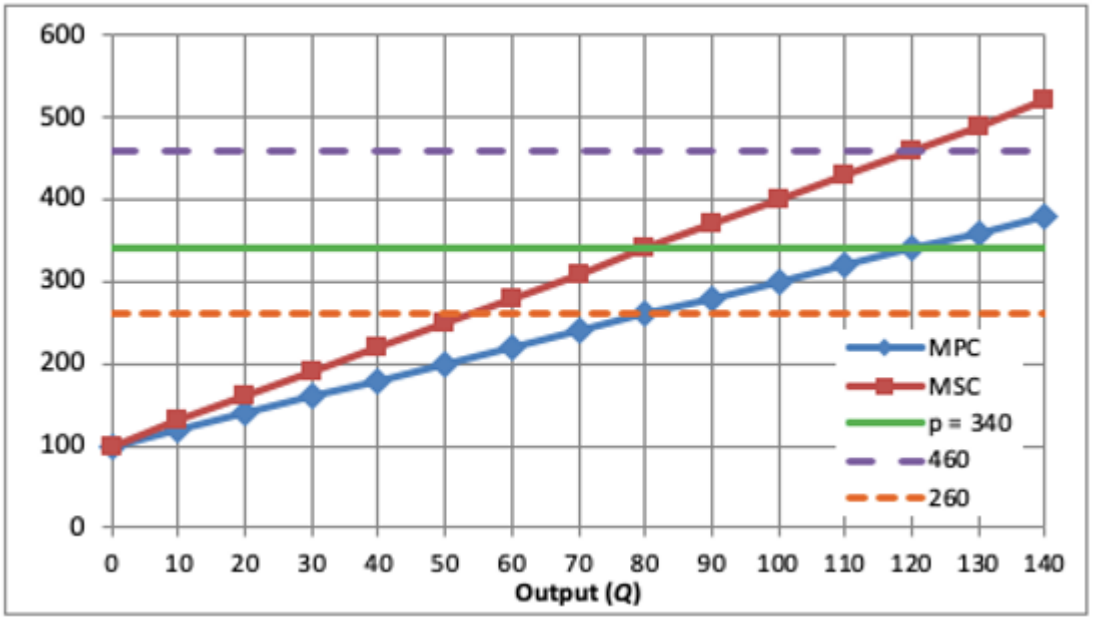
Alexandra and Bob can each choose how hard to work on a task. Each person's output is £80 if they are lazy, and £160 if they work hard. The cost of effort is £0 if they are lazy, and £70 if they work hard. The total output is shared equally between them. For example, if Alexandra puts in her effort but Bob does not, her net income is £120 − £70 = £50. If both workers are completely selfish, then in the equilibrium outcome they will each end up with a net income of:

| | | |
|---|---|---|
| A | £90 | |
| B | £80 | *Correct* |
| C | £50 | |
| D | £70 | |

**Explanation.** Working hard costs (£70 − £0) = £70 more than working lazy, and brings a selfish individual (£160 − £80)/2 = £40. So, no one will work hard. In this case, each worker's cost of effort will be £0 and the joint output will be £160, which will be shared equally to bring £80 to each of them.

**MCQ 13. Externalities**

A robot factory is located next to a student dormitory, and the production noise prevents the students from sleeping. The graph below shows the Marginal Private Cost (MPC) and Marginal Social Cost (MSC) of robot production.



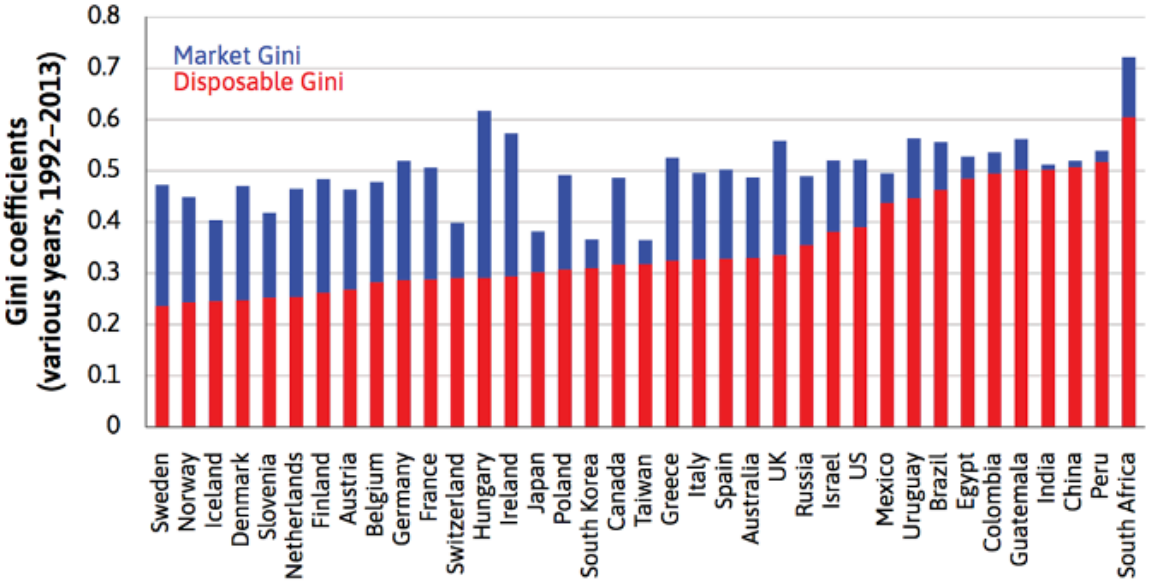

The robot market is competitive, and the market price is £340. If a court rules that students have the right to sleep quietly, what is the maximum amount the factory would offer to produce at the Pareto-efficient level of production?

| | | |
|---|---|---|
| A | £14,400 | |
| B | £12,800 | *Correct* |
| C | £9,600 | |
| D | £6,400 | |

**Explanation.** Pareto-efficient level of production occurs where the market price equals the MSC, that is, under Q = 80. The firm's profit under this output is equal to the area of a trapezoid between the price and the MPC: 80 × (240 + 80)/2 = 12,800.

**MCQ 14. Inequality**

Fill in the blank: In the graph shown below, countries with a larger difference between the height of the blue bar (Market income Gini) and the red bar (Disposable income Gini) are likely to have _____ income taxation systems.




| | | |
|---|---|---|
| A | more regressive | |
| B | lump-sum | |
| C | proportional | |
| D | more progressive | *Correct* |

**Explanation.** Progressive taxation reduces income inequality by taxing higher incomes at higher rates and redistributing income. A larger difference between Market Gini (before taxes and transfers) and Disposable Gini (after taxes and transfers) indicates that the taxation system significantly reduces inequality. Therefore, countries with a larger difference between the blue and red bars are likely to have more progressive income taxation systems.

**MCQ 15. Transaction Costs**

| Which of the following are not transaction costs? | | |
|---|---|---|
| A | Costs of lawyers certifying the sale of an apartment | |
| B | Costs of renovating a new apartment | *Correct* |
| C | The cost of finding a suitable agent to sell the apartment | |
| D | Costs for appraising the price of an apartment | |

**Explanation.** Transaction costs are expenses incurred during the buying or selling of goods and services. Option A, C, and D involve costs related to the process of transferring ownership (lawyers, agents, appraising prices), which are transaction costs. Renovation costs (Option B) are post-purchase expenses for improving the property, not related to the actual transaction process itself.

**MCQ 16. Unemployment**

| Which of the following accurately describes the concept of the "natural rate of unemployment" and its significance for monetary policy? | | |
|---|---|---|
| A | The rate of unemployment that can be achieved without causing inflation to rise | *Correct* |
| B | The lowest possible rate of unemployment an economy can achieve | |
| C | The rate of unemployment that results from cyclical factors | |
| D | The rate of unemployment targeted by central banks to maintain economic growth | |

**Explanation:** The natural rate of unemployment is such that is consistent with a stable rate of inflation. It includes frictional and structural unemployment but not cyclical unemployment. Monetary policy aims to stabilize the economy around this rate to prevent inflation from rising.

**MCQ 17. Nobel Prize**

| According to the research of the 2023 Nobel Laureate in Economics, which statement is correct? | | |
|---|---|---|
| A | Female labor force participation was almost certainly decreasing during the 19th century. | *Correct* |
| B | Most of the earnings gap that remains today between men and women stems from earnings differences between – rather than within – occupations. | |
| C | For the OECD countries, on average men have been educating themselves to a greater extent than women, and this difference has been increasing over time. | |
| D | The negative earnings impact of parenthood falls equally on both mothers and fathers. | |

**Explanation:**
**Option A (Correct):** Historical data indicates that female labor force participation decreased during the 19th century due to industrialization and societal norms. Claudia Goldin's research shows that women's labor market participation followed a U-shaped curve along the last 200 years, declining in the 19th century and then rising.
**Option B (Incorrect):** Research shows that much of the earnings gap is due to differences within occupations, not just between them.
**Option C (Incorrect):** Women, on average, have been increasing their education levels, closing the gap with men in many OECD countries.
**Option D (Incorrect):** The negative earnings impact of parenthood typically affects mothers more than fathers, indicating an unequal burden.

**MCQ 18. Monetary Policy**

| What is the primary purpose of a central bank's open market operations? | | |
|---|---|---|
| A | To regulate the stock market | |
| B | To control the money supply and interest rates | *Correct* |
| C | To provide loans to businesses | |
| D | To manage the national debt | |

**Explanation:** Open market operations are the buying and selling of government securities by a central bank to control the money supply and interest rates. This is a primary tool used to implement monetary policy.

**MCQ 19. Fiscal Policy**

| Which of the following is an example of an automatic stabilizer in the economy? | | |
|---|---|---|
| A | Tax cuts during a recession | |
| B | Unemployment benefits increasing as more people lose their jobs | *Correct* |
| C | A government bailout for banks | |
| D | Interest rate cuts by the central bank | |

**Explanation:** Automatic stabilizers are economic policies and programs designed to offset fluctuations in a nation's economic activity without intervention by the government or policymakers. Unemployment benefits increase automatically as more people lose their jobs, helping to stabilize the economy.

**MCQ 20. Stagflation**

| Consider an economy experiencing both high inflation and high unemployment, a situation known as stagflation. Which of the following policy mixes would be most appropriate to address both issues simultaneously? | | |
|---|---|---|
| A | Increase interest rates and decrease government spending | |
| B | Increase government spending and decrease interest rates | |
| C | Implement structural reforms to enhance productivity and apply targeted fiscal measures to support employment | *Correct* |
| D | Decrease taxes and increase money supply | |

**Explanation:** Stagflation is a challenging situation because traditional monetary or fiscal policies that address one issue might worsen the other. Implementing structural reforms to enhance productivity can help reduce inflationary pressures while targeted fiscal measures can support employment without significantly increasing inflation.