NCERT Solutions for Class 12 Macro Economics

Chapter 6 – Open Economy Macroeconomics

1.

Differentiate between balance of trade and current account balance.

Ans:

Points of difference	Balance of trade	Current account balance
Definition	It is the difference between a nation's import and export values of goods.	It is the difference between a nation's unilateral transfers, imports, and exports of commodities and services.
Components	1. Goods export 2. Goods imports.	unilateral transfers, export and import of goods, and export and import of services.
Nature of transactions	It exclusively keeps track of transactions involving tangible objects, or products.	It keeps track of transactions involving both visible (goods) and invisible (services) goods as well as unilateral transfers.

2.

What are official reserve transactions? Explain their importance in the balance of payments.

Ans: Transactions conducted by a country's monetary authority that result in alterations to official reserves are referred to as official reserve transactions (ORT). The transactions encompass the acquisition and disposition of currency in the exchange market for alternative assets and foreign currencies. Foreign currencies are sold in the exchange market during deficit periods and purchased during surplus periods. The fluctuations in official reserves are referred to as the balance of payments surplus and deficit, respectively.

The significance of official reserve transactions in the balance of payments includes the following aspects:

1. They assist in correcting deficits or surpluses in the balance of payments.
2. The purchase of one's own currency is classified as a credit item in the balance of payments, while the sale is classified as a debit.

3.

Distinguish between the nominal exchange rate and the real exchange rate. If you were to decide whether to buy domestic goods or foreign goods, which rate would be more relevant? Explain.

Ans: The nominal exchange rate represents the value of a foreign currency in terms of the local currency. The nominal exchange rate represents the price of one unit of foreign currency, such as a dollar, expressed in terms of domestic currency, such as rupees. The exchange rate is defined as the amount of currency, specifically rupees, required to purchase one dollar. The nominal exchange rate is defined as the price at which one American dollar can be exchanged for 50 Indian rupees, or equivalently, the price at which one dollar can be acquired for Rs.50. The real exchange rate represents the price of imported goods in comparison to the price of domestic goods. Real exchange takes place when the expense of obtaining one unit of domestic currency, such as rupees, is articulated in terms of a foreign currency, such as dollars. In the aforementioned example, 1 rupee is equivalent to 2 cents, given that 1 dollar equals 100 cents. International visitors to the United States should recognize the higher costs of American goods relative to those in their home countries.

The real exchange rate
In this context, P represents the price level of the domestic currency, e denotes the nominal exchange rate, and the price level of the domestic currency is also indicated by P. For instance, if a watch is priced at a certain amount in the United States and the nominal exchange rate is 50, it should be valued at Rs 2,000 with a corresponding real exchange rate of.

4.

Suppose it takes 1.25 yen to buy a rupee, and the price level in Japan is 3 and the price level in India is 1.2. Calculate the real exchange rate between India and Japan (the price of Japanese goods in terms of Indian goods). (Hint: First find out the nominal exchange rate as a price of yen in rupees).

Ans:

$P_f = 3$

$P = 1.2$

Now, real exchange rate $= e\,(P_f/P)$

Where e= Nominal Exchange Rate

P_f Price level in Japan

P= Price level in India

Now.

Price of 1.25 yen = 1 rupee

Price of 1 yen = 1/1.25 rupee
= 0.8

Now nominal exchange rate (e) is 0.8

Real exchange rate $= e\,(P_f/P)$

Real exchange rate $= e\,(P_f/P)$

$= 0.8\,(3/1.2)$

$= 0.8 \times 2.5$

$= 2$

So, the real exchange rate is 2.

5.
Explain the automatic mechanism by which BoP equilibrium was achieved under the gold standard.

Ans: When other countries used the gold standard, their money was measured in gold instead of their own. So, the value of a currency was based on its gold content. When there was an open market, the value of gold set the exchange rate. Low and high limits were set, but it was free to change within those limits. The exchange rate stayed the same because of the gold standard. All countries keep a gold stock to use as money. The way things are changed when the gold

standard is used is through the price-specie-flow system that David Hume suggested. If there is a mismatch in the balance of payments, a gold counter-flow will fix it. The set exchange rate was kept up by a method of automatic equilibration.

6.

How is the exchange rate determined under a flexible exchange rate regime?

Ans: In a flexible exchange rate system, the rate of exchange is set by the balance of supply and demand. The point at which supply and demand are in perfect harmony is known as the equilibrium rate of exchange. The figure below can help explain this:

DD and SS of Currency
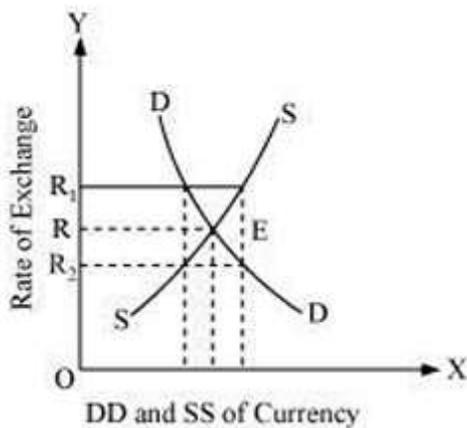
The x-axis shows how much foreign currency is being bought and sold, and the y-axis shows the exchange rate. DD is the downward-sloping demand curve that shows how demand for foreign currency and the exchange rate are related in the opposite way. The supply curve, on the other hand, goes up, which means that the exchange rate and the amount of foreign currency available are positively related. If there is an equal amount of demand and supply of foreign exchange, the exchange rate is said to be in equilibrium (E). If the exchange rate goes up to OR1, the supply is more than the demand, hence the exchange rate has to go back down to OR. If the exchange rate goes down to OR2, on the other hand, there is too much demand and not enough supply. So, the exchange rate goes up from R2 to R. So, the equilibrium exchange rate (OR) is based on how much foreign currency is in demand and how much is available.

7.

Differentiate between devaluation and depreciation.

Ans:

Devaluation	Depreciation
When the government formally lowers the currency exchange rate relative to the exchange	Instead of the government, the global market's dynamics of supply and

Devaluation	Depreciation
rate of another nation, this is known as devaluation.	demand cause currency depreciation.
Lowering the fixed exchange rate on the global market results in devaluation.	On a floating exchange rate, depreciation takes place.
There is no set period of time for currency devaluation.	It happens daily in international marketplaces.

8.

Would the central bank need to intervene in a managed floating system? Explain why.

Ans: A managed floating exchange rate system is one where market forces dictate the foreign exchange rate. The central bank or government can affect the exchange rate by participation in the foreign market. It assists in stabilizing exchange rates by enabling the purchase and sale of foreign currency. It facilitates exchange rate adjustments according to established rules and regulations that are publicly disclosed in the foreign market.

1. It is a hybrid of a fixed and a variable exchange rate system.
2. In this system, the central bank intervenes in the foreign exchange market to maintain exchange rate fluctuations within established limits. The objective is to maintain the exchange rate as close to zero as feasible.
3. The central bank sustains foreign exchange reserves to guarantee that the exchange rate stays within the targeted range.
4. It is referred to as 'Dirty Floating.'

9.

Are the concepts of demand for domestic goods and domestic demand for goods the same?

Ans: There is a tight relationship between the terms "demand for domestic goods" and "domestic demand for goods" in an economy that is closed. A free market economy, on the other hand, gives these two concepts a completely distinct connotation. The term "demand for domestic goods" encompasses both domestic and international demand among consumers of domestic commodities. home demand for goods, on the other hand, refers to the desire that exists inside a country's home market for products that are either produced domestically or in other countries (foreign countries).

10.

What is the marginal propensity to import when M = 60 + 0.06Y? What is the relationship between the marginal propensity to import and the aggregate demand function?

Ans: The marginal propensity to import is how much more a country imports as its income goes up. It is how much a country's imports go up or down as its GDP changes.

This shows us that M = 60 + 0.06Y

Now, m = 0.06, which is the marginal tendency to import.

The marginal tendency to import has a negative effect on the aggregate demand function. So, when income goes up, aggregate demand goes down since more money is spent on buying goods from other countries.

11.

Why is the open economy autonomous expenditure multiplier smaller than the closed economy one?

Ans: In case of a closed economy, equilibrium level of income is given by

$Y = C + cY + I + G$

Or, $Y - cY = C + I + G$

Or, $Y(1 - c) = C + I + G$

Or, $Y = \frac{C + I + G}{1 - C}$

Let, $(C + I + G) = A_1$

Or, $Y = \frac{A_1}{1 - C}$ (1)

Or, $\dfrac{\Delta Y}{\Delta A_1} = \dfrac{1}{1-C}$

In the case of an open economy, equilibrium level of income is given by

$Y = C + cY + I + G + X - M - mY$

Or, $Y - cY - mY = C + I + G + X$

Or, $Y(1 - c - m) = C + I + G + X$

Or, $Y = \dfrac{C+I+G+X}{1-C-M}$

Let autonomous expenditure $(A_2) = C + I + G + X$

$Y = \dfrac{A_2}{1-C-M}$

Or, $\dfrac{\Delta Y}{\Delta A_2} = \dfrac{1}{1-C-M}$ (2)

By comparing the denominators of the two multipliers in equations (1) and (2), it is evident that the multiplier in an open economy is lesser than that in a closed economy. This is due to the fact that the denominator in an open economy is greater than the denominator in a closed economy.

12.

Calculate the open economy multiplier with proportional taxes, $T = tY$, instead of lump-sum taxes as assumed in the text.

Ans:

In the case of proportional tax, the equilibrium income would be
$Y = C + c(1 - t)Y + I + G + X - M - mY$

$Y - c(1 - t)Y + mY = C + I + G + X - M$

$Y[1 - c(1 - t) + m] = C + I + G + X - M$

$Y = \dfrac{C+I+G+X-M}{1-C(1-Y)+m}$

Autonomous expenditure $(A) = C + I + G + X - M$
Therefore, open economy multiplier with proportional taxes

$\dfrac{\Delta Y}{\Delta A} = \dfrac{1}{1-C(1-t)+m}$

13.

Suppose C = 40 + 0.8Y D, T = 50, I = 60, G = 40, X = 90, M = 50 + 0.05Y (a) Find equilibrium income. (b) Find the net export balance at equilibrium income (c) What happens to equilibrium income and the net export balance when the government purchases increase from 40 and 50?

Ans:

$C = 40 + 0.8YD$
$T = 50$
$I = 60$
$G = 40$
$X = 90$
$M = 50 + 0.05Y$

(a) Equilibrium level of income

$$Y = C + c(Y - T) + I + G + X - M - mY$$

$$Y = \frac{A}{1 - c + m}$$

Where, $A = C - CT + I + G + X - M$

$$= \frac{C - cT + I + G + X - M}{1 - c + M}$$

$$= \frac{40 - 0.8 \times 50 + 60 + 40 + 90 - 50}{1 - 0.8 + 0.05}$$

$$\frac{140}{0.25} = \frac{140}{25} \times 100$$

$$= 560$$

(b) Net exports at equilibrium income

$$NX = X - M - mY$$
$$= 90 - 50 - 0.05 \times 560$$
$$= 40 - 28 = 12$$

(c) When G increase from 40 to 50

Equilibrium income, $Y = \dfrac{C - cT + I + G + X - M}{1 - c + m}$

$= \dfrac{40 - 0.8 \times 50 + 60 + 50 + 90}{1 - 0.8 + 0.05}$

$= \dfrac{40 - 40 + 60 + 50 + 90}{0.25}$

$= \dfrac{150}{0.25} = \dfrac{150}{25} \times 100 = 600$

Net export balance at equilibrium income

$NX = X - (M - mY)$

$= 90 - 50 + 0.05 \times 600$

$= 40 - 30 = 10$

14.

In the above example, if exports change to X = 100, find the change in equilibrium income and the net export balance.

Ans: According to question

$C = 40 + 0.8YD$
$T = 50$
$I = 60$
$G = 40$
$X = 100$
$H = 50 + 0.05Y$

Equilibrium income $Y = \dfrac{A}{1 - c + m}$

$$= \dfrac{C - cT + I + G + X - M}{1 - c + m}$$

$$= \dfrac{40 - 0.8 \times 50 + 40 + 60 + 100 - 50}{1 - 0.8 + 0.05}$$

$$= \dfrac{40 - 40 + 40 + 60 + 100 - 50}{0.25}$$

$$= \dfrac{150}{0.25} = \dfrac{150 \times 100}{25} = 600$$

Equilibrium income is 600.

Now

Net export balance NX = X - M - 0.05Y

$= 100 - 50 - 0.05 \times 600$

$= 50 - 0.05 \times 60$
$= 50 - 30 = 20$

Therefore, net export balance becomes 20.

15.

Suppose the exchange rate between the Rupee and the dollar was Rs. 30=1$ in the year 2010. Suppose the prices have doubled in India over 20 years while they have remained fixed in USA. What, according to the purchasing power parity theory will be the exchange rate between dollar and rupee in the year 2030.

Ans: At an economy's equilibrium level, income and savings are equal, but in an open economy, investments and savings diverge.

$$Y = C + I + G + X - M$$
$$NX = NX = X - M$$
$$Y = C + I + G + NX$$
$$Y - C - G = I + NX \text{ (eq.1)}$$

Y, C, and G can be thought of as national savings (S) or net national income, which is the amount left over after all government expenditures and consumption.

Therefore, it can be written that
$$Y - C - G = S$$
$$\text{Or, } S = I + NX$$
$$S = \text{Private Savings (Sp)} + \text{Government Savings (Sg)}$$

Now
$$S = Sp + Sg$$
$$Sp + Sg = I + NX \text{ (as } S = I + NX)$$
$$NX = Sp + Sg - I \text{ (eq.2)}$$
We know,
$$Sp = Y - C - T$$
$$Sg = T - G$$

Putting the values in eq.2 we get
$$NX = Y - C - T + T - G - I$$
$$NX = Y - C - G - I$$
$$G = Y - C - I - NX$$

Now subtracting T from both sides

$$G - T = Y - C - I - NX - T$$
$$G - T = Y - C - T - I - NX$$
$$G - T = (Sp - I) - NX$$

Where, $NX = X - M$
$$G - T = (Sp - I) - (X - M)$$

16.

If inflation is higher in country A than in Country B, and the exchange rate between the two countries is fixed, what is likely to happen to the trade balance between the two countries?

Ans: One of the most significant factors that determines the amount of trade that takes place in a country is the exchange rate. The answer to this question reveals that the inflation rate in country A is higher than that of country B. Due to the fact that the exchange rate is set in this scenario, it will be advantageous for nation A to import goods from country B, and it will also be

advantageous for country B to sell goods to region A. Therefore, country A will be suffering a trade deficit because the amount of goods imported is greater than the amount of goods exported, and country B will be experiencing a trade surplus because the amount of goods exported is greater than the amount of goods imported.

17.

Should a current account deficit be a cause for alarm? Explain.

Ans: The current account deficit is the difference between the total amount of goods, services, and transfers that are imported and the total amount that are exported. This is because of high inflation, slow economic growth, and the fact that it is hard to export because the exchange rate is set. Because of this problem, a country owes money to the rest of the world. But this shouldn't always be seen as a bad thing; countries may have current account deficits to improve productivity and exports in the future. Also, additional investment will help build up the capital stock, which will lead to more production in the future.

18.

Suppose $C = 100 + 0.75Y D, I = 500, G = 750$, taxes are 20 per cent of income, X $= 150, M = 100 + 0.2Y$. Calculate equilibrium income, the budget deficit or surplus and the trade deficit or surplus.

Ans:

$C = 100 + 0.75YD$
$I = 500$
$G = 750$
$X = 150$
$M = 100 + 0.2Y$
Equilibrium income $(Y) = C + c (Y - T) + I + G + X - M - mY$
Or, $Y = 100 + .75 \left(Y - \frac{20}{100}Y\right) + 500 + 750 + 150 - 100 - 0.2Y$

Or, $Y = 1400 + \frac{75}{100} \times \frac{4Y}{5} - 0.2Y$

Or, $Y = 1400 + \frac{3}{5}Y - 0.2Y$

$Y = 1400 + \frac{2Y}{5}$

$Y - \frac{2Y}{5} = 1400$

Or, $\frac{3Y}{5} = 1400$

Or, $Y = 1400 \times \frac{5}{3} = \frac{7000}{3}$

Government expenditure $= 750$
Government receipts(taxes) $= \frac{20}{100} \times \frac{7000}{3} = \frac{1400}{3} = 466.6$
Since, government expenditure > government receipts, It shows the government is running on deficit budget.

$NX = X - M - My$

$= 150 - 100 - \frac{0.2}{10} \times \frac{7000}{3}$

$= 150 - 100 - \frac{1400}{3}$

$= 150 - 100 - 466.66$
$= 150 - 566.66$
$= -416.66$
It is a trade deficit, because the value of NX is negative

19.

Discuss some of the exchange rate arrangements that countries have entered into to bring about stability in their external accounts.

Ans: The subsequent exchange rate mechanisms contributed to the stabilization of external accounts:

1. A crawling peg is a mechanism of ongoing and systematic changes permitting a fluctuation of 1% at any moment.
2. The arrangement of larger bands permits modifications in fixed exchange rates. A 10% variance is implemented between the currencies of any two nations. A nation may devalue its currency to enhance the balance of payments. This will result in heightened demand for domestic goods due to the increased purchase power of foreign currencies, leading to greater exports.
3. The third form is referred to as managed floating, wherein the government have the authority to adjust the exchange rate according to prevailing circumstances. The variation is unrestricted, in contrast to the preceding two measurements.