S6 Economics Practice Paper (Set 4): national income and multiplier, money supply and interest rate, fiscal policy, trade and exchange rate, unemployment and inflation

Level: S6 | Subject: Economics | Time: 75 min | Total: 100 marks | Items: 24

Question 1: National income accounting and the multiplier (17 marks)

Private consumption = 1,200; investment = 380; government spending = 420; exports = 900; imports = 850; depreciation = 90; net indirect taxes = 60; net factor income from abroad = -40 (units: billion dollars).

1. Calculate GDP using the expenditure approach. (4 marks)

Answer: GDP = 1,200 + 380 + 420 + 900 - 850 = 2,050 (billion dollars).

2. Calculate gross national product (GNP) and national income at factor cost. (5 marks)

Answer: GNP = 2,050 - 40 = 2,010; NNP = 2,010 - 90 = 1,920; national income = 1,920 - 60 = 1,860 (billion dollars).

3. If the marginal propensity to consume is 0.8, the marginal propensity to import is 0.15 and the tax rate is 0.2, calculate the expenditure multiplier in an open economy (2 decimal places). (4 marks)

Answer: Multiplier = 1 / (1 - 0.8 x (1 - 0.2) + 0.15) = 1 / 0.51 = 1.96.

4. If autonomous investment rises by 50 (billion dollars), how much does total output increase under the multiplier above? (4 marks)

Answer: Increase in output = 50 x 1.96 = 98.0 (billion dollars).

Question 2: Money supply and interest rates (17 marks)

Currency held by the public = 400; demand deposits = 1,600; time deposits = 900; savings deposits = 300; bank reserves = 160 (of which required reserves = 128) (units: billion dollars). Nominal interest rate = 5.5%, expected inflation = 2.4%.

5. Calculate the M1 money supply. (4 marks)

Answer: M1 = 400 + 1,600 = 2,000 (billion dollars).

6. Calculate the M2 money supply and state which type of deposits makes up the difference between M2 and M1. (5 marks)

Answer: M2 = 2,000 + 900 + 300 = 3,200 (billion dollars); the difference of 1,200 is time and savings deposits (quasi-money).

7. Calculate the currency-deposit ratio, the reserve-deposit ratio and the money multiplier (2 decimal places). (4 marks)

Answer: Currency-deposit ratio = 400 / 1,600 = 0.25; reserve-deposit ratio = 160 / 1,600 = 0.10; money multiplier = (1 + 0.25) / (0.25 + 0.10) = 3.57.

8. Using the exact Fisher equation, calculate the real interest rate (2 decimal places). (4 marks)

Answer: Real interest rate = (1 + 0.055) / (1 + 0.024) - 1 = 3.03%.

Question 3: Fiscal policy (16 marks)

Government revenue = 4,800 (of which tax revenue = 4,100); government expenditure = 5,200 (current spending = 3,900, capital works = 1,300); government debt = 3,600; nominal GDP = 30,000; marginal propensity to consume = 0.75 (units: billion dollars).

9. Calculate the fiscal balance and state whether it is a surplus or a deficit. (5 marks)

Answer: Balance = 4,800 - 5,200 = -400, i.e. a fiscal deficit of 400 (billion dollars).

10. Calculate tax revenue as a percentage of GDP (1 decimal place). (4 marks)

Answer: Ratio = 4,100 / 30,000 = 13.7%.

11. The government raises capital works spending by 200 (billion dollars). With no crowding out, calculate the maximum increase in total output. (4 marks)

Answer: Government expenditure multiplier = 1 / (1 - 0.75) = 4.0; increase in output = 200 x 4.0 = 800 (billion dollars).

12. Calculate government debt as a percentage of GDP. (3 marks)

Answer: Ratio = 3,600 / 30,000 = 12.0%.

Question 4: Trade and exchange rates (17 marks)

Exports of goods = 4,500; imports of goods = 4,200; exports of services = 800; imports of services = 700; net factor income inflow = 150; net current transfers = -50 (units: billion dollars).

13. Calculate the balance of trade in goods. (4 marks)

Answer: Balance of trade in goods = 4,500 - 4,200 = +300 (billion dollars).

14. Calculate the balance of trade in services and the combined visible and invisible trade balance. (4 marks)

Answer: Balance of trade in services = 800 - 700 = +100; combined visible and invisible balance = 300 + 100 = +400 (billion dollars).

15. Calculate the current account balance and explain its relationship with the capital and financial account. (5 marks)

Answer: Current account = 400 + 150 - 50 = +500 (billion dollars); under the balance of payments identity the capital and financial account must be -500 (a net outflow of 500).

16. An exporter receives 250,000 US dollars. If the exchange rate moves from 7.80 to 7.60 (the Hong Kong dollar appreciates), calculate the fall in Hong Kong dollar receipts and the percentage fall (2 decimal places). (4 marks)

Answer: Original receipts = 250,000 x 7.80 = 1,950,000 HKD; new receipts = 250,000 x 7.60 = 1,900,000 HKD; fall = 50,000 HKD, i.e. 2.56%.

Question 5: Unemployment and inflation (16 marks)

Labour force = 3,820 thousand; employed persons = 3,690 thousand; population aged 15 and over excluding inmates = 6,250 thousand; composite CPI: last year 105.2, this year 108.5; growth in nominal wages = 4.0%.

17. Calculate the unemployment rate (1 decimal place). (5 marks)

Answer: Unemployed persons = 3,820 - 3,690 = 130 thousand; unemployment rate = 130 / 3,820 = 3.4%.

18. Calculate the labour force participation rate (1 decimal place). (4 marks)

Answer: Participation rate = 3,820 / 6,250 = 61.1%.

19. Calculate the inflation rate this year (1 decimal place). (4 marks)

Answer: Inflation rate = (108.5 - 105.2) / 105.2 = 3.1%.

20. Calculate the growth rate of real wages (2 decimal places). (3 marks)

Answer: Real wage growth = (1 + 0.04) / (1 + 0.0314) - 1 = 0.84%.

Question 6: Efficiency and equity (17 marks)

Market demand for a good is P = 120 - 2Q and market supply is P = 30 + 1Q, where P is price in dollars and Q is quantity in thousand units.

21. Calculate the equilibrium price and quantity, consumer surplus, producer surplus and total surplus. (4 marks)

Answer: Equilibrium: Q = 30, P = 60; consumer surplus = 0.5 x (120 - 60) x 30 = 900; producer surplus = 0.5 x (60 - 30) x 30 = 450; total surplus = 1,350 (thousand dollars).

22. The government sets a price ceiling of 45 dollars. Calculate the quantity traded and the shortage. (4 marks)

Answer: Quantity supplied = 45 - 30 = 15; quantity demanded = (120 - 45) / 2 = 37.5; quantity traded = 15, shortage = 37.5 - 15 = 22.5 (thousand units).

23. Under the price ceiling, recalculate consumer surplus, producer surplus and the deadweight loss. (5 marks)

Answer: At 15 units the demand price is 120 - 2 x 15 = 90; consumer surplus = 0.5 x (120 - 90) x 15 + (90 - 45) x 15 = 900; producer surplus = 0.5 x (45 - 30) x 15 = 112; total surplus = 1,012; deadweight loss = 1,350 - 1,012 = 338 (thousand dollars).

24. The government instead gives producers a per-unit subsidy of 15 dollars. Calculate the new equilibrium quantity, the price paid by consumers, the price received by producers, the total subsidy and the deadweight loss. (4 marks)

Answer: New supply P = 15 + Q; equilibrium: 120 - 2Q = 15 + Q, Q = 35; price paid by consumers = 120 - 2 x 35 = 50; price received by producers = 50 + 15 = 65; total subsidy = 15 x 35 = 525; deadweight loss = 0.5 x 15 x (35 - 30) = 37.5 (thousand dollars).

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