Aggregate Demand, Aggregate Supply and Related Concepts

PART 1
Objective Questions

• Multiple Choice Questions

1. According to the theory of Keynesian Economics, the value of the average propensity to consume can never be ..... . **(CBSE 2020)**

(a) zero (b) unity
(c) more than one (d) less than one

Ans. (a) zero

2. If Marginal Propensity to Save (MPS) is equal to zero, the value of investment multiplier will be ..... . **(CBSE 2020)**

(a) 1 (b) 0
(c) ∞ (d) None of these

Ans. (c) Multiplier $(K) = 1/\text{MPS} = 1 / 0 = \infty$

3. If the marginal propensity to consume is greater than marginal propensity to save, the value of the multiplier will be **(CBSE 2017)**

(a) greater than 2
(b) less than 2
(c) equal to 2
(d) equal to 5

Ans. (a) greater than 2

4. If the value of Average Propensity to Consume (APC) is 0.8 and national income is ₹ 4,000 crores, the value of savings will be ..... . (Choose the correct alternative) **(CBSE 2020)**

(a) ₹ 100 crores
(b) ₹ 200 crores
(c) ₹ 800 crores
(d) ₹ 500 crores

Ans. (c) APS = 1 − APC = 1 − 0.8 = 0.2

$$\text{Also, APS} = \frac{\text{Savings}}{\text{National Income}}$$

$$\Rightarrow \quad 0.2 = \frac{\text{Savings}}{4{,}000}$$

⇒ ₹ 800 crores

5. Suppose in a hypothetical economy, the income rises from ₹ 500 crores to ₹ 600 crores. As a result, the consumption expenditure rises from ₹ 400 crores to ₹ 500 crores. Marginal propensity to consume in such a case would be..... . (Choose the correct alternative) **(CBSE 2020)**

(a) 0.8 (b) 0.4 (c) 1.0 (d) 0.6

Ans. (c) $\text{MPC} = \frac{DC}{DY} = \frac{500-400}{600-500} = \frac{100}{100} = 1$

6. In an open economy, aggregate demand is estimated as

(a) Private Consumption Expenditure + Net Exports
(b) Private Consumption Expenditure + Government Expenditure
(c) Private Consumption Expenditure + Government Expenditure + Net Exports
(d) Private Consumption Expenditure + Private Investment Expenditure + Government Expenditure + Net Exports

Ans. (d) Private Consumption Expenditure + Private Investment Expenditure + Government Expenditure + Net Exports

7. Which of the following statements is/are correct?

(i) Autonomous investment increases with increase in the level of income in an economy.
(ii) Induced investment changes with change in the rate of interest and income level in an economy.

Alternatives

(a) Both are true
(b) Both are false
(c) (i) is true, but (ii) is false
(d) (i) is false, but (ii) is true

Ans. (d) Autonomous investment does not change with any change in the level of income. It remains constant, no matter what the level of income is in the economy.

8. Expenditure on Goods and Services =

(a) Government Expenditure + Investment Expenditure
(b) Consumption Expenditure + Government Consumption Expenditure
(c) Consumption Expenditure + Investment Expenditure
(d) None of the above

Ans. (c) Consumption Expenditure + Investment Expenditure

9. When C function shoots from Y-axis, it indicates that
(i) consumption is zero when income is zero
(ii) saving is negative when income is zero
(iii) consumption is positive when income is zero
(iv) saving is positive when income is zero

Alternatives
(a) (i) and (ii) (b) (ii) and (iii)
(c) (i), (ii) and (iii) (d) (ii), (iii) and (iv)

Ans. (b) (ii) and (iii)

10. Constant slope of S-line indicates that
(a) S-line will be a straight line
(b) saving function will be non-linear
(c) saving function will be linear
(d) Both (a) and (c)

Ans. (d) Both (a) and (c)

11. When household consumption expenditure = ₹ 9,000, private investment expenditure = ₹ 7,000, government expenditure = ₹ 12,000, exports = ₹ 1,000 and imports = ₹ 3,000, the level of AD in an open economy will be
(a) ₹ 16,000 (b) ₹ 26,000
(c) ₹ 28,000 (d) ₹ 29,000

Ans. (b) AD (Y) $= C + I + G + NX$
$= 9{,}000 + 7{,}000 + 12{,}000 + 1{,}000 - 3{,}000$
= ₹ 26,000

12. Which of the following is correct?
(a) APC $= \frac{C}{Y}$ (b) MPC = 1 – MPS
(c) APC + APS = 1 (d) All of these

Ans. (d) All of the above

13. Propensity to save is the
(a) additional income that is not to be saved
(b) ratio of saving to income
(c) level of saving at which saving and consumption are equal
(d) tendency of the consumer towards higher saving

Ans. (b) ratio of saving to income

14. Which of the given pair is correctly matched?

	Column I		Column II
A.	Income is zero	(i)	Consumption is zero
B.	MPC + MPS	(ii)	Zero
C.	APC + APS	(iii)	Two
D.	Propensity to save	(iv)	The ratio of saving to income

Codes
(a) A-(i) (b) B-(ii) (c) C-(iii) (d) D-(iv)

Ans. (d) APC + APS = 1, aggregate of average propensity to consume and average propensity to save is equal to one and propensity to save is the ratio of saving to income.

15. Perfectly elastic AS implies that
(i) there is fuller utilisation of resources in the economy
(ii) there is unemployment of resources in the economy
(iii) there is excess capacity in the economy

Alternatives
(a) Both (i) and (ii) (b) Both (ii) and (iii)
(c) (i), (ii) and (iii) (d) None of these

Ans. (b) Both (ii) and (iii)

16. 45 degree line in the context of equilibrium GDP is a
(i) line of reference
(ii) line of identity
(iii) line of equality between AS and AD

Alternatives
(a) (i) and (ii)
(b) (ii) and (iii)
(c) (i) and (iii)
(d) None of the above

Ans. (c) (i) and (iii)

17. In Keynesian Economics, equilibrium level of income implies
(a) equilibrium level of output
(b) equilibrium level of employment
(c) Both (a) and (b)
(d) None of the above

Ans. (c) Both (a) and (b)

18. If MPC = 0.5, the value of multiplier equals
(a) 2 (b) 1
(c) 5 (d) ∞

Ans. (a) $K = \frac{1}{MPC} = \frac{1}{0.5} = 2$

19. The value of multiplier is
(a) $\frac{1}{MPC}$ (b) $\frac{1}{MPS}$
(c) $\frac{1}{1 - MPC}$ (d) $\frac{1}{MPC - 1}$

Ans. (b) $\frac{1}{MPS}$

20. With the increase in investment, MEC
(a) rises (b) falls
(c) remains constant (d) None of these

Ans. (b) falls

• Assertion-Reasoning MCQs

Directions (Q. Nos. 1 to 7) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below.*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is the not the correct explanation of Assertion (A).
(c) Assertion (A) is true, but Reason (R) is false.
(d) Both Assertion (A) and Reason (R) are false

1. **Assertion** (A) AD is measured not as the sum total of goods but as the sum total of planned expenditure on the goods during an accounting year.

Reason (R) It is not possible to add up physical quantities of the goods and services planned to be purchased by the people.

Ans. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

2. **Assertion** (A) The value of marginal propensity to consume can be greater than one.

Reason (R) The value of marginal propensity to save can be negative as well.

Ans. (d) The value of MPC cannot be greater than one because change in consumption can never be greater than change in income. MPS is the ratio between additional savings and additional income which is always positive because of positive correlation between savings and income.

3. **Assertion** (A) Saving function depicts linear relationship when MPS is found to be constant.

Reason (R) A linear saving function is a straight line savings function. The slope of a straight line is constant as indicated by constant MPS.

Ans. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

4. **Assertion** (A) The value of investment multiplier varies between one and infinity.

Reason (R) The minimum value of investment multiplier is one when MPC equals zero and maximum value equals infinity when MPC equals one.

Ans. (d) In case MPC = 0, $K = \frac{1}{1-MPC} = \frac{1}{1-0} = 1$

In case MPC = 1, $K = \frac{1}{1-MPC} = \frac{1}{1-1} = \infty$

5. **Assertion** (A) There is an inverse relationship between the value of investment multiplier and marginal propensity to consume.

Reason (R) Saving is a leakage in the circular flow of income. Greater the savings, greater the leakage and lower the value of investment multiplier.

Ans. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

6. **Assertion** (A) Full employment does not imply zero unemployment in an economy.

Reason (R) There are certain people in the economy who are both voluntary as well involuntary unemployed and there also exist certain level of natural unemployment in an economy.

Ans. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

7. **Assertion** (A) The value of marginal propensity to save can never be negative.

Reason (R) MPS is the ratio between additional saving and additional income which is always positive because of positive relationship between savings and income.

Ans. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

• Case Based MCQs

1. ***Direction*** *Read the following text and answer question no. (i) to (vi) on the basis of the same.*

"The denial of the crucial role of the interest rate as equilibrator of savings and investment led directly to the Keynesian theory of employment determinants. Given the 'propensity to consume' and hence the proportion of any given income that will be spent by individual consumers (on which the size of R F Kahn's 'multiplier' depends), the level of output and employment will be a function of investment. According to the level at which investment (also consumption) stands, the level of output and employment may be almost anything between zero and full capacity output. There is at any rate, no longer any unique level to which the system is necessarily tending. So far as investment consists of private investment, it will remain governed by the 'marginal efficiency of capital' (anticipated profitability), modified, on one hand, by 'expectations' (powerfully swayed by business mood and the like) and on other hand, by the cost of borrowing, namely prevailing rate of interest.

Thus, was the casual emphasis of theory reversed: instead of any change in saving being translated into an equivalent shift of investment and (via income changes) the volume of savings the dependent variable.

Interest was converted virtually into a money rate-something influenced on the one hand by monetary policy (affecting the supply of money available) and on the other hand by the current attitude towards is as something worth holding (e.g, qua bank deposit) in preference to other assets (e.g, bonds). This later constituted the famous liquidity preference –a preference powerfully influenced by expectations (or uncertainty) about future movements of interest rates (and hence of bond prices)."

Source *[From Maurice Dobb, Theories of Value and Distribution since Adam Smith, page 218–219]*

(i) There is no unique level of output and employment to which the economic system tends, because
- (a) investment consists only of private investment
- (b) investment determines the level of output and can vary
- (c) changes in saving are translated into an equivalent level of investment
- (d) investment depends upon the propensity to consume

Ans. (b) As per the passage, there is no unique level of output and employment in an economic system because these two factors are dependent on investment which is not constant.

(ii) The 'multiplier' referred to here relates to
- (a) the propensity to consume which determines how much consumers spend
- (b) the change in employment consequent upon a change in output
- (c) the change in output consequent upon a change in investment
- (d) the number that equilibrates saving and investment

Ans. (c) Multiplier in the passage refers to change in output due to change in investment.

(iii) Expectations ..... .
- (a) determine the prevailing rate of interest
- (b) contribute to liquidity preference
- (c) govern the cost of borrowing
- (d) determine the money supply

Ans. (b) As per the passage, liquidity preference of people is determined by their expectations.

(iv) Keynes treated the interest rate as
- (a) entirely determined by expectations about the future
- (b) the rate at which current savings and investment are equilibrated
- (c) reflecting both monetary policy and liquidity preference
- (d) an indicator of expected profitability

Ans. (c) According to Keynes, interest rate is affected by both, the monetary policy and the liquidity preference.

(v) Liquidity preference
- (a) is about holding money related to other assets
- (b) is the difference between bond prices and interest rates
- (c) affects the supply of money
- (d) is unrelated to any of the above

Ans. (a) Liquidity preference means holding money in liquid form, as compared to other assets.

(vi) **Assertion** (A) The level of private investment in an economy arbitrarily depends on the marginal efficiency of capital.

Reason (R) Animal spirits results in boom and bust and the cost of borrowing largely influences the level of private investment.

Alternatives
- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
- (c) Assertion (A) is false, but Reason (R) is true
- (d) Both the statements are false

Ans. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

2. ***Direction*** *Read the following text and answer question no. (i) to (vi) on the basis of the same.*

Suppose in equilibrium, aggregate income (in units of money per year) in an economy $Y = C + I$, where investment expenditure (in units of money per year) $I = 1{,}000$ and aggregate consumption expenditure (in units of money per year) C satisfies the following conditions
- C is a function of current disposable income in the economy.
- f $Y_d = 0$, then $C = 500$
- Marginal propensity to save out of Y_d is constant in the economy and equal to 30%.

Suppose the government collects direct tax revenues equal to 15% of Y and makes direct transfer payments equal to 750 units of money per year.

(i) The level of MPC in an economy is
- (a) 0.595 (b) 0.678
- (c) 0.495 (d) 0.324

Ans. (a) $\text{MPC} = 1 - 0.30 - (0.70 \times 0.15)$
$= 0.7 - 0.105 = 0.595$

(ii) What is the value of the investment multiplier in the economy?
- (a) Between 1.7 and 1.9 (b) Between 1.9 and 2.1
- (c) Between 2.1 and 2.3 (d) Between 2.3 and 2.5

Ans. (d) Investment Multiplier $= \dfrac{1}{1 - \text{MPC}}$; where

$\text{MPC} = 0.595$

So, Investment Multiplier. $= \dfrac{1}{1 - 0.595} = 2.4726$

(iii) What is the equilibrium value of Y in the economy?
(a) Between 3,250 and 3,750 (b) Between 3,750 and 4,250
(c) Between 4,250 and 4,750 (d) Between 4,750 and 5,250

Ans. (d) At the equilibrium level $Y = C + I$

$Y = 500 + 0.7\,(Y - 15\,Y + 750) + 1{,}000$

$Y = 500 + 0.7Y - 0.105\,Y + 525 + 1{,}000$

$0.405\,Y = 2{,}025$

$\therefore\ Y = 5{,}000$

(iv) If instead of 750 units of money, the government makes annual transfer payments equal to 10% of Y, then the value of the investment multiplier will
(a) decrease by less than unity
(b) decrease by more than unity
(c) increase by less than unity
(d) increase by more than unity

Ans. (c) $Y = C + I$

$= 500 + 0.7(Y - 0.15\,Y + 0.10Y) + 1{,}000$

$= 1{,}500 + 0.665\,Y$

A simple glance tells us that autonomous consumption equals 1,500 and MPC equals 0.665.

$$\therefore K = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.665} = 2.98$$

Change in multiplier = 2.98 – 2.46 = 0.52

(v) If instead of 750 units of money, the government makes an annual transfer payments equal to 10% of Y, then the equilibrium value of Y will
(a) decrease by less than 1,000
(b) decrease by more than 1,000
(c) increase by less than 1,000
(d) increase by more than 1,000

Ans. (a) As computed above,

$Y = 1{,}500 + 0.665\,Y$

$Y - 0.665\,Y = 1{,}500$

$\therefore\ Y = 4477.6$

Change in income = 5000 – 4477.6 = 522.4

(vi) **Assertion** (A) Higher the MPC, higher would be the multiplier effect.

Reason (R) The multiplier effect is the magnified increase in equilibrium GDP that occurs when any component of aggregate expenditures changes. Therefore when MPC increases, the value of multiplier increases as well.

Alternatives
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is false, but Reason (R) is true
(d) Both the statements are false

Ans. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

PART 2
Subjective Questions

• Short Answer (SA) Type Questions

1. Define aggregate demand. State its components. **(CBSE 2018)**

Ans. Aggregate demand refers to the total expenditure on the goods and services in an economy during the period of one year.
The main components of aggregate demand are
(i) Consumption expenditure
(ii) Private investment (Fixed Capital Formation + Change in Stock)
(iii) Government expenditure
(iv) Net exports or difference between exports and imports AD = $C + I + G + (X - M)$

2. Which are the important elements in the determination of investment? **(NCERT)**

Ans. Following are the three elements important in the determination of investment
(i) **Expected Returns or Revenue** An investment is undertaken on the basis of expected demand or expected returns to the producers.
(ii) **Costs** It has three components viz. cost of purchase of equipment, cost of maintenance of equipment (depreciation) and Cost of funds borrowed for investment.
(iii) **Business Expectation** Bullish expectations attract more investment. Bearish expectations cause low investment.

3. Distinguish between marginal propensity to consume and average propensity to consume. Give a numerical example. **(CBSE 2016)**

Ans. Differences between marginal propensity to consume and average propensity to consume

Basis	**Marginal Propensity to Consume** (MPC)	**Average Propensity to Consume** (APC)
Meaning	The ratio between the change in consumption expenditure and the change in income is called the marginal propensity to consume.	The ratio between the total consumption expenditure and total income, at a given level of income is called the average propensity to consume.
It Represents	It represents the part of increased income which is spent on consumption.	It represents the part of total income which is spent on consumption.
Symbolically	MPC = Change in Consumption (ΔC)/ Change in Income (ΔY)	APC $= \frac{\text{Total Consumption}(C)}{\text{Total Income}(Y)}$

The numerical example given below will help to understand the computation of MPC and APC.

Income (Y)	Consumption (C)	APC (C/Y)	ΔC	ΔY	MPC ($\Delta C/\Delta Y$)
0	300	—	—	—	—
200	350	1.75	50	200	0.25
400	400	1	50	200	0.25
600	450	0.75	50	200	0.25
800	500	0.625	50	200	0.25
1000	500	0.55	50	200	0.25

4. What is the difference between planned investment and actual investment? **(NCERT)**

Ans.

Basis	Planned Investment	Actual Investment
Meaning	Planned (or ex-ante) investment refers to the desired level of investment.	Actual (or ex-post) investment refers to the realised level of investment.
Reaction with Savings	In an accounting year, planned investment may or may not be equal to planned savings.	In an accounting year, actual investment is always equal actual savings. (This is according to the principle of national income accounting.)
Determination of Income	Equilibrium level of income is determined where planned investment is equal to planned savings.	Actual investment has no relevance in the determination of equilibrium level of income.

5. State whether the following statement are true or false. Give reasons for your answer.

(i) The value of average propensity to save can never be greater than 1.

(ii) When investment multiplier is 1 the value of marginal propensity to consume is 0.

Ans. (i) True. The value of average propensity to save can never be greater than 1 because even when all the income is saved and nothing is spent on consumption, saving will be equal to income. In this case, Average Propensity to Save (APS) will be equal to 1 and not greater than 1.

(ii) The given statement is true. When investment multiplier is 1, marginal propensity to consume is 0. We know that,

$$\text{Multiplier}\,(K) = \frac{1}{1-\text{MPC}}$$

$$1 = \frac{1}{1-\text{MPC}}$$

$$1 - \text{MPC} = 1 \quad \text{MPC} = 0$$

6. If national income is ₹ 100 crore and consumption ₹ 90 crore, find the average propensity to save. When income rises to ₹ 120 crore and consumption expenditure to ₹ 108 crore, what will be the marginal propensity to consume and marginal propensity to save?

Ans. Given, National Income (Y) = ₹ 100 crore

Consumption Expenditure (C) = ₹ 90 crore

Saving (S) = $Y - C$

= 100 – 90

= ₹ 10 crore

Average Propensity to Save (APS) = $\frac{S}{Y} = \frac{10}{100} = 0.1$

Increased Income ($Y1$) = ₹ 120 crore

Increased Consumption Expenditure ($C1$)

= ₹108 crore

Increased Saving ($S1$) = 120 – 108

= ₹12 crore

Change in Income (ΔY) = 120 – 100

= ₹ 20 crore

Change in Consumption Expenditure (ΔC) = 108 – 90

= ₹18 crore

Change in Saving (ΔS) = 12 – 10

= ₹ 2 crore

Marginal Propensity to Consume (MPC) = $\frac{\Delta C}{\Delta Y} = \frac{18}{20} = 0.9$

Marginal Propensity to Save (MPS) = $\frac{\Delta AS}{\Delta AY} = \frac{2}{20} = 0.1$

Therefore,

Average Propensity to Save (APS) = 0.1.

Marginal Propensity to Consume (MPC) = 0.9.

Marginal Propensity to Save (MPS) = 0.1

7. An economy is in equilibrium. From the following data, calculate the marginal propensity to save.

Income = ₹ 10,000

Autonomous consumption = ₹ 500

Consumption expenditure = ₹ 8,000

(CBSE 2017)

Ans. We know that,

Consumption expenditure = $\overline{C} + bY$,

where $\overline{C}$ = Autonomous Consumption,

b = Marginal Propensity to Consume and

Y = Income

So, on substituting the given variables, we get

$8{,}000 = 500 + b.(10{,}000)$

$8{,}000 - 500 = b.\,10{,}000$

$$b = \frac{7{,}500}{10{,}000} = 0.75, \text{ i.e.}$$

Marginal Propensity to Consume = 0.75.

We also know that, MPC + MPS = 1, where,

MPC = Marginal Propensity to Consume, and

MPS = Marginal Propensity to Save

On substituting MPC = 0.75, we get

$$0.75 + \text{MPS} = 1,$$

$$\text{MPS} = 1 - 0.75 = 0.25, \text{ i.e,}$$

Marginal Propensity to Save = 0.25

8. An economy is in equilibrium. Calculate the investment expenditure from the following.

National income = ₹ 800

Marginal propensity to save = 0.3

Autonomous consumption = 100 **(CBSE 2015)**

Ans. As the economy is in equilibrium

$$\therefore \quad Y = \text{AD}$$

i.e. $Y = C + I$

$$C = \overline{C} + bY$$

or, $Y = \overline{C} + bY + I$ ...(i)

National Income $(Y) = 800$

Marginal Propensity to Save (MPS) = 0.3

Marginal Propensity to Consume

$$(\text{MPC}) = 1 - \text{MPS} = 1 - 0.3 = 0.7$$

Autonomous Consumption, $(\overline{C}) = 100$

From (i) $800 = 100 + 0.7(800) + I$

$$700 = 560 + I$$

$$I = 140$$

9. An economy is in equilibrium. Find 'autonomous consumption' from the following

National income = 1,000

Marginal propensity to consume = 0.8

Investment expenditure = 100

(CBSE 2015)

Ans. At equilibrium

$$\text{AD} = \text{AS}(Y)$$

$$Y = C + I$$

Where C = Consumption expenditure

I = Investment expenditure

Further $C = \overline{C} + bY$

Where, $\overline{C}$ = Autonomous consumption

b = MPC

Hence, $Y = \overline{C} + bY + I$

$$1{,}000 = \overline{C} + 0.8(1{,}000) + 100$$

$$1{,}000 = \overline{C} + 800 + 100$$

$$\overline{C} = ₹\ 100$$

10. Giving valid reasons, state whether the following statements are true or false.

(i) Ex-post investment means fixed capital with production units during a particular period of time.

(ii) Marginal propensity to consume represents the slope of the consumption function. **(CBSE 2019)**

Ans. (i) The given statement is false, as ex-post investment includes both fixed as well as inventory investment with the production unit during a period of time.

(ii) The given statement is true, as it represents change in consumption due to a given change in income.

$$\text{MPC} = \Delta C / \Delta Y$$

11. From the following data, calculate the

(i) consumption expenditure and

(ii) investment expenditure for the economy.

(CBSE 2020)

S. No.	Particulars	(in ₹)
(a)	Equilibrium Level of Income	5,000
(b)	Autonomous Consumption	500
(c)	Marginal Propensity to Save	0.4

Ans. (i) Consumption expenditure $\Rightarrow c = \bar{c} + by$

Here, c means autonomous consumption

b means MPC

Y means income

MPC = 1 − MPS

MPC = 1 − 0.4 = 0.6

Consumption expenditure = 500 + 0.6 × 5,000

Consumption expenditure = 500 + 3,000

= ₹ 3,500 crores

(ii) At equilibrium level, $Y = C + I$

$$5{,}000 = 3{,}500 + I$$

Investment expenditure = 5,000 − 3,500 = ₹ 1,500 crores

12. In an economy, the autonomous investment is 360 and the marginal propensity to save is 0.3. If the equilibrium level of income is 1,400, then the autonomous consumption is 40. True or false? Justify your answer.

Ans. False. Given, Autonomous Investment = 360

Marginal Propensity to Save (MPS) = 0.3

Equilibrium Level of Income (Y) = 1,400

Marginal Propensity to Consume (MPC) = 1 − MPS

= 1 − 0.3 = 0.7

At the equilibrium Level, $Y = C + I$

or, $Y = C + \text{MPC}\ (Y) + I$

$$1{,}400 = C + \text{MPC}\ (Y) + I$$

$$1{,}400 = C + 0.7\ (1{,}400) + 360$$

$$1{,}400 = C + 980 + 360$$

$$1{,}400 = C + 1{,}340$$

$$C = 1{,}400 - 1{,}340 = 60$$

Thus, it is proved that the given statement is false. The autonomous consumption = 60.

13. If in an economy

Marginal Propensity to Consume (MPC) = 0.8

Change in Initial Investment (ΔI) = ₹ 4,000 crores

Find the value of the following. **(CBSE 2020)**

(i) Investment Multiplier (K)

(ii) Change in Final Income (ΔY)

Ans. (i) Investment Multiplier (K) = 1/1 − MPC

Here, MPC is given = 0.8

Now,

Investment Multiplier (K) = 1/1 − 0.8

Investment Multiplier (K) = 1/0.2

Investment Multiplier (K) = 5

(ii) Investment Multiplier (K)

$$= \frac{\text{Change in Income } (\Delta Y)}{\text{Change in Investment } (\Delta I)}$$

Putting the value of K, which is determined in above case

we get $5 = \dfrac{\Delta Y}{4{,}000}$

$\Delta Y = 4{,}000 \times 5$

∴ Change in final income ΔY = ₹ 20,000 crores

14. Give reason, state whether the following are true or false.

(i) Sum of average propensity to consume and marginal propensity is always equal to 1.

(ii) If the ratio of marginal propensity to consume and marginal propensity to save 3 : 1, the value of investment multiplier will be 5.

Ans. (i) False. Sum of average propensity to consume and average propensity to save as well as sum of marginal propensity to consume and marginal propensity to save is always equal to one. There is no fixed relationship between APC and MPC.

(ii) False, because, if the ratio of marginal propensity to consume and marginal propensity to save is 3:1, MPC will be 0.75 and investment multiplier (K) will be

$$K = \frac{1}{1-\text{MPC}} = \frac{1}{1-0.75} = \frac{1}{0.25} = 4$$

Assume that MPS = x, So that MPC = $3x$

We know MPC + MPS = 1

$\Rightarrow \quad 3x + x = 1$

$\Rightarrow \quad 4x = 1$

$\Rightarrow \quad x = \dfrac{1}{4} = 0.25$

$\Rightarrow \quad$ MPS = 0.25

So that MPC = 3 × 0.25 = 0.75

or MPC = 1 − MPS

1 − 0.25 = 0.75

15. The value of marginal propensity to consume is 0.6 and initial income in the economy is ₹ 100 crores. Prepare a schedule showing income, consumption and saving. Also show the equilibrium level of income by assuming investment of ₹ 80 crores. **(CBSE 2018)**

Ans. MPC = 0.6, Let autonomous consumption = 40

Y	**C = C′ + MPC(y)**	**S = Y − C**
0	40	–40
100	100	0
200	160	40
300	220	80
400	280	120
500	340	160

When economy is in equilibrium, S = I

$Y = C + I$

$Y = 40 + 0.6Y + 80$

$Y - 0.6Y = 120$

$0.4Y = 120$

Y = ₹ 300 crores

Equilibrium level of income is ₹ 300 crores.

16. The saving function of an economy is given as

$$S = -250 + 0.25Y$$

If the planned investment is ₹ 2,000 crores, calculate the following.

(i) Equilibrium level of income in the economy.

(ii) Aggregate demand at income of ₹ 5,000 crores. **(CBSE 2019)**

Ans. (i) At the point of equilibrium,

Saving = Investment

$(S = I) - 250 + 0.25Y = 2{,}000$

$0.25Y = 2{,}000 + 250$

$0.25Y = 2.250$

$Y = \dfrac{2{,}250}{0.25} = 9{,}000$

Equilibrium level of income = ₹ 9,000 crores

(ii) AD at income level ₹ 5,000 crores will be

AD = $250 + (1 - 0.25)(5{,}000) + 2{,}000$

$= 250 + 0.75 \times 5{,}000 + 2{,}000$

$= 250 + 5{,}750$

= ₹ 6,000 crores

17. In an economy autonomous consumption is 500, marginal propensity to save is 0.2 and investment expenditure is 2,000. Calculate its equilibrium level of income. **(CBSE 2015)**

Ans. When economy is in equilibrium, then $Y = C + I$

Given $C' = 500$, MPS = 0.2, $I = 2{,}000$

MPC = 1 − MPS

MPC = 1 − 0.2 = 0.8

$Y = C' + \text{MPC}(Y) + I \quad [\because C = C' + \text{MPC}(Y)]$

$Y = 500 + 0.8Y + 2{,}000$

$Y - 0.8Y = 2{,}500$

$0.2Y = 2{,}500$

$Y = 12{,}500$

Equilibrium level of income = ₹ 12,500

18. Which of the following cannot have a negative value? Give reasons.

(i) Average propensity to save

(ii) Marginal propensity to save **(CBSE 2015)**

Ans. (i) APS can have a negative value because at zero level of income there is some amount of consumption which is known autonomous consumption which shows dissaving.

(ii) MPS cannot have a negative value as there is a positive relationship between saving and income, an increase in income must cause an increase in saving. Implying that MPS must always be positive.

• Long Answer (LA) Type Questions

1. Explain consumption function, with the help of a schedule and diagram. **(All India 2011)**

Ans. The relationship between the consumption expenditure and the income is known as consumption function.

$$C = F(Y)$$

When we write consumption function in terms of an algebraic expression, we write, $C = \overline{C} + bY$

Where, C = Consumption expenditure,

$\overline{C}$ = Autonomous consumption i.e. consumption at zero level of income,

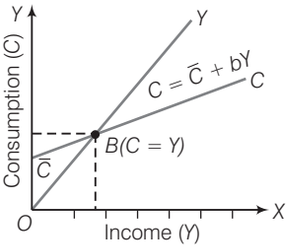
b = Marginal Propensity to Consume,

Y = Income

Let us understand consumption function with the help of an imaginary schedule and diagram

Income (Y)	**Consumption** (C)	**APC** $\left(\frac{C}{Y}\right)$	ΔC	ΔY	**MPC** $\left(\frac{\Delta C}{\Delta Y}\right)$
0	100	…	…	…	…
100	170	1.7	70	100	0.7
200	240	1.2	70	100	0.7
300	310	1.33	70	100	0.7
400	380	0.95	70	100	0.7
500	450	0.9	70	100	0.7

The point B in the diagram below represents the break-even point where the consumption expenditure equals to the income.



Diagrammatic presentation of consumption function

2. In an economy, if initial investments are increased by ₹ 100 crores, discuss the working of investment multiplier presuming marginal propensity to consume is 0·8. **(CBSE 2020)**

Ans. Investment multiplier is the ratio between change in income and the corresponding change in investment. There is a direct or positive relationship between Marginal Propensity to Consume (MPC) and Multiplier (K). Higher the MPC, higher will be the value of multiplier and vice-versa.

Working of Investment Multiplier

Rounds	**Initial Investment**	**Consumption Expenditure**	**Savings**
I	100	80	20
II	80	64	16
III	64	12.8	5.2
	500	400	100

As shown in the table, there is additional investment of ₹ 100 crores and 80% of which is spent on consumption i.e, ₹ 80 crores and ₹ 20 crores is saved. ₹ 80 crores is reinvested of which 80% is consumed and if goes on like this.

Marginal propensity to consume is 0.8

Change in investment = ₹ 100 crores

$$K = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.8}$$

$$K = \frac{1}{0.2} = 5$$

Change in investment = ΔI = ₹ 100 crores

Investment multiplier = $K = 5$

Change in income $\Delta Y = K \times \Delta I$

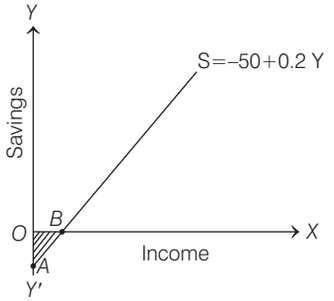
$= 5 \times 100$

= ₹ 500 crores

3. (i) On the basis of following information, identify whether the economy is in equilibrium or not.

S.No.	Particulars	₹ (in crores)
(a)	Autonomous Consumption and Investment Expenditure ($\overline{A}$)	500
(b)	Marginal Propensity to Save (MPS)	0.2
(c)	National Income	4,000

(ii) Answer the following questions on the basis of given figure.



(a) What does the shaded area *AOB* indicate?

(b) What is the significance of point *B* ?

(CBSE 2020)

Ans. (i) The economy is in equilibrium when

$$AD = AS$$

$$\therefore \quad AS = Y = 4{,}000$$

$$\therefore \quad AD = \overline{A} + MPC\,(Y) \quad \left[\because MPC = 1 - MPS = 1 - 0.2 = 0.8\right]$$

$$= 500 + 0.8 \times 4{,}000$$

$$= 500 + 3{,}200 = ₹\ 3{,}700$$

So, in the above question

AD = 4,000 and AS = 3,700

AD ≠ AS, so the economy is not in equilibrium.

(ii) (a) The shaded area *AOB* indicates negative savings or dissavings.

(b) Point *B* is the point of equilibrium. At point *B*, savings are zero and level of aggregate demand is equal to the level of aggregate supply in the economy. At this point the value of APS = Zero

$$\left[APS = \frac{S}{Y}\right]$$

4. Answer the following questions based on the data given below.

Planned investment = ₹ 100 crore

$$C = 50 + 0.5Y$$

(i) Determine the equilibrium level of income.

(ii) Calculate the saving and consumption expenditure at equilibrium level of national income.

(CBSE 2020)

Ans. (i) At equilibrium level of income,

$$Y = C + I$$

Here, Y = Equilibrium level of income

C = Consumption expenditure at equilibrium level of income

I = Investment expenditure at equilibrium level of income

$$Y = (50 + 0.5Y) + 100$$

$$Y - 0.5Y = 150$$

$$0.5Y = 150$$

Equilibrium level of income = ₹ 300 crores

(ii) $C = 50 + 0.5Y$

Substituting the value of Y in the above equation

$$C = 50 + 0.5 \times 300$$

$$C = 50 + 150$$

$$C = 200$$

Consumption expenditure at equilibrium level of income

= ₹ 200 crores

$$Y = C + S$$

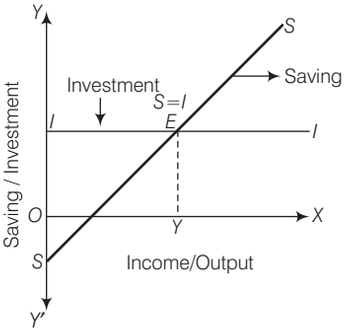
$$300 = 200 + S$$

$$S = 300 - 200\ ;\ S = 100$$

Saving at equilibrium level of income = ₹ 100 crores.

5. When is an economy in equilibrium ? Explain with the help of saving and investment functions. Also explain the changes that take place in an economy when the economy is not in equilibrium. Use diagram.

Ans. Equilibrium level of income is determined at a point where ex-ante or planned saving is equal to planned investment.



This is because, in equilibrium

AS = AD or $C + S = C + I$ or $S = I$

E is the point where $S = I$, hence, the point at which the economy is in equilibrium. *OY* is the equilibrium level of national income.

What happens when $S > I$?

When savings are greater than investment in an economy, it refers to AD < AS. There will be a rise in inventory stock and prices will start to fall. To clear their stocks, the producers will now plan lesser output.

This will mean lesser income in the economy. Lesser income implies lesser saving. The process will continue till $S = I$.

What Happens if $S < I$? In case $S < I$, it implies a situation when withdrawal of expenditure (S) is lesser than injection of expenditure (I) into the circular flow of income. Accordingly, overall expenditure in the economy would exceed than what is required to buy the planned output. It is a situation of higher AD than AS.

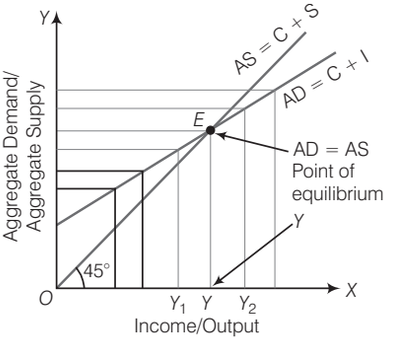
To cope with the situation, the producers would now plan higher output. Higher output would mean higher income and higher saving. The process will continue till $S = I$.

6. Explain the theory of determination of income and employment with the help of aggregate demand and aggregate supply curves.

Or

Why must aggregate demand be equal to Aggregate supply at the equilibrium level of income and output? Explain with the help of a diagram.

Ans. In an economy, equilibrium level of income and employment is determined when AD (Aggregate Demand) is equal to AS (Aggregate Supply). According to Keynes, AS may be assumed to be elastic in an economy where full employment (of resources) is yet to be achieved. Accordingly, AD becomes the principal determinant of equilibrium level of income.



In the above figure, AD represents aggregate demand curve and 45° line is the line of reference, where AS = Y. Equilibrium level of income Y is determined at point E, where AD = AS. Prior to point E, aggregate demand exceeds aggregate supply, leading to an increase in level of income upto point E. Beyond point E, Aggregate Supply exceeds Aggregate Demand leading to a fall in income back towards point E.

It is only when AS = AD, that the equilibrium is struck, because the equality between AS and AD implies that the desired level of output in the economy (as indicated by AS) is exactly equal to the desired level of expenditure (indicated by AD) in the economy. So, the entire output as planned by the producers (during an accounting year) is purchased by the buyers. There are no undesired or unwanted inventories (stock of goods) with the producers.

Chapter Test

Multiple Choice Questions

1. If Autonomous Consumption (C) is greater than zero, it indicates that the level of national income in an economy will be ..... .

(a) rising
(b) falling
(c) constant
(d) Any of these

2. According to classical economists, real wage rate is ..... to the marginal productivity of labour.

(a) equal
(b) more
(c) less
(d) None of these

3. Value of marginal propensity to consume varies from ..... to ..... .

(a) negative infinity, positive infinity
(b) one, positive infinity
(c) negative infinity, one
(d) zero, one

4. Saving is a ..... function of disposable income.

(a) positive
(b) negative
(c) constant
(d) None of these

5. Which of the following statements is/are correct?

(i) Autonomous investment is the expenditure incurred on creation of capital assets.

(ii) If the level of investment in an economy is greater than savings, the level of income will also rise so long as full employment is not achieved.

Alternatives

(a) Both are true
(b) Both are false
(c) (i) is true, but (ii) is false
(d) (i) is false, but (ii) is true

Short Answer (SA) Type Questions

1. Define multiplier. What is the relation between marginal propensity to consume and multiplier? Calculate the marginal propensity to consume if the value of multiplier is 4.

2. If in an economy
Change in Initial Investment (ΔI) = ₹ 700 crores Marginal Propensity to Save (MPS) = 0.2
Find the values of the following

(i) Investment Multiplier (K)
(ii) Change in Final Income (ΔY)

3. Giving reason, sate whether the following statement are true or false

(i) Value of average propensity to save can never be less than zero.

(ii) When marginal propensity to consume is zero, the value of investment multiplier will also be zero.

4. In an economy investment is increased by ₹ 300 crore. If marginal propensity to consume is 2/3, calculate increase in national income.

5. An economy is in equilibrium. Calculate the marginal propensity to save from the following.

National Income = ₹ 1,000
Autonomous Consumption = 100
Investment = 120

Long Answer (LA) Type Questions

1. Draw a straight line saving curve for an economy and derive the consumption curve. Explain the method of derivation. Show a point on the consumption curve at which average propensity to consume is equal to 1.

2. Assuming that increase in investment is ₹ 1,000 crore and marginal propensity to consume is 0.9, explain the working of multiplier.

Answers

Multiple Choice Questions

1. *(d)* ***2.*** *(a)* ***3.*** *(d)* ***4.*** *(a)* ***5.*** *(a)*