

NANYANG TECHNOLOGICAL UNIVERSITY
SCHOOL OF SOCIAL SCIENCES
SEMESTER 1 AY22-23
HE1002 MACROECONOMICS I
PROBLEM SET 6

Question 1

Using Okun's law, fill in the four pieces of missing data in the table below. Explain how you get your answers.

Year	Real GDP (\$ bil)	Potential GDP (\$ bil)	Natural unemployment rate (%)	Actual unemployment rate (%)
2015	13,536	14,400	5	(a)
2016	14,500	(b)	5	5
2017	(c)	14,800	5	4.5
2018	15,444	14,850	(d)	4

Question 2

Of the following, identify the incorrect statement.

- (a) Output gaps are caused by inflationary pressures generated by the unintended side effects of government policy.
- (b) Low aggregate spending can make output fall below potential output.
- (c) When spending is high, output may rise above potential output.
- (d) Government policies can help eliminate output gaps.

Question 3

What is the key assumption of the basic Keynesian model? Explain why this assumption is needed if one is to accept the view that aggregate spending is a driving force behind short-term economic fluctuations.

Question 4

Acme Manufacturing is producing \$4,000,000 worth of goods this year and expects to sell its entire production. It also is planning to purchase \$1,500,000 in new equipment during the year. At the beginning of the year, the company has \$500,000 in inventory in its warehouse. Find actual investment and planned investment if Acme actually sells

- (a) \$3,850,000 worth of goods.
- (b) \$4,000,000 worth of goods.
- (c) \$4,200,000 worth of goods.

Assuming that Acme's situation is similar to that of other firms, in which of these three cases is output equal to short-run equilibrium output?

Question 5

Sketch the Keynesian-cross diagram. Explain in words the economic significance of the two lines graphed in the diagram. Given only this diagram, how could you determine autonomous expenditure, induced expenditure, the marginal propensity to consume, and short-run equilibrium output?

Question 6

An economy is initially at full employment, but a decrease in planned investment spending (a component of autonomous expenditure) pushes the economy into recession. Assume that the *mpc* of this economy is 0.75 and that the multiplier is 4.

- (a) How large is the recessionary gap after the fall in planned investment?
- (b) By how much would the government have to change its purchases to restore the economy to full employment?
- (c) Alternatively, by how much would the government have to change taxes?
- (d) Suppose that the government's budget is initially in balance, with government spending equal to taxes collected. A balanced-budget law forbids the government from running a deficit. Is there anything that fiscal policymakers could do to restore full employment in this economy, assuming they do not want to violate the balanced-budget law?

Question 7

An economy is described by the following equations:

$$C = 2,500 + 0.8(Y - T)$$

$$I^P = 2,500$$

$$G = 3,500$$

$$NX = 300$$

$$T = 3,000$$

$$Y^* = 31,400$$

- (a) For this economy, find the following: autonomous expenditure, the multiplier, short-run equilibrium output, and the output gap.
- (b) Illustrate this economy's short-run equilibrium on a Keynesian-cross diagram.
- (c) Calculate the amount by which autonomous expenditure would have to change to eliminate the output gap.
- (d) Suppose that the government decided to close the output gap by changing taxes. By how much must taxes be changed in order to do this?

Question 8

An economy is described by the following equations:

$$C = 40 + 0.8(Y - T)$$

$$I^P = 70$$

$$G = 120$$

$$NX = 0$$

$$T = 150$$

- (a) Find short-run equilibrium output.
- (b) Economic recovery abroad increases the demand for the country's exports; as a result, NX rises to 100. What happens to short-run equilibrium output?
- (c) Repeat part (b), but this time assume that foreign economies are slowing, reducing the demand for the country's exports, so that $NX = -100$. (A negative value of net exports means that exports are less than imports.)
- (d) How do your results help explain the tendency of recessions and expansions to spread across countries?