Indian Statistical Institute, Bangalore

B.Math (H) Third Year

End-Semester - Economics I

Maximum marks: 50 Time: 3 hours Date: November 18, 2023

Section I: 25 marks. All questions are compulsory. The first ten questions carry one mark each. The marks distribution of each further question is given within parentheses.

1. What is Okun's law?
2. What is a liquidity trap?
3. State one weakness of the concept of GDP.
4. Consider the quantity theory of money equation. Suppose the actual money supply is M* which is not equal to M; according to the neutrality principle, the variable that would adjust to achieve equilibrium is:
   a) V
   b) Y
   c) P
   d) M
5. State one difference between Gross Domestic Product and Net Domestic Product.
6. State one difference between structural and cyclical unemployment.
7. State one difference between nominal and real GDP.
8. Which of the following is NOT a leakage from the circular flow of income and expenditure
   a) Imports
   b) Government purchases
   c) Savings
   d) Taxes
9. If the marginal propensity to save increases, the Keynesian income/spending multiplier
   a) falls
   b) rises
   c) remains the same
   d) cannot comment
10. What is the wage-productivity gap?

11. If government expenditure increases from 50 to 80 units after the tax change, how much does the aggregate demand curve shift? What kind of a fiscal policy is that? (2 marks)
12. Define the Gross Domestic Product (GDP), according to the product approach? From the following table, is it possible to compute the GDP in trillion dollars, using the product approach: (2 marks)

Sector and Subsector	**Production by Sector (trillions of dollars)**	**Production by Subsector (trillions of dollars)**
Households and institutions production	1.93	
Private households		1.07
Nonprofit institutions		0.86
Business production	11.87	
Government spending	3.07	
Federal government spending		1.81
State and local governments spending		1.26
Gross Domestic Product	?	?

13. Describe three major macroeconomic goals, with a sentence each? (3 marks)
14. Based on the table below, answer the following (2 marks).

a) What is the revenue deficit?

b) What is the fiscal deficit?

Table: Union budget, India, (in crores of rupees)

1	Revenue receipts	1377022
2	Capital receipts, of which	601038
3	Recoveries of loan	10634
4	Other receipts	56500
5	Borrowing and other liabilities	533904
6	Total receipts	1978060
7	Total expenditure, of which	1978060
8	Revenue expenditure	1731037

15. What is the impact of a currency's depreciation on that economy's imports? What will be the impact of depreciation on aggregate demand? (2 marks)
16. When did India last face a major recession? Describe a couple of factors that you think represented the magnitude of the recession. (2 marks)
17. The total adult population in a country A is 500 million. It is reported that 350 million are in the labour force. There are 280 million employed persons. Calculate the following:
    a. Labour force participation ratio. (1 mark)
    b. Unemployment rate. (1 mark)

Section II: 15 marks. Attempt any three questions of two marks each and three questions of 3 marks each.

An economy has a consumption function:

C= 200+ 0.75 (Y-T)

Based on this consumption function, answer questions 18-21.

18. Find the IS curve equation for the economy. (2 marks)
19. The money demand function for the economy is $(M/P)^d$= Y-50r. Assuming Money supply is 1000. What is the equation for LM curve? (2 marks)
20. If investment is given at 75 units, what is the value of MPC and MPS? (2 marks)
21. Suppose the economy is now an open economy. Exports (X) are 100 units. Imports are defined by M=25+ 0.1Y. What will be the new multiplier of the economy? (3 marks)
22. What is Philips curve? Under what conditions can stagflation occur? Explain with shifts in AS/AD curves. (3 marks)
23. Assume a standard AD curve. If the marginal propensity to save rises from 0.25 to 0.5, how does the slope of the AD curve change? Draw the two AD curves. (2 marks)
24. Answer the following, with an explanation: (2 marks)
    a) If inflationary expectations increase, what should be done with the money supply?
    b) If unemployment is high, should government spending be increased?
25. If money stock is Rs 250 million, and the size of the nominal GDP is 300 million.
    a) What is the velocity of money? (1 mark)
    b) State the quantity equation used to calculate V. (1 mark)

26. Fill in the columns for aggregate demand and new aggregate demand. The new aggregate demand is caused by additional government spending. Draw a figure representing aggregate demand/output with income caused due to an increase in government spending. (3 marks)

Income (Y)	Consumption (C)	Intended Investment (I)	Government spending (G)	Aggregate demand (AD_0)	New Aggregate demand (AD_1)
200	180	50	80		
300	250	50	80		
400	340	50	80		
450	420	50	80		
550	500	50	80		

27. Suppose the Central Bank makes an open market purchase of bonds, what would happen to the following? (3 marks)
    a. inflation.
    b. money supply.
    c. aggregate demand in the economy.

Section III: 10 marks. Attempt two questions of 3 marks each and one question of 4 marks.

28. Why does a high inflation rate tend to reduce total demand? Discuss the reasons, along with a diagram, plotting output against inflation. (3 marks)
29. What are the types of banks? Compute a simplified balance sheet of a private sector bank? (2+1 marks)
30. How is investment related to the interest rate? What other factors affect investment? Use a graphical analysis to show these relationships? (3 marks)
31. In the AD and AS model, which curve shifts (initially) and in what direction when the following occur? (4 marks)
    a) An increase in supply of goods
    b) An increase in government spending
    c) An increase in taxation
    d) An increase in money supply

32. The consumption schedule is given below. If mpc = 0.7, fill columns 3-5. Write the equations for consumption and savings in your answer. Based on this, draw the Keynesian consumption function diagram. (4 marks)

Table: Consumption schedule

Income	Autonomous Consumption	Consumption dependent on income with mpc = 0.7	Consumption	Savings
200	50			
300	50			
400	50			
500	50			
600	50			

33. Using the table below, calculate the following: (4 marks)

	Rs. billion
Consumption	26000
Investment	5000
Government budget surplus	450
GDP	124000
Depreciation	200
Government expenditure	8000

(a) NDP

(b) Government transfers minus taxes

(c) Personal disposable income

(d) Savings