S6 Economics Practice Paper (Macroeconomics): GDP by the Expenditure Approach and GDP per Capita, Nominal and Real Growth, CPI and Inflation Rate, Unemployment Rate and Labour Force Participation, Deposit Creation and the Money Multiplier, Fiscal Multipliers and the Balanced Budget, Trade Balance and Current Account, Currency Depreciation and Purchasing Power Parity

S6 Economics | 100 marks | 75 minutes

Section 1: Gross Domestic Product and Economic Growth (18 marks)

Study the table below and answer the questions. All figures are in HK$ billion.

In an economy, private consumption is 18,500, gross domestic fixed capital formation is 6,200, government consumption expenditure is 3,200, exports of goods and services are 31,000 and imports are 29,000. Calculate GDP by the expenditure approach. *(5 marks)*

Answer: Net exports = 31,000 - 29,000 = 2,000; GDP = 18,500 + 6,200 + 3,200 + 2,000 = HK$29,900 billion.

The population is 7.5 million. Calculate GDP per capita in HK dollars. *(4 marks)*

Answer: GDP per capita = 29,900 x 10^8 / 7,500,000 = HK$398,667 (about HK$39.9 million per thousand).

Net factor income from abroad is -1,800. Find GNI and explain why it is lower than GDP. *(5 marks)*

Answer: GNI = 29,900 + (-1,800) = HK$28,100 billion. GNI is below GDP because factor income earned in the economy by non-residents exceeds factor income earned abroad by residents.

If nominal GDP in year 2 is 32,900 and the price index is 108, find real GDP and the real growth rate, and explain the difference between nominal and real growth. *(4 marks)*

Answer: Real GDP = 32,900 / 108 x 100 = 30,463; real growth = (30,463 - 29,900) / 29,900 = 1.88%. Nominal growth includes price changes while real growth removes them, so only real growth reflects the change in output.

Section 2: Consumer Price Index and Inflation (17 marks)

The CPI of an economy is based on a basket of goods; the base year index is 100.

Basket weights: food 30%, housing 40%, transport 15%, others 15%; this year the category indices are 130, 112, 118 and 105. Calculate the CPI. *(5 marks)*

Answer: CPI = 0.3x130 + 0.4x112 + 0.15x118 + 0.15x105 = 39 + 44.8 + 17.7 + 15.75 = 117.25.

Last year the index was 112.5. Calculate the inflation rate. *(4 marks)*

Answer: Inflation rate = (117.25 - 112.5) / 112.5 x 100% = 4.22%.

Nominal wages rise by 6%. What is the change in real wages? Explain. *(4 marks)*

Answer: Real wage change = (1.06 / 1.0422 - 1) x 100% = +1.71%. Nominal wage growth exceeds inflation, so purchasing power rises.

Why may the CPI overstate the rise in the cost of living? Give two reasons. *(4 marks)*

Answer: First, substitution bias: consumers switch to cheaper substitutes but basket weights are fixed. Second, new products and quality improvements are not captured immediately. Third, discount outlets may be under-represented. (Any two.)

Section 3: Unemployment and the Labour Force (16 marks)

In an economy the population aged 15 and over is 6.5 million, the labour force is 3.9 million, employment is 3.73 million and the underemployed number 62,000.

Calculate the number of unemployed and the unemployment rate. *(4 marks)*

Answer: Unemployed = 3,900,000 - 3,730,000 = 170,000; unemployment rate = 170,000 / 3,900,000 x 100% = 4.36%.

Calculate the underemployment rate. *(4 marks)*

Answer: Underemployment rate = 62,000 / 3,900,000 x 100% = 1.59%.

Calculate the labour force participation rate and explain its relationship with the unemployment rate. *(4 marks)*

Answer: Participation rate = 3,900,000 / 6,500,000 x 100% = 60.0%. A fall in participation (e.g. discouraged workers leaving the labour force) can lower the unemployment rate even with the same number of unemployed, so both must be read together.

Give one example each of demand-deficient (cyclical) unemployment and structural unemployment, with one policy for each. *(4 marks)*

Answer: Cyclical: a recession cuts orders and jobs; use expansionary fiscal policy to raise aggregate demand. Structural: manufacturing relocates and workers skills no longer match; use retraining and job matching.

Section 4: Deposit Creation and Money Supply (17 marks)

The required reserve ratio is 20%. The public deposits HK$50 billion in cash and banks hold no excess reserves.

Calculate the deposit multiplier and the maximum total deposits the banking system can create. *(5 marks)*

Answer: Deposit multiplier = 1 / 0.20 = 5; maximum total deposits = 500 x 5 = HK$250 billion.

Calculate the newly created deposits, i.e. the increase in money supply. *(4 marks)*

Answer: New deposits = 2,500 - 500 = HK$200 billion.

If the required reserve ratio falls to 12.5%, how do the multiplier and maximum deposits change? *(4 marks)*

Answer: Multiplier = 1 / 0.125 = 8; maximum deposits = 500 x 8 = HK$400 billion, an increase of HK$150 billion.

If the public holds 30 billion in cash and 90 billion in demand deposits, find M1 and explain how cash leakage affects deposit creation. *(4 marks)*

Answer: M1 = 300 + 900 = HK$120 billion. A higher currency ratio means more cash leakage, less is available for lending, so the actual multiplier is below the theoretical maximum.

Section 5: Fiscal Policy and Multipliers (16 marks)

An economy has income of HK$600 billion, a tax rate of 16.5%, government expenditure of HK$105 billion and a marginal propensity to consume of 0.8.

Calculate tax revenue and the fiscal balance (surplus or deficit). *(4 marks)*

Answer: Tax revenue = 6,000 x 16.5% = 990; balance = 990 - 1,050 = -60, i.e. a deficit of HK$60 billion.

Calculate the government spending multiplier and the tax multiplier. *(4 marks)*

Answer: Spending multiplier = 1 / (1 - 0.8) = 5; tax multiplier = -0.8 / (1 - 0.8) = -4.

Government spending rises by 10 billion. What is the change in GDP? What if taxes are cut by 10 billion instead? *(4 marks)*

Answer: Spending: +100 x 5 = +500. Tax cut: 100 x (-4) = -400, i.e. a tax cut raises GDP by 400. Spending is more powerful for the same amount.

If the government raises spending by 10 billion and taxes by 10 billion at the same time, find the balanced budget multiplier and the change in GDP. *(4 marks)*

Answer: Balanced budget multiplier = 5 + (-4) = 1; change in GDP = 100 x 1 = +HK$10 billion.

Section 6: Trade Balance, Current Account and Exchange Rate (16 marks)

An economy has goods exports of 420 billion, goods imports of 450 billion, services exports of 70 billion, services imports of 45 billion and net factor income of 12 billion (all in HK dollars).

Calculate the visible trade balance and the invisible trade balance. *(4 marks)*

Answer: Visible balance = 4,200 - 4,500 = -300 (deficit); invisible balance = 700 - 450 = +250 (surplus).

Calculate the overall trade balance and the current account balance. *(4 marks)*

Answer: Overall trade balance = -300 + 250 = -50; current account = -50 + 120 = +70 (surplus).

If US$1 = HK$7.80 and the dollar depreciates 5%, find the new rate and the HK$ price of a US$100 export good. *(4 marks)*

Answer: New rate = 7.80 x 1.05 = HK$8.19; HK$ price = 100 x 8.19 = HK$819 (was HK$780).

The same basket costs HK$780 in Hong Kong and US$100 in the US. Find the PPP exchange rate and explain its relation to the market rate. *(4 marks)*

Answer: PPP = 780 / 100 = HK$7.80 per US$, equal to the market rate, so price levels are aligned; deviations are corrected over time through trade flows.