Aggregate Demand & Supply & Their Components

1 Mark Questions

1. What is excess of exports of goods over the imports of goods called?   (Foreign 2014)
Ans. It is referred to as net exports.

2. Define Investment. (Compartment 2014)
Ans. Investments are additions made to the present stock of capital. It leads to an increase in capital assets.

3. Give the meaning of Aggregate Supply. (Foreign 2014)
or
Define Aggregate Supply.   (All India 2009,2008)
Ans. Aggregate Supply is the money value of the final goods and services or national product produced in an economy during one year. It is equal to income generated.

4. Define Marginal Propensity to Consume. (Delhi 2014; All India 2009)
Ans. The ratio between the change in consumption expenditure with the change in income is called Marginal Propensity to Consume.

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

Where, ΔC = Change in consumption expenditure

ΔY = Change in income

5. Give the meaning of Marginal Propensity to Save.   (All India 2010)
or
Define Marginal Propensity to Save.   (All India 2009; Delhi 2008C)
Ans. Marginal Propensity to Save is the ratio of change in saving with the change in income.

$$\text{Marginal Propensity to Save} \quad (MPS) = \frac{\Delta S}{\Delta Y}$$

Where, ΔS = Change in saving, ΔY = Change in income.

6. Give the meaning of Aggregate Demand. (Delhi 2010,2009c)
or
Define Aggregate Demand.   (Delhi 2009c)
Ans. The sum, total of the demand for all the goods and services in an economy during an accounting year is termed as Aggregate Demand of the economy. Aggregate

Demand of an economy is measured in terms of the (expected) Total Expenditure on all products (goods and services) in the economy during an accounting year.

7. Give the meaning of autonomous consumption. (Delhi 2009)
Ans. The initial or minimum level of consumption done at zero level of income for sustenance is termed as autonomous consumption.

8. What is propensity to consume?   (Delhi 2009c)
Ans. It refers to the ratio between consumption (C) and income (Y). It shows level of consumption (C) with respects to a given level of income (Y).

9. What is consumption function?   (Delhi 2008)
Ans. The functional relationship between consumption expenditure and the income is known as consumption function.
$C = f(Y)$
Where, C = Consumption expenditure
Y = Income, f = Functional relationship

10. If Marginal Propensity to Save is 3, what is the value of Marginal Propensity to Consume?   (All India 2008)
Ans. Here, Marginal Propensity to Save (MPS) =0.3
Hence, Marginal Propensity to Consume (MPC) =1- MPS =1- 0.3 =0.7
MPC = 0.7

11. Define Average Propensity to Consume. (All India 2008)
Ans. The ratio between the consumption expenditure and income is known as Average Propensity to Consume.
Average Propensity to Consume (APC) = C/Y
Where, C = Consumption expenditure
Y = Income.

12. If the value of Average Propensity to Save is (-) 0.6, what will be the value of Average Propensity to Consume?   (All India 2008)
Ans. Here, Average Propensity to Save (APS) (-) 0.6
Hence, Average Propensity to Consume (APC) = 1 – APS =1 – (- 0.6) =1.6
Average Propensity to Save (APC) =1.6

13. If the value of Average Propensity to Consume is 1.5, what will be the value of Average Propensity to Save?   (Delhi 2008C)
Ans. Here, Average Propensity to Consume (APC) = 1.5
Now, we know that
Average Propensity to Save (APS) =1- APC
So, Average Propensity to Save (APS) =1- 1.5 = – 0.5

3 Mark Questions

14. Give the meaning of Average Propensity to Save. What is its relation with Average Propensity to Consume? (Compartment 2014)
Ans. The ratio between total savings and total income in an economy at a given level of income is termed as 'Average Propensity to Save'. Symbolically,
Average Propensity to Save (APS) = savings (S)/Income Y)

Relation of Average Propensity to Save with Average Propensity to Consume
APC is the ratio of the total consumption to total income and APS is the ratio of total saving to total income
As we know that, $Y = C + S$
APC is the ratio of the total consumption to total income and APS is the ratio of total saving to total income

As we know that, $Y = C + S$

So, $APC + APS = \left[\dfrac{C}{Y} + \dfrac{S}{Y} \right] = \dfrac{C+S}{Y} = \dfrac{Y}{Y} = 1$

So, $APC + APS = 1$
$$APC = 1 - APS$$
$$APS = 1 - APC$$

Average Propensity to Save (APS) can have negative value, when the amount of consumption expenditure is more than the income.

15. Find consumption expenditure from the following
Autonomous Consumption =Rs. 100
Marginal Propensity to Consume =0. 70
National Income = Rs. 1000   (Delhi 2012)

Ans. Here, $\overline{C} = 100$, $b/MPC = 0.7$ and $Y = 1000$

So,   Consumption Expenditure $(C) = \overline{C} + bY$

$$= 100 + 0.7 \times 1000$$
$$= 100 + 700 = ₹\ 800$$

16. Find consumption expenditure from the following
National Income =Rs. 5000
Autonomous Consumption = Rs. 1000
Marginal Propensity to Consume = 0.8

Ans. Here, $Y = ₹5000$, $\overline{C} = ₹1000$, MPC or $b = 0.8$

So, Consumption Expenditure $(C) = \overline{C} + bY$

$$= 1000 + [0.8 \times 5000]$$
$$= 1000 + 4000 = ₹\,5000$$

17. Find National Income from the following
Autonomous Consumption = Rs. 100
Marginal Propensity to Consume =0.60
Investment = Rs. 200

Ans. Here, $\overline{C} = ₹\,100$, MPC or $b = 0.60$, $I = ₹\,200$

At equilibrium level, $I = S = ₹\,200$

Now, we know that $Y = C + S$

or $Y - S = C$

or $Y - S = \overline{C} + bY$ because $C = (\overline{C} + bY)$

or $Y - 200 = 100 + 0.6\,Y$

or $Y - 0.6\,Y = 100 + 200$

or $0.4\,Y = 300$

Hence, $Y = \dfrac{300}{0.4} = ₹\,750$

Hence, National Income $(Y) = ₹\,750$

18. Find investment from the following
National Income = Rs. 600 Autonomous Consumption = Rs. 150
Marginal Propensity to Consume =0.70

Ans. Here, $Y = ₹\,600$
$\overline{C} = ₹\,150$,

MPC or $b = 0.70$

We know that, $Y = C + S$

or $Y - C = S$

or $S = Y - C$

or $S = 600 - [\overline{C} + bY]$

or $S = 600 - [150 + (0.7 \times 600)]$

or $S = 600 - [150 + 420]$

or $S = 600 - 570$

or $S = ₹\,30$

As, $I = S = ₹\,30$

Hence, Investment $= ₹\,30$

19. Given that National Income is Rs. 80 crore and consumption expenditure is Rs. 64 crore, find out Average Propensity to Save. When income rises to Rs. 100 crore and consumption expenditure to Rs. 78 crore, what will be the Average Propensity to Consume and Marginal Propensity to Consume?   (Delhi 2011)

Ans. Here, in first condition,   Y = Rs. 80 crore
C = Rs. 64 crore
Hence,   S = Y – C
= 80 – 64 =Rs. 16 crore
Now,   Average Propensity to Save (APS) = S/Y = 16/80 = 0.20
Again, when income and consumption expenditure rises,
Y = Rs. 100 crore
C= Rs. 78 crore
So, Average Propensity to Consume (APC) =C/Y=78/100=0.78

Here, $\Delta Y = 100 - 80 = ₹ 20$ crore
and $\Delta C = 78 - 64 = ₹ 14$ crore
So, Marginal Propensity to Consume (MPC) $= \dfrac{\Delta C}{\Delta Y} = \dfrac{14}{20} = 0.70$

20. If National Income is Rs. 50 crore and saving is Rs. 5 crore, find out Average Propensity to Consume. When income rises to Rs. 60 crore and saving to Rs. 9 crore, what will be the Average Propensity to Consume and Marginal Propensity to Save?   (Delhi 2011)

Ans. Here, in first condition,
Y = Rs. 50 crore
S = Rs. 5 crore
Hence,   C = Y – S
= (50 – 5) crore
= 45 crore
Average Propensity to Consume (APC) = C/Y = 45/50 =0.90
Again when income and savings rises,
New Y=Rs. 60 crore
New S = Rs.9 crore
Average propensity to consume (APC) =C/Y
Y-S/Y=60-9/60=0.85

Again, $\Delta S = 9 - 5 = ₹ 4$ crore
                                                      $\Delta Y = 60 - 50 = ₹ 10$ crore
Hence, Marginal Propensity to Save (MPS) $\dfrac{\Delta S}{\Delta Y} = \dfrac{4}{10} = 0.40$

21. If National Income is Rs. 90 crore and consumption expenditure Rs.81 crore, find out Average Propensity to Save. When income rises to Rs. 100 crore and consumption expenditure to Rs. 88 crore, what will be the Marginal Propensity to Consume and Marginal Propensity to Save? (Delhi 2011)

Ans. Here, in first condition, $Y=$ Rs. 90 crore
$C=$Rs. 81 crore
Average Propensity to Save (APS) $=S/Y$
$=Y-C/Y=90-81/90=0.10$
Again, when the income and consumption expenditure rises,
$Y=$ Rs. 100 crore
$C=$ Rs. 88 crore

$$\text{Marginal Propensity to Consume (MPC)} = \frac{\Delta C}{\Delta Y} = \frac{7}{10} = 0.70$$

$$\text{Again, Marginal Propensity to Save (MPS)} = 1 - \text{MPC} = 1 - 0.7 = 0.3$$

22. In an economy, the Marginal Propensity to Consume is 0.75. Investment expenditure in the economy increases by Rs. 75 crore. Calculate the total increase in National Income. (All India 2011)

Ans. Here, $\text{MPC} = 0.75, \Delta I = ₹\ 75$ crore

$$\Delta I = \Delta S = ₹\ 75 \text{ crore}$$
$$\text{MPS} = 1 - \text{MPC} = 1 - 0.75 = 0.25$$

Now,
$$\text{MPS} = \frac{\Delta S}{\Delta Y} \qquad \text{or } 0.25 = \frac{75}{\Delta Y}$$

or
$$\Delta Y = \frac{75}{0.25}$$

or   Total increase in National Income $(\Delta Y) = ₹\ 300$ crore

23. Explain the relationship between Average Propensity to Consume and Average Propensity to Save. Which of these can have a negative value and when?   (All India 2011)

Ans. APC is the ratio of the total consumption to total income and APS is the ratio of total saving to total income
As we know that, $Y = C + S$

As we know that,

$$Y = C + S$$

So,

$$APC + APS = \left[\frac{C}{Y} + \frac{S}{Y}\right] = \frac{C+S}{Y} = \frac{Y}{Y} = 1$$

So,

$$APC + APS = 1$$

$$APC = 1 - APS$$

$$APS = 1 - APC$$

Average Propensity to Save (APS) can have negative value, when the amount of consumption expenditure is more than the income.

24. Explain the meaning of Marginal Propensity to Consume. What is its relationship with Marginal Propensity to Save? (Delhi 2011 c)

Ans. The ratio between the change in consumption expenditure with the change in income is called Marginal Propensity to Consume. Marginal Propensity to Consume tells about the relationship between the change in consumption due to change in National income.

Marginal Propensity to Consume $(MPC) = \dfrac{\Delta C}{\Delta Y}$

Where, ΔC = Change in consumption

ΔY = Change in income

Relationship between Marginal Propensity to Consume (MPC) and Marginal Propensity to Save (MPS). The excess of income over consumption is saved, similar is the case for change in income

Hence, $\quad$ MPC + MPS =1

or $\quad$ MPS =1-MPC

and $\quad$ MPS = 1-MPC

25.In an economy, total savings are Rs. 2000 crore and the ratio of Average Propensity to Save and Average Propensity to Consume is 2 : 7. Calculate the level of income in an economy. (All India 201)

Ans. Here, $S = ₹\ 2000$ crore

$$\frac{APS}{APC} = \frac{2}{7}$$

or $\quad APS = \dfrac{S}{Y} = \dfrac{2}{7+2} = \dfrac{2}{9}$

Hence, $\quad S = \dfrac{2}{9} \times Y \qquad$ (where, Y = Income)

or $\quad 2000 = \dfrac{2}{9} \times Y$

or $\quad Y = \dfrac{9}{2} \times 2000$

or $\quad$ National Income $= ₹\ 9000$ crore

26. In an economy, the consumption expenditure is Rs. 8750 crore and the ratio of Average Propensity to Consume and Average Propensity to Save is 7 : 1. Calculate the level of income in the economy. (All India 2010)

Ans. As, $\dfrac{APC}{APS} = \dfrac{7}{1}$

So, ratio of consumption to income $(APC) = \dfrac{7}{7+1} = \dfrac{7}{8}$

Hence,

$$C = \dfrac{7}{8} \times Y$$ (where, Y = Income)

$$Y = \dfrac{8}{7} \times 8750$$

National Income = ₹ 10000

27. In an economy, the ratio of Average Propensity to Consume and Average Propensity to save is 5: 3. The level of income is Rs. 6000. How much are the savings? Calculate. (Delhi 2010c)

Ans. Here, $\dfrac{APC}{APS} = \dfrac{5}{3}$ and $Y = 6000$, $APC = \dfrac{5}{8}$, $APS = \dfrac{3}{8}$

Now, as $\dfrac{APC}{APS} = \dfrac{5}{3}$

So, ratio of consumption to income $(APC) = \dfrac{5}{5+3} = \dfrac{5}{8}$

Now,

$$C = \dfrac{5}{8} \times 6000$$

$$= ₹\,3750$$

Hence,

$$\text{Saving } (S) = 6000 - 3750$$

$$= ₹\,2250$$

28. Complete the following table (Delhi 2009)

Income (Y)	Saving (S)	Marginal Propensity to Consume (MPC)	Average Propensity to Save (MPS)
0	−12		
20	−6	....	....
40	0	....	....
60	6	....	....

Ans. $C = Y - S$, $MPC = \Delta C / \Delta Y$, $APS = S/Y$

Income (Y)	Change in Income ΔY	Saving (s)	Consumption C (Y – S)	Change in Consumption Expenditure ΔC	Marginal Propensity to Consume $\left(\dfrac{\Delta C}{\Delta Y}\right)$	Average Propensity to Save $\left(\dfrac{S}{Y}\right)$
0	–	–12	12	–		
20	20	–6	26	14	0.7	–0.3
40	20	0	40	14	0.7	0
60	20	6	54	14	0.7	0.1

29. Complete the following table   (Delhi 2009)

Income (Y)	Saving (S)	Marginal Propensity to Consume (MPC)	Average Propensity to Consume (APC)
0	–6		
20	–3	....	....
40	0	....	....
60	3	....	....

Ans. $C = Y - S$, $MPC = \Delta C / \Delta Y$, $APC = C/Y$

Income (Y)	Change in Income ΔY	Saving (S)	Consumption (C) (Y – S)	Change in Consumption Expenditure ΔC	Marginal Propensity to Consume $\left(\dfrac{\Delta C}{\Delta Y}\right)$	Average Propensity to Consume $\left(\dfrac{C}{Y}\right)$
0	–	–6	6	–		
20	20	–3	23	17	0.85	1.15
40	20	0	40	17	0.85	1.00
60	20	3	57	17	0.85	0.95

30. Complete the following table   (Delhi 2009)

Income (Y)	Consumption (C)	Marginal Propensity to Save (MPS)	Average Propensity to Save (APS)
0	40		
50	70	....	....
100	100	....	....
150	120	....	....

Ans. $S = Y - C$, $MPS = \Delta S / \Delta Y$, $APS = S / Y$

Income (Y)	Change in Income (ΔY)	Consumption (C)	Saving (S) (Y − C)	Change in Savings (ΔS)	Marginal Propensity to Save $\left(\frac{\Delta S}{\Delta Y}\right)$	Average Propensity to Save $\left(\frac{S}{Y}\right)$
0	–	40	−40	–		
50	50	70	−20	20	0.4	−0.4
100	50	100	0	20	0.4	0.0
150	50	120	30	30	0.6	0.2

31. Complete the following table   (All India 2009)

Income (Y)	Marginal Propensity to Consume (MPC)	Saving (S)	Average Propensity to Save (APS)
0		−90	
100	0.6	....	....
200	0.6	....	....
300	0.6	....	....

Ans. $S = Y - C$, $APS = S / Y$

Income (Y)	Marginal Propensity to Consume (MPC)	Marginal Propensity to Save (1−MPC)	Saving (S)	Average Propensity to Save $\left(\frac{S}{Y}\right)$
0	–	–	−90	–
100	0.6	0.4	40	0.4
200	0.6	0.4	80	0.4
300	0.6	0.4	120	0.4

32. Complete the following table (All India 2009)

Income (Y)	Consumption (C)	Marginal Propensity to Save (MPS)	Average Propensity to Consume (APC)
0	15		
50	50	....	....
100	85	....	....
150	120	....	....

Ans. $S = Y - C$, $MPS = \Delta S/\Delta Y$, $APC = C/Y$

Income (Y)	Consumption (C)	Saving (S)	Marginal Propensity to Save $\left(\dfrac{\Delta S}{\Delta Y}\right)$	Average Propensity to Consume $\left(\dfrac{C}{Y}\right)$
0	15	−15		
50	50	0	0.3	1.0
100	85	15	0.3	0.85
150	120	30	0.3	0.8

33. Complete the following table (All India 2009)

Ans. $S = Y - C$, $MPS = \Delta S/\Delta Y$, $APC = C/Y$

Income (Y)	Consumption (C)	Saving (S)	Marginal Propensity to Save $\left(\dfrac{\Delta S}{\Delta Y}\right)$	Average Propensity to Consume $\left(\dfrac{C}{Y}\right)$
0	15	−15		
50	50	0	0.3	1.0
100	85	15	0.3	0.85
150	120	30	0.3	0.8

Ans. $S = Y - C$, $APC = C / Y$, $\Delta C = MPC \times \Delta Y$

Income (Y)	Change in Income (ΔY)	Marginal Propensity to Consume	Change in Consumption Expenditure ΔC	Consumption (C)	Saving (S)	Average Propensity to Consume $\left(\dfrac{C}{Y}\right)$
0	0	−	−	30	−30	
100	100	0.75	75	75	25	0.75
200	100	0.75	75	150	50	0.75
300	100	0.75	75	225	75	0.75

4 Mark Questions

34. Calculate Marginal Propensity to Consume from the following data about an economy which is in equilibrium

National Income = Rs. 2000

Autonomous Consumption Expenditure = Rs. 200

Investment Expenditure = Rs. 100 (All India 2014)

Ans. Given, $Y = ₹\,2000, \overline{C} = ₹\,200, I = ₹\,100$

We know, $Y = C + I, C = \overline{C} + by$

$$Y = \overline{C} + by + I, \qquad b = MPC$$

For calculation MPC, we use the following equation $Y = \overline{C} + bY + I$

$$2000 = 200 + 2000b + 100$$

$$b = \frac{2000 - 300}{2000} = \frac{1700}{200} = 0.85$$

Thus, $MPC = 0.85$

35.Calculate investment expenditure from the following data about an economy which is in equilibrium

National Income   = Rs. 1000
Marginal Propensity to Save   =   0.20
Autonomous Consumption Expenditure = Rs. 100   (All India 2014)

Ans. Given, $Y = 1000, MPS = 020, \overline{C} = 100$

$$I = ?$$

$$b/MPC = 1 - MPS, 1 - 020 = 0.80$$

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

$$1000 = 100 + 0.80 \times 1000 + I$$

$$I = 1000 - 900 = 100$$

36. Calculate autonomous consumption expenditure from the following data about an economy which is in equilibrium

National Income   = Rs. 500
Marginal Propensity to Save   = 0.30
Investment Expenditure   =Rs. 100   (All India 2014)

Ans. Given, $Y = 500, MPS = 0.30, I = 100, \overline{C} = ?$

$$b/\,MPC = 1 - MPS, 1 - 0.30 = 0.70$$

$$Y = C + I \quad \text{or} \quad Y = \overline{C} + bY + I$$

$$500 = \overline{C} + 0.70 \times 500 + 100$$

$$500 = \overline{C} + 350 + 100$$

$$\overline{C} = 500 - 450 = 50$$

$\therefore$ Autonomous consumption $(\overline{C}) = ₹\,50$

37. Calculate investment expenditure from the following data about an economy which is in equilibrium   (Delhi 2014)

National Income = Rs. 1000

Marginal Propensity to Save = 0.25
Autonomous Consumption Expenditure = Rs. 200

Ans. $Y = ₹1000, MP\bar{S} = 0.25, C = ₹200$

$MPC/B = 1 - MPS = 1 - 0.25 = 0.75$

$C = \bar{C} + bY, C = 200 + 0.75 \times 1000,$

$C = ₹950$

We know, $Y = C + I, 1000 = 950 + I,$

$I + 1000 - 950 = ₹50$

$I = ₹50$

38. Calculate autonomous consumption expenditure from the following data about an economy which is in equilibrium.   (Delhi 2014)
National Income = Rs. 1200
Marginal Propensity to Save = 0.20
Investment expenditure = Rs. 100

Ans. Given,

$I = ₹100, Y = ₹1200, MPS = 0.20$

$MPC/b = 1 - MPS = 1 - 0.20 = 0.80$

$Y = C + I, \text{ or } C = Y - 1$

or $1200 - 100 = 1100$

$C = \bar{C} + by$

$1100 = \bar{C} + 0.80 \times 1200$

$\bar{C} = 1100 - 960$

∴ Autonomous consumption expenditure

$(\bar{C}) = ₹140$

39. Calculate Marginal Propensity to Consume from the following data about an economy which is in equilibrium   (Delhi 2014)
National Income = Rs. 1500
Autonomous Consumption Expenditure = Rs. 300
Investment Expenditure = Rs. 300

Ans.
$$Y = ₹1500, \overline{C} = ₹300, I = ₹300$$
$$Y = C + I, C = Y - I$$
$$C = 1500 - 300 = ₹1200$$
$$B = MPC, C = \overline{C} + bY$$
$$1200 = 300 + 1500b$$
$$MPC / b = \frac{1200}{1800} = 0.6$$
$$MPC = 0.6$$

40. Calculate 'autonomous consumption expenditure' from the following data about an economy which is in equilibrium

National Income	= Rs. 900
Marginal Propensity to Save	= 0.10
Investment Expenditure	= Rs. 80 (Foreign 2014)

Ans. As we know that, Savings = Investment,
Therefore, Savings = Investment = Rs. 80.
Also, consumption expenditure = Income – Savings Expenditure
= 900 – 80 = Rs. 820
Also, Marginal Propensity to Consume (MPC) = 1 –   = 1 – 0.10
= 0.90
Now,

Consumption Expenditure = $\overline{C}$ + bY, where

$\overline{C}$ = Autonomous consumption,

b = MPC and Y = Income

So,

$$820 = \overline{C} + 0.90 \times 900$$
$$820 = \overline{C} + 810$$
$$820 - 810 = 10 = \overline{C}, \text{ i.e. Autonomous Consumption} = ₹10$$

41. Calculate 'investment expenditure' from the which is in equilibrium

National Income	= Rs. 700
Marginal Propensity to Consume	= 0.8
Autonomous Consumption Expenditure	= Rs. 70

Ans. Consumption Expenditure = Income $\overset{(Y)}{-}$ Savings$\overset{(S)}{,}$ ... (i)

Also, Consumption Expenditure = $\overline{C} + bY$, ...(ii)

Where $\overline{C}$ = Autonomous Consumption

b = Marginal Propensity to Consume (MPC)

Y = Income

So, from (i) and (ii) we get,

$$Y - S = \overline{C} + bY$$
$$700 - S = 70 + 0.8 \times 700$$
$$700 - S = 70 + 560$$
$$700 - S = 630$$
$$700 - 630 = S = 70$$

i.e. Savings = ₹ 70

We know that, Savings = Investments

∴ Investments = ₹ 70

42. Calculate 'Marginal Propensity to Consume' from the following data about an economy which is in equilibrium   (Foreign 2014)

National Income   = Rs. 800
Autonomous Consumption Expenditure   = Rs. 100
Investment Expenditure   =Rs.100

Ans. As we know that, Savings = Investment,
Therefore,   Savings = Investment = Rs. 100
Also, Consumption Expenditure = Income – Savings
800 -100 = Rs. 700

Now, Consumption Expenditure = $\overline{C} + bY$, where

$\overline{C}$ = Autonomous Consumption

b = Marginal Propensity to Consume (MPC) and Y = Income

So,
$$700 = 100 + b\,800$$
$$700 - 100 = 800\,b$$
$$600 = 800\,b$$
$$\frac{600}{800} = b = 0.75$$
∴ $$MPC = 0.75$$

43. Outline the steps taken in deriving saving curve from the consumption curve. Use diagram. (Foreign 2014; Delhi 2012)
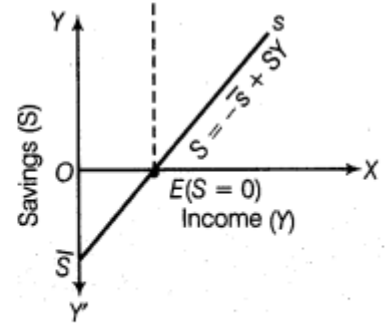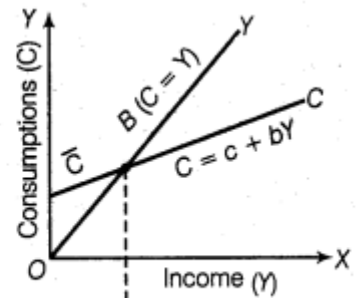**or**
Explain the steps taken in derivation of saving curve from the consumption curve. Use diagram. (Delhi 2014; Delhi 2011C)

Ans. Various steps to be taken for derivation of saving curve from consumption curve are:

(i) At zero level of income (Y), the autonomous consumption is $O\overline{C}$. If we take the vertical distance between the Consumption Curve ($C\overline{C}$) and income line at zero level of income, then $\overline{S} = -O\overline{C}$. Hence, the savings curve starts from the point $\overline{S}$ on the negative Y-axis.

(ii) The consumption curve intersects income line at point B. B is the break even point, where consumption is equal to income (C = Y). At this point, saving will be zero as all the income is consumed. Hence, the saving curve will intersect the X-axis (at point E) at this income level.

(iii) Consumption is less than income beyond point E. It means the excess income after consumption is saved and hence the saving curve moves toward positive direction above X-axis with the increase in the level of income.

$$Y = C + S$$
$$S = Y - C$$
$$= Y - (\overline{C} + by)$$
$$= Y - \overline{C} - bY$$
$$= -\overline{C} + (1 - b)Y \Rightarrow \overline{S} + SY,$$

Where, $\overline{S} = -\overline{C}$ and $(1 - b) = S$ or Marginal Propensity to Save. $(1 \times 3 = 3)$

6 Mark Questions

44. Outline the steps taken in deriving consumption curve from the saving curve. Use diagram.   (All India 2014; 2012)
 or

Explain the steps taken in derivation of consumption curve from savings curve. Use diagram.   (All India 2011)
Ans. Various steps to be taken for derivation of consumption curve from saving curve

are

Ans. Various steps to be taken for derivation of consumption curve from saving curve are:

(i) At zero level of income savings is negative (i.e. dissavings) represented by $O\bar{S}$. This is equal to the autonomous consumption level $O\bar{C}$.

(ii) We draw a 45° line passing through the origin which shows that $C = Y$. This is the income line.

(iii) Now we draw a vertical line from the point E, where saving is zero. At zero level of saving, $C = Y$, so B is the break event point.

(iv) The consumption curve is derived meeting $\bar{C}$ and B and extending it forward.

$$Y = C + S$$
$$C = Y - S$$
$$= Y - (-\bar{S} + SY)$$
$$= Y + \bar{S} - SY$$
$$C = \bar{S} - (1-S)Y$$
$$C = \bar{C} + bY$$

Where, $\bar{S} = \bar{C}$ and $(1-S) = b$, which is Marginal Propensity to Consume.
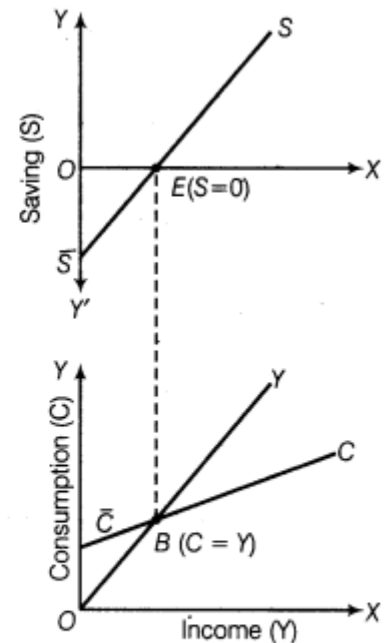
45. Explain the consumption function and saving function.(Foreign 2014)

Ans. (i) Consumption functions The functional relationship between the consumption expenditure and the income is known as consumption function.

$C = f(Y)$, Where C = Consumption expenditure,

y = Income, and f = Functional relationship.

Consumption function in terms of an algebraic expression can be written as $C = \bar{C} + bY$

Where, C = Consumption expenditure

$\bar{C}$ = Autonomous consumption at $Y = 0$

b = Marginal Propensity to Consume

Y = Income

(ii) **Saving functions** The functional relationship between the savings and income is known as saving function.

$S = f(Y)$, Where S = Saving, Y = Income and f = Functional relationship.

Saving function as an algebraic expression, can be written as

$$S = \bar{S} + sY$$

Where, S = Saving function

$\bar{S}$ = Saving at zero level of income (Dis-savings or borrowings)

S = Marginal Propensity to Save

Y = Income

46. (i) Distinguish between autonomous investment and induced investment.
(ii) On the basis of the following information about an economy, Calculate its equilibrium level of income   (Compartment 2014)

Autonomous Consumption	**= Rs. 100**
Marginal Propensity to Consume	**= 0.75**
Investment	**= Rs. 5000**

Ans. (i) Difference between autonomous investment and induced investment

Basis	Autonomous investment	induced investment
Motive	It is done to promote social welfare.	It is driven by profit motive.
Sector	It is generally undertaken by the government.	It is generally done by private sector.
Income elasticity	It is not affected by the changes in income level.	It is affected by the changes in the income level.

(ii) Income = Consumption + Savings, or

Consumption (C) = Income (Y) − Savings (S)

Also, Consumption Expenditure (C) = $\bar{C}$ + bY

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

b = Marginal Propensity to Consume, and

Y = Income,

So, from the above two relations, we get

$$Y - I (\because S = I) = \bar{C} + bY$$
$$Y - 5000 = 100 + 0.75Y$$
$$Y - 0.75Y = 100 + 5000$$
$$0.25Y = 5100$$
$$Y = \frac{5100}{0.25} = ₹\, 20,400$$

Therefore, equilibrium level of income = ₹ 20,400

47. (i) Distinguish between Aggregate Demand and Aggregate Supply.
(ii) From the following data about an economy, calculate its equilibrium level of income.(Compartment 2014)

Marginal Propensity to Consume	**= 0.8**
Investment	**= Rs. 5000**
Autonomous Consumption	**= Rs. 500**

Ans. (i) Difference between Arrgegate Demand and Aggregated supply

Basis	Aggregate Demand	Aggregate Supply
Meaning	Aggregate Demand refers to the total value of final goods and services that all sectors of the economy taken together are planning to 'buy' at a given level of income during a period of time.	Aggregate Supply means the value of final goods and services planned to be produced by all the production units in the economy taken together during a period.
Components	Components of AD are private consumption expenditure, private investment expenditure, government expenditure and net exports.	Components of AS are consumption expenditure and Savings.
Origin of the curve	AD curve originates from Y-axis.	AS curve originates from origin.

Income = Consumption + Savings, or Consumption Expenditure (C) = Income (Y) − Savings (S)

Also, Consumption Expenditure (C) = $\overline{C}$ + bY,

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

                              b = Marginal Propensity to Consume, and Y = Income,

So, from the above two relations, we get

$$Y - I \,(\because S = I) = \overline{C} + bY$$
$$Y - 5000 = 500 + 0.8Y$$
$$Y - 0.8Y = 500 + 5000 = 0.2Y = 5500$$
$$Y = \frac{5500}{0.2} = ₹\,27{,}500$$

Therefore, equilibrium level of income = ₹ 27,500

48. Complete the following table (Delhi 2013)

Income (Y)	Saving (S)	Average Propensity to Consume (APC)	Marginal Propensity to Consume (MPC)
0	− 40		
50	− 20	....	....
100	0	....	0.6
150	30	0.8	....
200	50	....	....

Ans. $C = Y - S$, $APC = C/Y$, $MPC = \dfrac{\Delta C}{\Delta Y}$

Income (Y)	Saving (S)	Consumption (C)	Average Propensity to Consume (APC)	Marginal Propensity to Consume (MPC)
0	−40	40	0	....
50	−20	70	1.4	0.6
100	0	100	1	0.6
150	30	120	0.8	0.4
200	50	150	0.75	0.6

49. Complete the following table (Delhi 2013)

Income (Y)	Consumption Expenditure (C)	Marginal Propensity to Save (MPS)	Average Propensity to Save (APS)
0	80	....	....
100	140	0.4.	....
200	....	....	0
....	240	....	0.20
....	260	0.8	0.35

Ans. $Y = C + S$, $S = Y - C$, $MPS = \dfrac{\Delta S}{\Delta Y}$, $APS = \dfrac{S}{Y}$

Income (Y)	Consumption Expenditure (C)	Saving (S)	Change in Saving (ΔS)	Change in Income (ΔY)	Marginal Propensity to Save (MPS)	Average Propensity to Save (APS)
0	80	−80	....	....	....	....
100	140	−40	40	100	0.4	−0.4
200	200	0	−40	100	−0.4	0
300	240	60	60	100	0.6	0.20
400	260	140	80	100	0.8	0.35

50. From the data given below about an economy, calculate
(i) Investment expenditure (ii) Consumption expenditure.
Equilibrium level of income   Rs. 5000
Autonomous consumption   Rs. 500
Marginal Propensity to Consume   0.4   (All India 2013)

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

$5000 = 2500 + I$

$I = 5000 - 2500$

Investment expenditure $(I) = ₹ 2500$

(ii) $C = \bar{C} + bY,\ b = MPC$

$C = 500 + 0.4 \times 5000$

$C = 500 + 2000$

Consumption expenditure $(C) \doteq ₹ 2500$

51. In an economy, S = -100 + 0.6 Y is the saving function, where S is saving and Y is National Income. If investment expenditure is Rs.1100. Calculate
(i) Equilibrium level of National Income.
(ii) Consumption expenditure at equilibrium level of National Income. (Delhi 2013)

Ans. $S = -100 + 0.6\ Y$

$I = *1100$

(i) Equilibrium level of National Income

$S = I$

$-100 + 0.6Y = 1100$

$0.6Y = 1100 + 100$

$Y = 1200/0.6 = Rs.\ 2ooo$

$Y = Rs.\ 2000$

(ii) Consumption expenditure at equilibrium level of National Income

$Y = C + I$

$C = Y - I$

$C = 2000 - 1100 = Rs.\ 900$

$C = Rs.\ 900$

52. C = 100 + 0. AY is the consumption function of an economy, where C is consumption expenditure and Vis National Income. Investment expenditure is Rs. 1100. Calculate
(i) Equilibrium level of National Income.
(ii) Consumption expenditure at equilibrium level of National Income. (Delhi 2013)

Ans. Given, $C = 100 + 0.4Y$

$I = Rs.\ 1100$

(i) Equilibrium level of National Income

$Y = C + I$

$Y = 100 + 0.4Y + 1100$

$Y - 4Y = 100 + 1100$

— $0.6Y = 1200$

$Y = 1200/6$

Y= Rs. 200
(ii) Consumption expenditure at equilibrium level of income
C = 100 + o.4y
C =100 + 0 .4 x 2000
C = 100 + 800=900
C = Rs.900

53. C= 50+ 0. 5Y is the consumption function of an economy, where C is consumption expenditure and Y is National Income and investment expenditure is Rs. 2000 in an economy. Calculate
(i) Equilibrium level of National Income.
(ii) Consumption expenditure at equilibrium level of National Income.   (Delhi 2013)

Ans. $Y = C + I$ or $C+5$
Given, $C = 50+0.5Y$
I=Rs. 2000
(i) Equilibrium level of National Income
$Y= C + I$
$Y= 50 + 0.5y + 2000$
$0.5 Y= 50 + 2000 = 2050/0.5$
$Y = Rs. 4100$ (therefore, National Income =Rs. 4100)
(ii) Consumption expenditure at equilibrium level of National Income
$C = 50 + 05y$
$C = 50 + 05 \times 4100$
$C= 50 + 2050$
$C= Rs. 2100$ (therefore, Consumption expenditure =Rs. 2100)

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

Ans. The functional relationship between the consumption expenditure and the income is known as consumption function.
$C = f(Y)$, Where C = Consumption expenditure,
y = Income, and f = Functional relationship.
Consumption function in terms of an algebraic expression can be written as
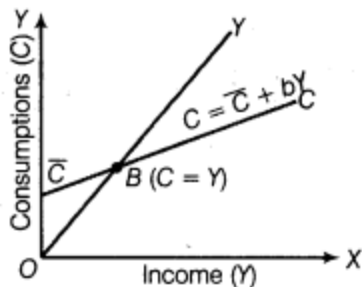$$C = \bar{C} + bY$$
Where, C = Consumption expenditure
$\bar{C}$ = Autonomous consumption at $Y = 0$
b = Marginal Propensity to Consume
Y = Income

Let us understand it with the help of a schedule and diagram

Consumption (C)	Income (Y)	Marginal Propensity to Consume (MPC) = $\frac{\Delta C}{\Delta Y}$	ΔC	ΔY
100	0	–	–	–
170	100	0.7	70	100
240	200	0.7	70	100
310	300	0.7	70	100
380	400	0.7	70	100
450	500	0.7	70	100

The point B represents the breakeven point, where the consumption expenditure equals the income. To the left of point B, consumption is greater than income and to the right of point B, consumption is less than income

55. Explain saving function with the help of a schedule and diagram.

(All India 2008)

Ans. The functional relationship between the savings and income is known as saving function.

S = f (Y), Where S = Saving, Y = Income and f = Functional relationship.

Saving function as an algebraic expression, can be written as

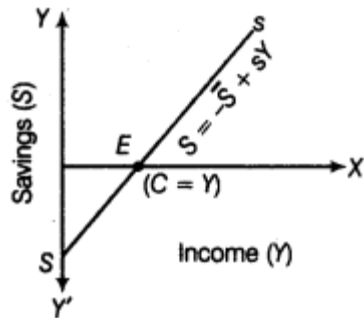$$S = \bar{S} + sY$$

Where, S = Saving function

$\bar{S}$ = Saving at zero level of income (Dis-savings or borrowings)

S = Marginal Propensity to Save

Y = Income

Let us understand saving function with the help of a schedule and diagram

Income (Y)	Consumption (C)	Savings (S)	Average Propensity to Save (APS) = S/Y	Marginal Propensity to Save (MPS) = $\frac{\Delta S}{\Delta Y}$	Change in Saving ΔS	Chainge in Income ΔY
0	100	-100	-	-	-	-
100	160	-60	-0.6	0.4	40	100
200	220	-20	-0.1	0.4	40	100
300	280	20	0.067	0.4	40	100
400	340	60	0.15	0.4	40	100
500	400	100	0.2	0.4	40	100
600	460	140	0.233	0.4	40	100

Point E represents the breakeven point where income is equal to consumption hence, saving is equal to zero. To the left of point E, there is negative savings or dissaving's (represents the situation when income is less then consumption), to the right of E, there is positive savings (represents the situation when income is greater than consumption).