Economics 2015 (Outside Delhi)   SET I

Time allowed : 3 hours   **Maximum marks : 70**

SECTION—A

1. **Define indifference curve.**   **[1]**

   Answer : Indifference curve is a curve that depicts various combinations of two goods that provides a consumer with the same level of satisfaction. In other words, it shows those combinations of two goods between which the consumer is indifferent.

2. **If due to fall in the price of good X, demand for good Y rises, the two goods are : (choose the correct alternative)**   **[1]**

   (a) Substitutes   (b) Complements

   (c) Not related   (d) Competitive

   Answer : (b) Complements.

3. **If Marginal Rate of Substitution is increasing throughout, the Indifference Curve will be : (choose the correct alternative)**   **[1]**

   (a) Downward sloping convex

   (b) Downward sloping concave

   (c) Downward sloping straight line

   (d) Upward sloping convex

   Answer : (b) Downward sloping concave.

4. **Giving reason comment on the shape of Production Possibilities curve based on the following schedule :**   **[3]**

Good X (units)	Good Y (units)
0	30
1	27
2	21
3	12
4	0

Answer : Based on the below schedule, we can say that PPC is concave to origin. This is because as the production increases, to produce each additional unit of Good X, more and more units of Good Y need to be sacrificed. In other words, the opportunity cost of producing one good in terms of another increases.

| Good X (units)	Good Y (units)	Opportunity Cost
0	30	–
1	27	3
2	21	6
3	12	9
4	0	12

The following figure depicts the shape of PPC.
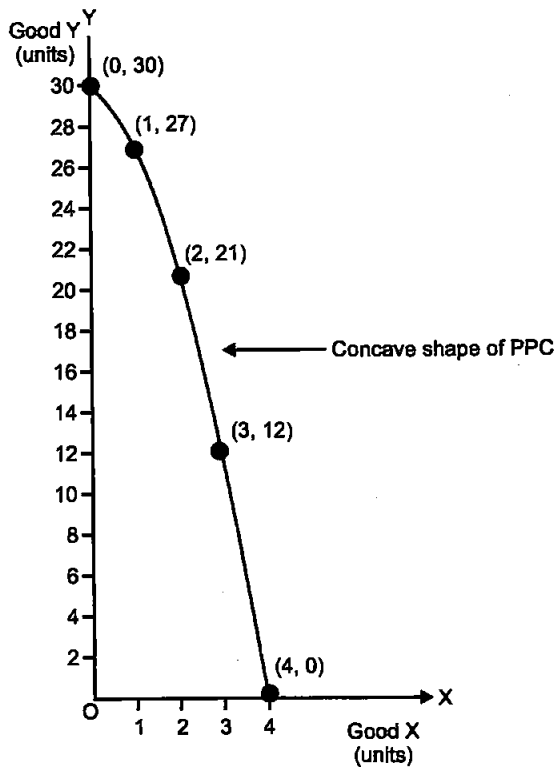
Thus, the shape of PPC is concave which can be attributed to the law of increasing opportunity cost.

5. **What is likely to be the impact of "Make in India" appeal to the foreign investors by the Prime Minister of India, on the production possibilities frontier of India ? Explain.**

OR

What is likely to be the impact of efforts towards reducing unemployment on the production potential of the economy? Explain.   [3]

Answer : "Make in India" appeal to the foreign investors by the Prime Minister of India will lead
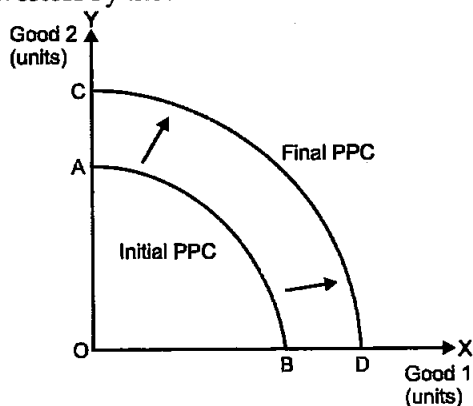

to the large scale inflow of foreign capital which will result in the increase in the availability of resources in the economy, thereby shifting the Production Possibility Curve (PPC) parallelly to the right from AB to CD as shown in the

following diagram.
Impact of "Make in India" appeal on PPC
OR

Due to the efforts towards reducing unemployment. The point which was earlier below the Production possibility curve (indicating under utilisation of resources) will shift close to or on the PPC (indicating better utilisation of resources). This movement is being depicted in the below graph with the help of the arrow from point P.
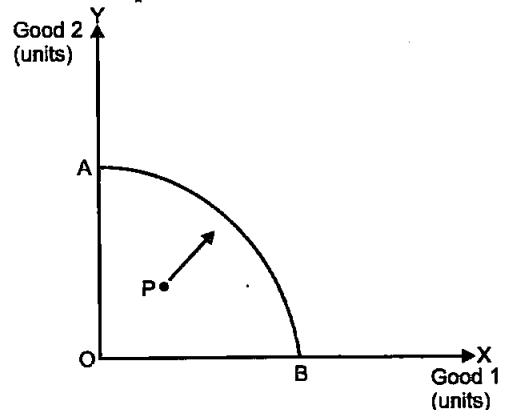
Impact or efforts towards reducing unemployment on PPC

6. **Explain the significance of 'minus sign' attached to the measure of price elasticity of demand in case of a normal good, as compared to the 'plus sign' attached to the measure of price elasticity of supply.   [3]**

Answer : The measure of price elasticity of demand of normal good carries minus sign as there exists an inverse relationship between demand and price of the good. That is, other things remaining constant, as the price of a good rises (or falls), the quantity demanded of the good falls (or rises). On the other hand, price elasticity of supply carries plus sign as there exists a positive relationship between the supply of a commodity and its price. To put in other words, when the price of a good rises (or falls), then the quantity supplied will increase (or decrease), other things remaining unchanged.

7. **In a perfectly competitive market the buyers treat products of all the firms as homogeneous. Explain the significance of this feature.   [3]**

Answer : In a perfectly competitive market, the buyers treat products of all the firms as homogeneous. This implies that all the firms in perfect competitive market produces homogeneous product. This further implies that the product of each and every firm in the market is perfect substitute to other product in terms of quantity, quality, colour, size, features, etc. This indicates that the buyers are indifferent

between the products of different firms. Due to homogeneity of the products, existence of uniform price is guaranteed.

Implication : The products of different firms are qualitatively and quantitatively homogeneous.

8. **What are the effects of 'price-floor' (minimum price ceiling) on the market of a good? Use diagram.** [3]

Answer : Price floor implies legislated or government fixed minimum price that should be charged by the seller. Since price floor is above the equilibrium price (OP_e), thus the imposition of the price floor leads to excess supply as shown in the diagram below.
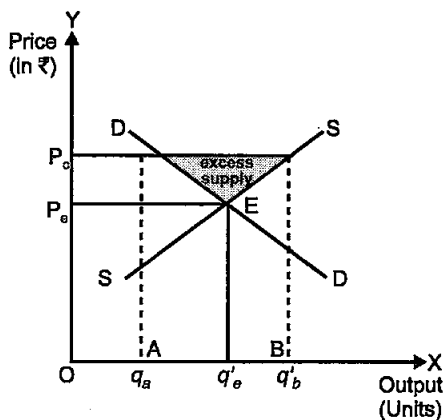
The following are the consequences and effects of price floor :

Assurance to the farmers : The imposition of the price floor assures the farmers that, whatever they produce will get sold in the market. This implies that the farmers can produce to their maximum.

Assurance of returns : Due to the price floor, the farmers need not to bother about the sale of their output. This ensures a minimum guaranteed return to their investment in the production process.

Higher income : The minimum guaranteed returns in form of minimum price and minimum wage to labourers, result in increase in the income of the poor people.

Burden on consumers : Price floor exerts additional pressure on the consumers and the traders, as they need to buy the products at comparatively higher price (OP_c in the figure) instead of the equilibrium price (OP_e).

Burden on government : It also puts extra burden on the government revenues. It becomes mandatory for the government to purchase the excess produce, even if it runs a sufficient volume of buffer stocks.

Higher taxes : The government tries to shift the burden (associated with purchasing the excess produce at higher price) to the consumers and the traders in form of higher taxes.

9. **A consumer spends ₹1,000 on a good priced at 10 per unit. When its price falls by 20 percent, the consumer spends ₹800 on the good. Calculate the price elasticity of demand by the Percentage method.** [4]

Answer : Given :

$$\text{Initial Total Expenditure (TE}_0) = ₹1000$$
$$\text{Final Total Expenditure (TE}_1) = ₹800$$
$$\text{Initial Price (P}_0) = ₹10$$
$$\text{Percentage change in price} = -20$$

$$\text{Percentage change in price} = \frac{P_1 - P_0}{P_0} \times 100$$

$$-20 = \frac{P_1 - 10}{10} \times 100$$

$$\frac{-200}{100} = P_1 - 10$$

$$P_1 = 8$$

Price (P)	Total Expenditure (TE) = Price (P) × Quantity (Q)	Quantity (Q) $= \dfrac{TE}{P}$
$P_0 = ₹10$	$TE_0 = ₹1000$	$Q_0 = 100$
$P_1 = ₹8$	$TE_1 = ₹800$	$Q_1 = 100$

Now,

$$E_d = (-)\ \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

$$E_d = (-)\ \frac{\dfrac{Q_1 - Q_0}{Q_0} \times 100}{-20}$$

$$E_d = (-)\ \frac{\dfrac{100 - 200}{100} \times 100}{-20}$$

$$E_d = 0$$

$$\therefore \quad E_d = 0$$

Thus, the price elasticity of demand is 0.

10. **What is the behaviour of (a) Average Fixed Cost and (b) Average Variable Cost as more and more units of a good are produced ?**
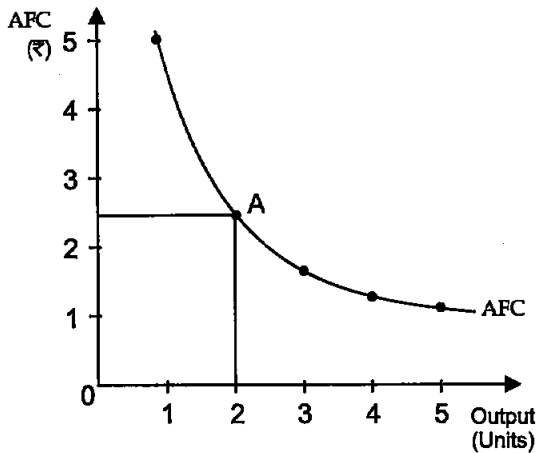
OR

Define Average Revenue. Show that Average Revenue and Price are same. [4]

Answer : (a) Average Fixed cost is defined as the fixed cost per unit of output produced. It is

derived by dividing the total fixed cost produced. That is,

$$AFC = \frac{FTC}{Q}$$

As more and more units of output are produced, the shape of AFC becomes that of rectangular hyperbola. That is, AFC is downward sloping rectangular hyperbola. This is because at any point on AFC curve, if AFC is multiplied by corresponding unit of output, then we get TFC. For example, at point A in the above figure, AFC is ₹2.5 and corresponding output produced is 2 units, hence, TFC is ₹ 5 (*i.e.* ₹2.5 × 2)

(b) Average Variable Cost is defined as the variable cost per unit of output produced. It is derived by dividing the Total Variable Cost by quantity of output produced. That is,

$$AVC = \frac{TVC}{Q}$$
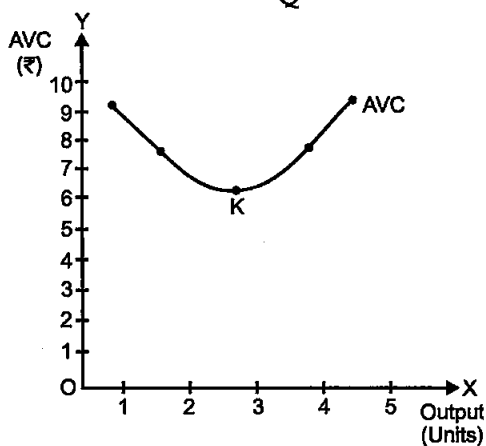
AVC is a U-shaped curve, That is, as output increases, the AVC curve falls and reaches its minimum point 'K' and then rises up. The reason behind the U-shape of AVC curve is the Law of Variable Proportion.

OR

Average Revenue(AR) is defined as revenue earned per unit of output sold. AR is same as that of price (P) of the output (Q).

Algebraically,

$$AR = \frac{TR}{Q}$$

where, TR is total revenue

Q = Output

We know that TR = P × Q

$$\therefore \quad AR = \frac{P \times Q}{Q} \Rightarrow AR = \frac{P \times \cancel{Q}}{\cancel{Q}}$$

$$AR = P$$

Thus, AR is always equal to the price of the output.

11. **A consumer consumes only two goods X and Y, both priced at ₹2 per unit. If the consumer chooses a combination of the two goods with Marginal Rate of Substitution equal to 2, is the consumer in equilibrium? Why or why not?**

What will a rational consumer do in this situation? Explain. [6]

OR

A consumer consumes only two goods X and Y whose prices are ₹5 and ₹4 respectively. If the consumer chooses a combination of the two goods with marginal utility of X equal to 4 and that of Y equal to 5, is the consumer in equilibrium? Why or why not? What will a rational consumer do in this situation? Use utility analysis.

Answer : At the point of consumer equilibrium the following equality should be met :

$$MRS = \frac{P_x}{P_y}$$

According to the question,

$$MRS = 2$$

$$\frac{P_x}{P_y} = \frac{2}{2} = 1$$

So, MRS is greater than the price ratio. Thus, to reach the equilibrium point a rational consumer would decrease the consumption of good y.

OR

According to the utility approach, a consumer reaches equilibrium where the following equality is met.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

According to the given question

$$\frac{MU_x}{P_x} = \frac{4}{5}$$

$$\frac{MU_y}{P_y} = \frac{5}{4}$$

So, $\frac{MU_y}{P_y}$ is greater than $\frac{MU_x}{P_x}$. Thus, to reach the equilibrium, a rational consumer would increase the consumption of good y and decrease that of good x.

12. **What are the different phases in the Law of Variable Proportions in terms of marginal product? Give reason behind each phase. Use diagram.** [6]

Answer : The Law of Variable Proportions states that if more and more of variable factor (labour) is combined with the same quantity of fixed factor (capital), then initially the total product will increase but gradually after a point, the total product will become smaller and smaller. Also, a point will be reached thereafter, the marginal product of the variable factor will start falling and after this point the marginal product of any additional variable factor can be zero and even be negative.

The following are the three phases (stages) of the Law of Variable Proportions.

1st Stage : Increasing returns to a factor

This stage starts from the origin point O and continues till the point M on the TP curve. During this phase, TP increases at an increasing rate and is also accompanied by rising MP curve (in figure ii). The MP curve attains its maximum point (U) corresponding to the point of inflexion (K). Throughout this stage, AP continues to rise.

Reasons for Increasing returns to a factor

(1) Underutilization of the fixed factor : In the first stage of production, there are not enough labour units to fully utilise the fixed factor. Therefore, the firm can increase its output just by combining more and more of labour inputs with the fixed factor, thereby; the output of the additional unit of labour (*i.e.* MP) tend to rise.

(2) Division of labour : The increase in the labour input enables the division of labour, which further increases the efficiency and productivity of the labour.

(3) Specialisation of labour : Due to the division of labour, specialisation of individual labour unit increases, which in turm raises the overall efficiency and productivity. Consequently, the MP curve rises and TP curve continues to rise.

IInd Stage : Diminishing returns to a factor

This stage starts from point K and continues till point B on the TP curve. During this stage, the TP increases but at a decreasing rate and attains its maximum point at B, where it remains constant. On the other hand (in the figure ii), the MP curve continues to fall. When TP attains its maximum point, corresponding to it, MP becomes zero. AP, in this stage initially rises, attains its maximum point at Z and thereafter starts falling.

Reasons for decreasing returns to a factor

(1) Fuller utilisation of fixed factor—In this stage, the fixed factor is utilised to its maximum level as more and more of labour inputs are employed. Imperfect substitutability between labour and capital, the variable factors are imperfect substitute for the fixed factor. Therefore, the firm cannot substitute labour for capital and as a result diminishing retuns takes place.

(2) Optimum proportion/ideal factor ratio : The optimum proportion (or ideal factor ratio) is a fixed ratio in which the labour and capital inputs are employed. These factors will be most efficient if they are employed as per the optimum proportion. If this proportion is disturbed (by combining more of labour inputs to the fixed units of capital), then the efficiency of the factors will fall, thereby leading to the diminishing retuns to the factor.

IIIrd Stage : Negative returns to a factor

This stage begins from the point B on the TP curve. Throughout this point, TP curve is falling and MP curve is negative. Simultaneously, the AP curve continues to fall and approaches the X-axis (but does not touch it). Like the first stage, this stage is also known as non- economic zone as any rational producer would not operate in this zone. This is because the addition to the total output by the additional labour unit (*i.e.* marginal product) is negative. This implies that employing more labour would not contribute anything to the total product but will add to cost of the production in form of additional wage. Hence, the cost of the additional labour input is greater than the benefit of employing it.

Reasons for negative returns to a factor

(1) Over utilisation of the fixed factors : In the third stage of production, the variable factor is in excessive relative to the fixed factors. This leads to the over utilisation of the fixed factor, thereby negative returns to a factor sets in.

(2) Negative marginal product : Throughout this stage the TP curve is continuously falling, consequently, the additional product by the additional unit of labour becomes negative. This implies that in this stage of production, the cost of employing labour is substantially higher than its contribution to the total product.

(3) Problem of management : With the increased

number of labour units employed, it becomes hard for the management of the firm to efficiently manage them. Thus, due to the mismanagement and lack of responsibility, inefficiency is infused in the system.

Let us understand the various stages with the help of following schedule and graph.

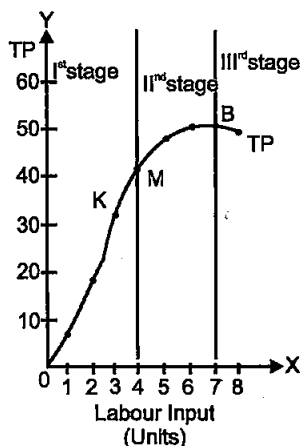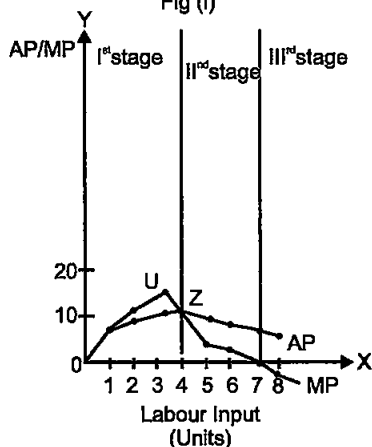| Units of Capital	Units of Labour	TP	AP = $\frac{\text{Total Product}}{\text{Units of Labour}}$	MP = $\frac{\Delta TP}{\Delta L}$
1	0	0	0	–
1	1	7	7	7
1	2	18	9	11
1	3	33	11	15
1	4	44	11	11
1	5	48	9.6	4
1	6	51	8.5	3
1	7	51	7.4	0
1	8	49	6.1	–2

Fig (i)

Fig (ii)

13. Explain why will a producer not be in equilibrium if the conditions of equilibrium are not met. [6]
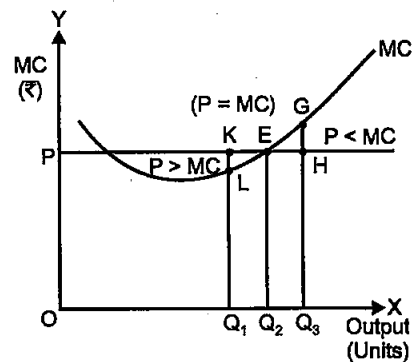
Answer : According to MR-MC approach, the firm (or producer) will attain its equilibrium, when the following two necessary and sufficient conditions are fulfilled.

1. MR = MC

2. MC is rising at the point of intersection with MR

Now, let us evaluate what would happen if the two conditions are not met.

Case A : If Price (MR) > MC

'At output OQ_1, price is KQ_1, and the marginal cost is LQ_1, such that $KQ_1 > LQ_1$. Therefore, OQ_1, is not the profit maxmising output. This is due to the fact that the firm can increase profit by increasing the production of output to OQ_2.

At output OQ_3, price is HQ_3 and the marginal cost is GQ_3, such that $HQ_3 < GQ_3$. Therefore, OQ_3 is not the profit maximizing output. This is due to the fact that the firm can increase its profit by reducing its output level to OQ_2.

Thus, we can conclude that at profit maximization output, the equilibrium price (or MR) must be equal to the MC curve and it cannot be greater or lesser than the MC curve.

The equality of MR and MC is only the necessary condition. The sufficient condition is that the MC should be rising at the point of intersection with MR.

Case B : If Price (MR) < MC
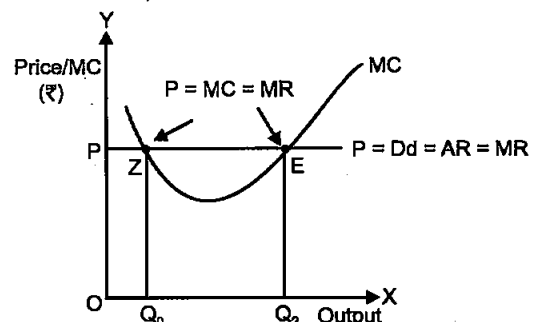
In the figure, the MC curve cuts the price line (or MR) at two different points *i.e.*, at 'Z' and 'E'. The first order condition of profit maximization, *i.e.*, Price (or MR) = MC is fulfilled at both of these points. Now let us evaluate which of the following two cases fulfills the second order condition of profit maximization.

Case A : At point 'Z'

At point 'Z', price is equal to MC but MC is falling and is negatively sloped. At this point, any output level slightly more than the OQ_0, the firm is facing price that exceeds the MC. This implies that the profit can be maximized by increasing output level beyond OQ_0. Therefore, OQ_0 is not a profit maximisation output.

Case B : At point 'E'

To the left of the point 'E', if the firm produces slightly lesser level of output than OQ_2, then the firm is facing price that exceeds the MC. This implies that higher profits can be achieved by increasing the level of output to OQ_2. On the other hand, to the right of the point 'E'. If the firm produces slightly higher level of output than OQ_2, then the firm is facing price that falls short of the MC. This implies that higher profits can be achieved by reducing the output level to OQ_2. Thus, the point E is the producer's equilibrium and OQ_2 is the profit maximizing output level, where Price = MC and also MC curve is rising.

14. **Market for a good is in equilibrium. The supply of good "decreases". Explain the chain of effects of this change.** [6]

Answer : When the market is in equilibrium, this implies that the market demand is equal to the market supply at the equilibrium point. Now, in case the market supply decreases, this leads to a leftwards shift in the market supply curve. This is because a decrease in supply refers to a fall in the supply of the given commodity due to change in factors other than price. Thus, in the given case the supply curve will shift towards left. As a result, there will exist a situation of excess demand at the equilibrium point. This can be shown in the following diagram.
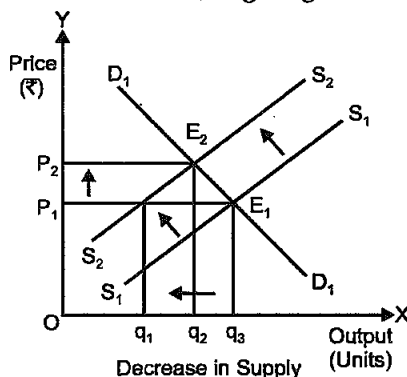
Decrease in Supply

As the market supply decreases, the initial supply shifts leftwards to the new supply curve S_2S_2 from S_1S_1. Now at the initial market price of OP_1. There exists excess demand. This excess demand will increase competition among the buyers and they will now be ready to pay a higher price to acquire more units of a good. This will further raise the market price. The rise in the price will continue till the market price becomes OP_2. The new market supply curve intersects the initial demand curve. The total quantity supplied will fall to Oq_2 and the new equilibrium price will rise to OP_2.

SECTION—B

15. **What is 'aggregate demand' in macroeconomics?** [1]

Answer : Aggregate demand refers to the total value of final goods and services which all the sectors of an economy are planning to buy at a given level of income during a period of an accounting year.

16. **If MPC = 1, the value of multiplier is : (choose the correct alternative)** [1]
    (a) 0   (b) 1
    (c) Between 0 and 1   (d) Infinity

    Answer : The value of multiplier is $\dfrac{1}{1-\text{MPC}}$. Here, MPC refers to the Marginal propensity to consume.

    As we are given the value of MPC as 1. Thus, the value of multiplier becomes infinity.

    Hence, the correct answer is option **(d)**.

17. **Primary deficit in a government budget is : (Choose the correct alternative).** [1]
    (a) Revenvue expenditure – Revenvue receipts
    (b) Total expenditure – Total receipts
    (c) Revenvue deficit – Revenvue payments
    (d) Fiscal deficit – Interest payments

    Answer : (d). Fiscal deficit

18. **Direct tax is called direct because it is collected directly from: (Choose the correct alternative)** [1]

    (a) The producers on goods produced
    (b) The sellers on goods sold
    (c) The buyers of goods
    (d) The income earners

    Answer : (d), The income earners

19. **Other things remaining the same, when in a country the market price of foreign currency falls, national income is likely: (Choose the correct alternative)** [1]
    (a) to rise
    (b) to fall
    (c) to rise or to fall
    (d) to remain unaffected

    Answer : (b) to fall

20. If the Real GDP is ₹ 400 and Nominal GDP is ₹450, calculate the Price Index (base = 100). [3]

Answer : We know,

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}} \times 100$$

$$400 = \frac{450}{\text{Price Index}} \times 100$$

$$\text{Price Index} = \frac{450}{400} \times 100 = 112.50$$

21. **What are fixed and flexible exchange rates?** [3]

OR

Explain the meaning of Managed Floating Exchange Rate.

Answer : Fixed exchange rate refers to a system where the exchange rate is held constant or fixed by the monetary authority of the country. Under this regime, the monetary authority of the country pegs (or, fixes) the value of its currency against various other currencies. This system of exchange rate avoids frequent fluctuations in the exchange rate and makes international trade more predictable.

On the other hand, a flexible exchange rate refers to a system where the exchange rate is determined by the market forces (demand for foreign exchange and supply of foreign exchange) with minimum or no government intervention. The equilibrium exchange rate is determined where the demand for foreign currency is equal to the supply of foreign currency.

OR

Managed floating system of exchange rate combines the features of both the fixed exchange rate as well as the flexible exchange rate. On one hand, the foreign exchange market is allowed to operate freely and on the other hand, there is an official declaration of rules or guidelines for the intervention by the monetary authority. In other words, the managed floating exchange rate regime determines the exchange rate through the market forces with intervention of the monetary authority as and when required.

22. **Where is 'borrowings from abroad' recorded in the Balance of Payments Accounts? Give reasons.** [3]

Answer : Borrowings by a country from the foreign countries or from the international money market are recorded in the Capital Account of the BOP. As these borrowings results in inflow of foreign exchange into the country. Hence, they are recorded as positive items in the Capital Account of BOP.

23. **Explain the "Banker's Bank as a function" of the central bank.** [4]

OR

Explain the "Bank of Issue function" of the central bank.

Answer : Banker's Bank : Central bank is the apex bank of all the commercial banks and financial institutions in the country. It holds the same relationship with the commercial banks as commercial bank holds with its customer. The central bank accepts deposits from the commercial banks and holds it as reserves for them. The commercial banks are compulsorily required to hold a part of their deposits as reserves with the central bank in accordance with the cash reserve ratio (CRR). In addition to the CRR requirements, the commercial banks hold reserves with the central bank for clearing their settlements with other banks and to fulfil their requirements of inter-bank transfers.

OR

Bank of issue function of central bank implies that Central Bank has the exclusive authority to issue the currency (notes + coins). The currency issued by the central bank is known as 'legal tender money' i.e., the value of such currency is backed by the central bank. However, the currency issued by the central bank is its monetary liability. In other words, the central bank is obliged to back the currency issued with, assets of equal value such as gold coins and bullions, foreign exchange, etc. In addition to issuing currency to the general public, the central bank also issues currency to the central government of the country. That is, the central government if required, can sell its securities to the central bank and in return gets the required cash currency.

24. **Currency is issued by the central bank, yet we say that commercial banks create money. Explain. How is this money creation by commercial banks likely to affect the national income? Explain.** [4]

Answer : We know that RBI prints new money, while on the other hand, commercial banks multiplies money supplied by the RBI through the process of credit creation. People deposit money in their respective bank accounts. As per the central bank guidelines, the commercial banks are required to maintain a portion of total deposits in form of cash reserves. With the help of the past experiences, the commercial banks know that not all the depositors will turn-up for withdrawal at the same day. Consequently, the

commercial banks lends the remaining portion (left after maintaining cash reserves) of the total deposits to the general public in form of credit, loans and advances. It is the second portion of the total deposits that is responsible for the credit creation (credit money). The process of creation of credit money begins as soon as the commercial banks start the lending process. The amount of the credit money increases as the banks lend loans to more and more number of people in the economy. The deposit of money by the people in the banks and the subsequent lending of loans by the commercial banks is a recurring process. This lending process of the commercial banks increases the rate of investment and production in the economy, which in turn helps in improving the national income in the economy.

25. An economy is in equilibrium. Calculate the Investment Expenditure from the following : **[4]**

National Income = 800

Marginal Propensity to Save = 0.3

Autonomous Consumption = 100

Answer : Given

$$Y = 800$$

$$MPS(s) = 0.3$$

i.e. $\quad MPC (c) = 1 - MPS = 1 - 0.3 = 0.7$

$$C = 100$$

We know that at equilibrium,

$$Y = C + I$$

$$C = ab + by$$

$$= 100 + 0.7y$$

By putting the value of Y & C

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

$$800 = 100 + 560 + I$$

$$I = 800 - 660$$

$$I = ₹140$$

Thus, the Investment expenditure is ₹ 140.

26. Giving reason explain how the following should be treated in estimation of national income : **[6]**

(i) Payment of interest by a firm to a bank

(ii) Payment of interest by a bank to an individual

(iii) Payment of interest by an individual to a bank

Answer : (i) Payment of interest by a firm to

bank *will be included* in the national income. This is because the firm would have taken loan for productive purposes.

(ii) Payment of interest by a bank to an individual *will be included* in the national income. This is because the bank would have used the savings of the individuals (on which the loan is paid) for productive purposes.

(iii) Payment of interest by an individual to a bank *will not be included* in the national income. This is because the individual is expected to have taken a loan for consumption purposes rather than for productive purposes.

27. What is 'deficient demand' ? Explain the role of 'Bank Rate' in removing it. **[6]**

OR

What is 'excess demand' ? Explain the role of 'Reverse Repo Rate' in removing it.

Answer : Deficit demand refers to a situation where the actual or equilibrium level of demand for output (AD_2) is less than the full employment level of output (AD_1). That is, if $AD_2 < AD_1$ (situation of Deficit Demand)
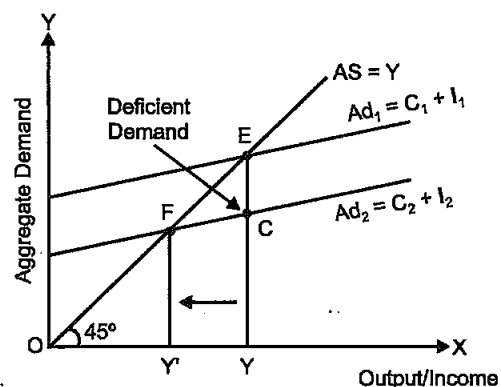
In the figure, AD_1 and AS represents the aggregate demand curve and aggregate supply curve. The economy is at full employment equilibrium at point 'E', where AD_1 intersects AS curve. At this equilibrium point, or represents the full employment level of output and EY is the aggregate demand at the full employment level of output.
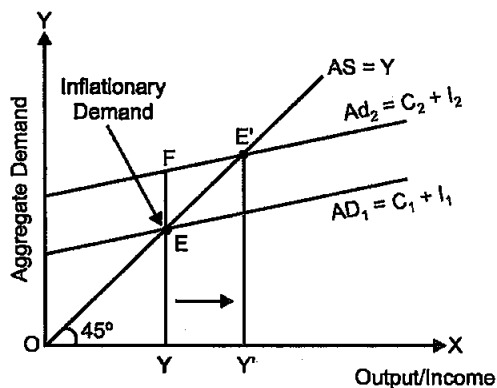
Let us suppose that, the actual aggregate demand for output is only CY, which is lower than EY. This implies that actual aggregate output demanded by the economy CY falls short of the potential (full employment) aggregate output

EY. Thus, the economy is facing a deficiency in demand. This situation is termed as deficit demand.

Bank rate refers to the rate at which the central bank provides loans to the commercial banks. In case of deficit demand, central bank reduces the bank rate, which reduces the cost of borrowings for the commercial banks. This implies that people can get loans at cheap rates from the commercial banks. This increases the demand for loans and credits in the market, Therefore, the consumption expenditure increases and finally the aggregate demand increases.

OR

Excess demand refers to a situation where the actual aggregate demand for output (AD_2) is above the full employment level of output (AD_1), then there exists excess demand. That is, if $AD_2 > AD_1$ (situation of Excess Demand)

In the figure, AD_1 and AS represents the aggregate demand curve and aggregate supply curve respectively. The economy is at full employment equilibrium at point 'E', where AD_1 intersects AS curve. At this equilibrium point, OY represents full employment level and EY is aggregate demand at the full employment level of output.

Let us suppose that, the actual aggregate demand for output is FY, which is higher than EY. This implies that actual aggregate output demanded by the economy FY is more than the potential (full employment) aggregate output EY. Thus, the economy is facing surplus demand. This situation is termed as excess demand.

Reverse repo rate refers to the rate at which

the Central Bank borrows from the commercial banks. In situation of excess demand, the Central Bank would increase the reverse repo rate. An increase in the reverse repo rate reduces the money supply in the economy, thereby aggregate demand falls.

28. Explain how the government can use the budgetary policy in reducing inequalities in incomes. [6]

Answer : The govenment through its budgetary policy attempts to promote fair and right distribution of income in an economy. This is done through taxation and expenditure policy. On one hand, through its taxation policy, the government taxes the higher income group and on the other hand, through the expenditure policy (subsidies, transfer payments, etc.), it transfers the purchasing power in the hands of the poor sections of society. With the help of these policies, the government aims at fair distribution of income in the society.

29. Calculate the 'National Income' and 'Private Income' : **[6]**

		(₹ crores)
(i)	Rent	200
(ii)	Net factor income to abroad	10
(iii)	National debt interest	15
(iv)	Wages and salaries	700
(v)	Current transfers from govemment	10
(vi)	Undistributed profits	20
(vii)	Corporation tax	30
(viii)	Interest	150
(ix)	Social security contributions by employers	400
(x)	Net domestic product accruing to govemment	250
(xi)	Net current transfers to rest of the world	5
(xii)	Dividends	50

Answer : National Income = Wages and salaries + Social security contributions by employers + Rent + Interest + Dividends + Corporation tax + Undistributed profits − Net factor income to abroad

NNP_{FC} = 700 + 100 + 200 + 150 + 50 + 30 + 20 −10

     = ₹ 1240 crore

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** Answer is not given due to change in present syllabus

Economics 2015 (Outside Delhi)   SET II

Time allowed : 3 hours   **Maximum marks : 70**

> **Note : Except for the following questions, all the remaining questions have been asked in previous set.**

SECTION—A

2. Define budget line.   **[1]**

Answer : A budget line represents the different combinations of two goods that are affordable and are available to a consumer; while being aware of his/her income level and market prices of both the goods. The budget line is represented by the following equation.

$$M = P_x \cdot Q_x + P_y \cdot Q_y$$

5. Giving reasons comment on the shape of Production Possibilities curve based on the following schedule: **[3]**

Good X (units)	Good Y (units)
0	16
1	12
2	8
3	4
4	0

Answer : Based on the schedule given below, we can say that PPC is a downward sloping straight line. This is because the opportunity cost of producing one good (i.e. Good X) in terms of another (*i.e.* Good Y) remains the same, that is, 4 (ignoring the minus sign).

| Good X (units)	Good Y (units)	Opportunity Cost
0	16	–
1	12	4
2	8	4
3	4	4
4	0	4

The following figure depicts the shape of PPC.
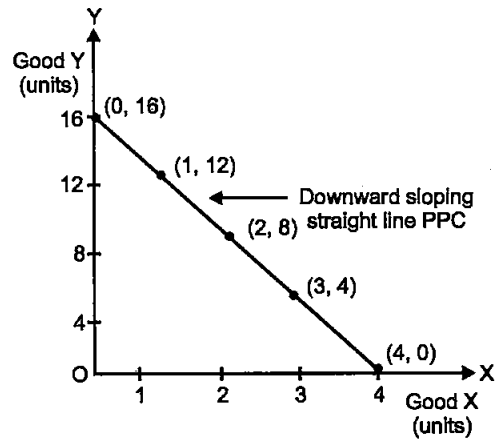
Thus, the shape of PPC is downward sloping straight line which can be attributed to the constant opportunity cost.

8. Explain the implication of non-price competition in an oligopoly market.   **[3]**

Answer : Non-price competition in an oligopoly implies that the demand curve faced by an oligopolistic firm cannot be determined as it is uncertain to forecast its sales. This is because any change in the price or output decisions by a firm sets in a series of reaction of the rival firms. That is why the demand curve is indeterminate and indefinite. The oligopolistic firm faces a kinked demand curve at any given price. The following figure shows the demand curve faced by an oligopolistic firm.
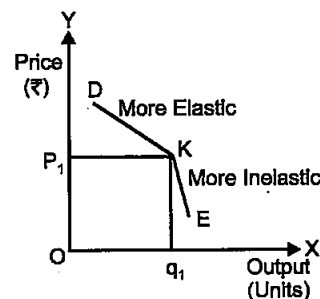
The upper portion of this demand curve is more elastic than the lower portion of the demand curve.

10. A consumer spends ₹ 100 on a good priced at ₹ 4 per unit. When its price falls by 25 percent, the consumer spends ₹ 75 on the good. Calculate the price elasticity of demand by the percentage method.   **[4]**

Answer : Given :

Initial Total Expenditure TE_0 = ₹100 Final Total Expenditure TE_1 = ₹75 Initial Price P0 = ₹4 Percentage change in price = –25

Percentage change in price= $\dfrac{P_1 - P_0}{P_0} \times 100$

$$25 = \dfrac{P_1 - 4}{4} \times 100$$

$$100 = P_1 - 4 \times 100$$

$$\dfrac{100}{100} = P_1 - 4$$

$$P_1 = 4 - 1 = 3$$

Price (P)	Total Expenditure TE = Price P × Quantity Q	Quantity Q = TEP
P_0 = ₹4	TE_0 = ₹100	Q_0 = 25
P_1 = ₹3	TE_1 = ₹75	Q_1 = 25

Now,

Ed = Percentage change in quantity demanded ÷ Percentage change in price

Percentage change in Q = $\dfrac{Q_1 - Q_0}{Q_0} \times 100$

$$= \dfrac{25 - 25}{25} \times 100 = 0$$

$$Ed = \dfrac{0}{1} = 0$$

Thus, the price elasticity of demand is 0.

11. **Market for a good is in equilibrium. The supply of the good 'Increases'. Explain the chain of effects of this change.** [6]

Answer : When the market is in equilibrium, this implies that the market demand is equal to the market supply at the equilibrium point. Now, in case the market supply increases, this leads to a rightward shift in the market supply curve. This is because, an increase in supply refers to a rise in the supply of the given commodity due to change in factors other than price. Thus, in the given case the supply curve will shift towards right. As a result, there will exist a situation of excess supply at the equilibrium point. This can be shown in the following diagram.
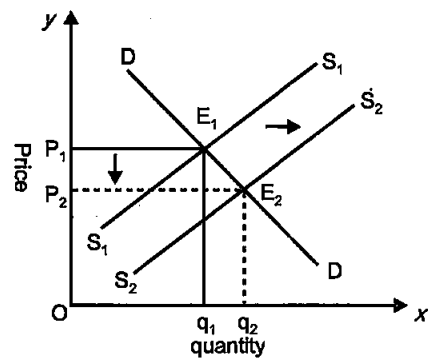
As the market supply increases, the initial supply shifts rightwards to the new supply curve S_2S_2 from S_1S_1. Not at the initial market price of OP_1, there exists excess supply. Due to the excess supply, some of the existing firms are ready to sell the output at comparatively lower prices to increase their sale, therefore, the market price will tend to fall. The fall in the market price will continue until it reaches OP_2. The new market equilibrium will occur at point E_2, where the new market supply curve intersects the initial demand curve. The total quantity supplied will be equal to the quantity demanded at Oq_2 and the new equilibrium price will fall to OP_2.

SECTION B

21. **If the Real GDP is ₹ 500 and Price Index (base = 100) is 125, calculate the Nominal GDP.** [5]

Answer :

$$Real\ GDP = \dfrac{Nominal\ GDP}{Price\ Index} \times 100$$

$$500 = \dfrac{Nominal\ GDP}{125} \times 100$$

or, Nominal GDP = ₹625

23. **An economy is in equilibrium. Calculate the Marginal Propensity to Save from the following:**

National income = 1,000
Autonomous consumption = 100
Investment = 120

Answer : Given :

National Income (Y) = 1000
Autonomous Consumption (a) = 100
Investment (I) = 120

$$Y = C + I$$
$$C = a + bY$$
$$Y = 100 + b \times 1000 + 120$$

$$1000 - 120 = 100 + b$$
$$880 = 100 + 1000\,b$$
$$880 - 100 = 1000\,b$$
$$780 = 1000\,b$$
$$b = \frac{780}{1000} = 0.78$$
$$\therefore \quad MPC = 0.78$$
$$MPS = 1 - MPC$$
$$= 1 - 0.78$$
$$= 0.22$$

29. Calculate 'Net National Product at Market Price' and 'Personal Income'** :   [6]

(₹ crores)

(i)   Transfer payments by government   7

(ii)   Government final consumption   50
        expenditure

(iii) Net imports   (-)10

(iv)   Net domestic fixed capital formation   60

(v)   Private final consumption   300
        expenditure

(vi)   Private income   280

(vii) Net factor income to abroad   (-)5

(viii) Closing stock   8

(ix)   Opening stock   8

(x)   Depreciation   12

(xi)   Corporate tax   60

(xii) Retained earnings of corporations   20

Answer : NNP_{MP} = Private final consumption expenditure + Government final consumption expenditure + (Net domestic fixed capital formation + depreciation) + Change in stock - Net imports - depreciation - Net factor income to abroad

$$NNP_{MP} = 300 + 50 + 60 + 12 + (8 - 8) - (-10) - 12 - (-5)$$

$$NNP_{MP} = ₹\,425 \text{ crore}$$

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Economics 2015 (Outside Delhi)   SET III

Time allowed : 3 hours   Maximum marks : 70

> Note : Except for the following questions, all the remaining questions have been asked in previous set.

SECTION—A

3. Define Indifference Map.   [1]

   Answer : Indifference map is a family or collection of indifference curves that depicts the different levels of satisfaction and preferences of a consumer. Each indifference curve in an indifference map depicts a particular level of satisfaction.

5. Distinguish between co-operative and non-cooperative oligopoly.   [3]

   Answer : Co-operative oligopoly is the oligopoly in which firms might decide to collude together and not to compete with each other. Thus, in such a case the firms would behave as a single monopoly and aim at maximising their collective profits rather than their individual profits.

   On the other hand, non-cooperative oligopoly is the oligopoly where each firm aims at maximising its own profits and decides how much quantity to produce assuming that the other firms would not change their quantity supplied.

8. Giving reason comment on the shape of Production Possibilities Curve based on the following table :   [3]

 | Good X (units) | Good Y (units) |
   |:---:|:---:|
   | 0 | 10 |
   | 1 | 9 |
   | 2 | 7 |
   | 3 | 4 |
   | 4 | 0 |

   Answer : Based on the below schedule, we can say that PPC is concave to origin. This is because as the production increases, to produce each

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** Answer is not given due to change in present syllabus

additional unit of Good X, more and more units of Good Y need to be sacrificed. In other words, the opportunity cost of producing one good in terms of another increases.

Good X (units)	Good Y (units)	Opportunity Cost
0	10	-
1	9	1
2	7	2
3	4	3
4	0	4

The following figure depicts the shape of PPC.
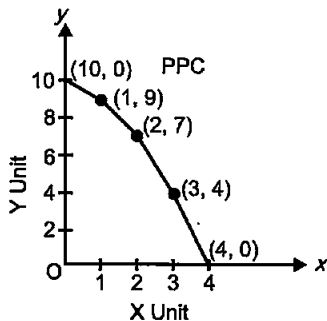
Thus, the shape of PPC is concave which can be attributed to the law of increasing opportunity cost.

9. **A consumer spends ₹ 400 on a good priced at ₹ 8 per unit. When its price rises by 25 percent, the consumer spends ₹ 500 on the good. Calculate the price elasticity of demand by the Percentage method.** [4]

Answer : Given

Initial Total Expenditure $TE_0 = ₹400$

Final Total Expenditure $TE_1 = ₹500$

Initial Price $P_0 = ₹8$

Percentage change in price = $+25$

Percentage change in price $= \dfrac{P_1 - P_0}{P_0} \times 100$

$$25 = \dfrac{P_1 - 8}{8} \times 100$$

$$\dfrac{200}{100} = P_1 - 8$$

$$P_1 = 10$$

Price (P)	Total Expenditure Te = Price P × Quantity Q	Quantity Q = TEP
$P_0 = ₹8$	$TE_0 = ₹400$	$Q_0 = 50$
$P_1 = ₹10$	$TE_1 = ₹500$	$Q_1 = 50$

Now,

$$Ed = \dfrac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

Percentage change in Quantity $= \dfrac{Q_1 - Q_0}{Q_0} \times 100$

$$= \dfrac{50 - 50}{50} \times 100$$

$$= 0$$

$$Ed = \dfrac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

$$= \dfrac{0}{25}$$

$$Ed = 0$$

Thus, the price elasticity of demand is 0.

SECTION B

22. **If the Nominal GDP is ₹ 600 and Price Index (base = 100) is 120, calculate the Real GDP.** [3]

Solution : We know,

$$\text{Real GDP} = \dfrac{\text{Nominal GDP}}{\text{Price Index of current year}} \times 100$$

$$= \dfrac{600}{120} \times 100 = ₹500$$

24. **An economy is in equlibrium. Calculate the national Income from the following :** [4]
Autonomous Consumption = 120
Marginal Propensity to Save = 0.2
Investment Expenditure = 150

Solution : $\qquad a = 120$

$$MPS = 0.20$$

(b) $MPC = 1 - MPS = 1 - 0.20 = 0.86$

$$I = 150$$

$$Y = ?$$
$$Y = C + I$$
$$C = a + by$$
$$= 120 + 0.8Y$$
$$Y = 120 + 0.8Y + 150$$
$$1Y - 0.8\,Y = 270$$
$$0.2Y = 270$$
$$\therefore \quad Y = \frac{270}{0.20} = 1350$$

29. Calculate 'Net Domestic Product at Market Price' and 'Gross National Disposable Income'**:

		(₹ crores)
(i)	Private final consumption expenditure	400
(ii)	Opening stock	10
(iii)	Consumption of fixed capital	25
(iv)	Imports	15
(v)	Government final consumption expenditure	90
(vi)	Net current transfers to rest of the word	5
(vii)	Gross domestic fixed capital formation	80
(viii)	Closing stock	20
(ix)	Exports	10
(x)	Net factor income to abroad	(–) 5

Answer : Net Domestic Product at Market Price = Private final consumption expenditure + Government final consumption expenditure + Gross domestic fixed capital formation + change in stock + Net exports – depreciation

Net Domestic Product at Market Price = 400 + 90 + 80 + (20 – 10) + (10 - 15) - 25

Net Domestic Product at Market Price = ₹ 550 crore

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Economics 2015 (Delhi)   SET I

Time allowed : 3 hours   **Maximum marks : 70**

SECTION—A

1. **Give equation of Budget Line.**   [1]
   Answer : The equation for budget line is as follows.
   $$P_1X_1 + P_2X_2 = M$$
   Where,
   P_1 represents price of good 1 X_1 Quantity of good 1
   P_2 represents price of good 2 X_2 Quantity of good 2
   M represents income of the consumer

2. **When income of the consumer falls the impact on price-demand curve of an inferior good is :** (choose the correct alternative)   [1]
   (a) Shifts to the right.
   (b) Shifts to the left.
   (c) There is upward movement along the curve.
   (d) There is downward movement along the curve.
   Answer : (a) Shifts to the right.

3. **If Marginal Rate of Substitution is constant throughout, the Indifference curve will be :** (choose the correct alternative.   [1]
   (a) Parallel to the x-axis.
   (b) Downward sloping concave.
   (c) Downward sloping convex.
   (d) Downward sloping straight line.
   Answer : (a) Downward sloping straight line.

4. **Giving reason comment on the shape of Production Possibilities Curve based on the following schedule :**   [3]

Good X (units)	Good Y (units)
0	10
1	9
2	7
3	4
4	0

Answer : The PPC would be concave in shape. This is because of the increasing opportunity cost. 'With increase each additional unit of production of good X of the amount of good Y that must be sacrificed increases. For example, as the production of good X moves from first unit to second unit, 2 units of good Y must be

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** Answer is not given due to change in present syllabus

sacrificed (9 – 7). Further, as the production moves from second unit to third unit, the units of good Y that must be sacrificed increases to three. Thus, the opportunity cost of producing one additional unit of good X goes on increasing. This increasing opportunity cost gives rise to concave shape of PPC.

5. **What will be the impact of recently launched 'Clean India Mission' (Swachh Bharat Mission) on the Production possibilities curve of the economy and why?** [3]

OR

What will likely be the impact of large scale outflow of foreign capital on Production Possibilities curve of the economy and why?

Answer : The 'Clean India Mission' (Swachh Bharat Mission) will lead to better waste-management technique. Consequent to this, there will be drastic reduction in the number of people falling ill. Both these factors will lead to better and efficient utilisation of existing resources of an economy. Accordingly, the economy will move higher and closer to initial PPC. This movement is being depicted in the below graph with the help of the arrow from point P.
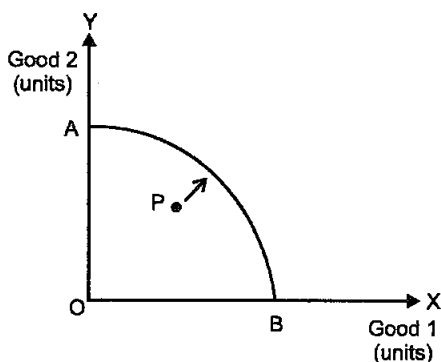
Impact of Clean India Mission on PPC

OR

The large scale outflow of foreign capital will lead to a decrease in the availability of resources, thereby shifting the Production Possibility Curve (PPC) parallelly to the left from AB to CD as shown in the following diagram. Hence, we can say that leftward shift of PPC results in fall in output and resources.
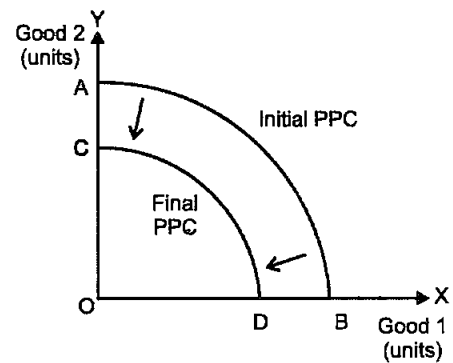
Impact of Large Scale Outflow on PPC

6. **The measure of price elasticity of demand of a normal good carries minus sign while price elasticity of supply carries plus sign. Explain why?** [3]

Answer : The measure of price elasticity of demand carries a minus sign because it shows an inverse relationship between price and quantity demanded *i.e.,* other things remaining constant, as the price of a good rises or falls, the quantity demanded of the good falls (or rises). On the other hand, price elasticity of supply carries plus sign as there exists a positive relationship between the supply of a commodity and its price. To put in other words, when the price of a good rises (or falls), then the quantity supplied will increase (or decrease), other things remaining unchanged.

7. **There are large number of seller in a perfectly competitive market. Explain the significance of this feature.** [3]

Answer : There exists a large numbers of buyers and sellers in a perfect competitive market. The number of sellers is so large that no individual firm owns the control over the market price of the commodity. Due to the existence of large number of sellers in the market, there exists perfect and free competition in the market. The firm acts as a price taker. That is, the firms have no control over the existing market price and cannot influence it. If an individual firm raises its price, then it will lose all its buyers to other firms and vice-versa. Thus, firms have no role to play other than supplying the required output at the existing market price and therefore a firm is a price taker and not a price maker.

8. **Explain the effects of 'maximum price ceiling' on the market of a good. Use diagram.** [3]

Answer : Price ceiling is the legislated or government imposed maximum level of price that can be charged by the seller. Since price ceiling is lower than the equilibrium price (OP_e), thus the imposition of the price ceiling leads to excess demand as shown in the diagram below.
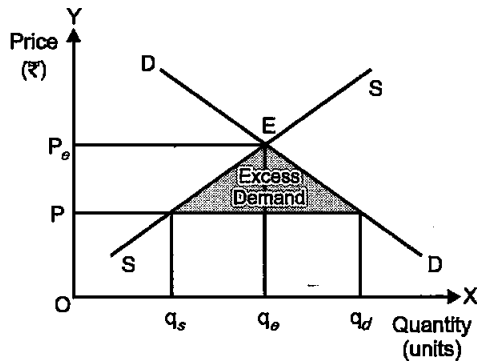
The following are the consequences and effects of price ceiling.

Excess demand : Due to artificially lowering the price, the demand becomes comparatively higher than the supply. This leads to the emergence, of the problem of excess demand.

Enhances welfare : The imposition of the price ceiling ensures the access of the necessity goods within the reach of the poor people. This safeguards and enhances the welfare of the poor and vulnerable sections of the society.

Fixed quota : Each consumer gets a fixed quantity of good (as per the quota). The quantity often falls short of meeting the individual's requirements. This further leads to the problem of shortage and the consumer remains unsatisfied.

Inferior goods : Often it has been found that the goods that are available at the ration shops are usually inferior goods and are adulterated and infiltrated.

Black marketing—The needs of a consumer remain unfulfilled as per the quota laid by the government. Consequently, some of the unsatisfied consumers get ready to pay higher price for the additional quantity. This leads to black-marketing and artificial shortage in the market.

9. **A consumer spends ₹1000 on a good price at ₹8 per unit. When price rises by 25 percent, the consumer continues to spend same amount on the good. Calculate price elasticity of demand by percentage method.** [4]

Answer : Given :

Initial Total Expenditure (TE_0) = ₹1000

Final Total Expenditure (TE_1) = ₹1000

Initial Price (P_0) = ₹8

Percentage change in price = +25%

Percentage change in price = $\dfrac{P_1 - P_0}{P_0} \times 100$

$$25 = \frac{P_1 - 8}{8} \times 100$$

$$\frac{200}{100} = P_1 - 8$$

$$P_1 = 10$$

Price (P)	Total Expenditure (TE) = Price (P) × Quantity (Q)	Quantity (Q) = $\dfrac{TE}{P}$
$P_0 = ₹8$	$TE_0 = ₹1000$	$Q_0 = 125$
$P_1 = ₹10$	$TE_1 = ₹1000$	$Q_1 = 100$

Now,

$$E_d = (-) \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

$$E_d = (-) \frac{\dfrac{100 - 125}{125} \times 100}{25}$$

$$E_d = (-) \frac{\dfrac{100 - 125}{125} \times 100}{25}$$

$$E_d = \frac{-20}{25}$$

$$\therefore E_d = 0.8$$

Thus, the price elasticity of demand is 0.8

10. **Define cost. State the relation between marginal cost and average variable cost.** [4]

OR

Define revenue. State the relation between marginal revenue and average revenue.

Answer : Cost or cost of production refers to the expenditures incurred or payments made by a firm to various factors of production (such as, land, labour, capital and entrepreneur) and also non-factors of production (such as, raw materials, etc.)

Relationship between AVC and MC

(1) When AVC is falling, MC falls at a faster rate and stays below AVC curve.

(2) When AVC is rising, MC rises at a faster rate and remains above AVC curve.

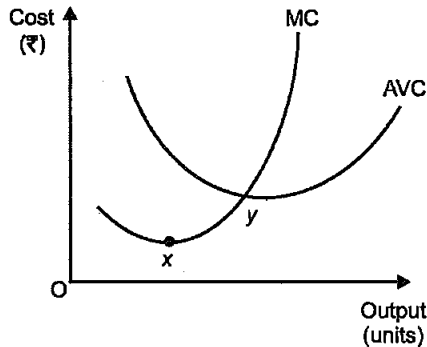(3) When AVC is at minimum point (y), MC is equal to AVC.

MC curve cuts AVC curve at its minimum point.

(4) The minimum point of MC curve (x) will always lie left to the minimum point of AVC curve (y).

(5) AVC and MC both are derived from TVC.

$$AVC = \frac{TVC}{Q}$$

$$MC = \frac{\Delta TVC}{\Delta Q} = \frac{\Delta TVC}{\Delta Q}$$

OR

Revenue is the money income for a firm which it receives from the sale of goods produced. In other words, revenue refers to the sale proceeds or sales receipts.

Relationship between MR and AR

The relationship between AR and MR can be studied under two forms of market-under Perfect Competition market and under Imperfect Competition market.

1. **Under perfect competition market :** AR equals MR throughout all output levels. Graphically, MR curve is a straight horizontal line parallel to the x-axis and coincides with the AR curve.
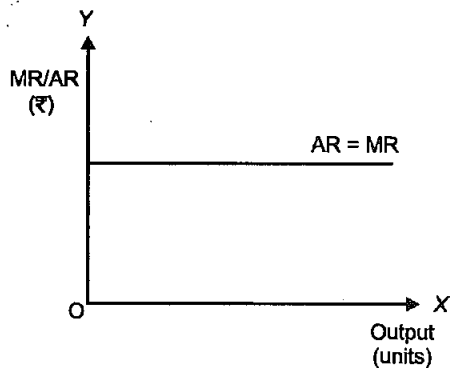
2. **Under imperfect competition market :** As output increases both AR and MR falls. However, AR remains greater than MR at all levels of output. Also, when AR curve becomes zero, then the MR curve is negative. Graphically, both AR curve and MR curve are downward sloping but the AR curve remains above the MR curve.
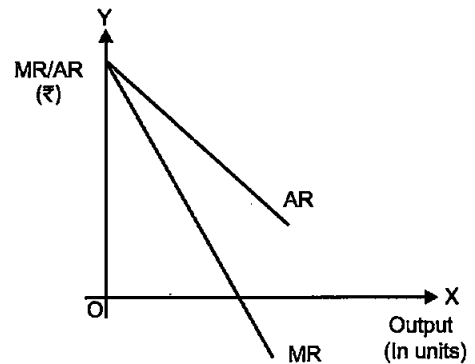
11. A consumer consumes only two goods X and Y both priced at ₹3 per unit. If the consumer chooses a combination of these two goods with Marginal Rate of Substitution equal to 3, is the consumer in equilibrium ? Give reasons. What will a rational consumer do in this situation ? Explain. **[6]**

OR

A consumer consumes only two goods X and Y whose prices are ₹4 and ₹5 per unit respectively. If the consumer chooses a combination of the two goods with marginal utility of X equal to 5 and that of Y equal to 4, is the consumer in equilibrium? Give reason. What will a rational consumer do in this situation? Use utility analysis.

Answer : At the point of consumer equilibrium the following equality should be met :

$$MRS = \frac{P_x}{P_y}$$

According to the question,

$$MRS = 3$$

$$\frac{P_x}{P_y} = \frac{3}{3} = 1$$

So, MRS is greater than the price ratio. Thus, to reach the equilibrium point a rational consumer would decrease the consumption of good y.

OR

According to the utility approach, a consumer reaches equilibrium where the following equality is met.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

According to the given question,

$$\frac{MU_x}{P_x} = \frac{5}{4}$$

$$\frac{MU_y}{P_y} = \frac{4}{5}$$

So, $\dfrac{MU_x}{P_x}$ is greater than $\dfrac{MU_y}{P_y}$. Thus, to reach the equilibrium, a rational consumer would increase the consumption of good x and decrease that of good y.

12. State the different phases of changes in Total Product and Marginal Product in the Law of Variable Proportions. Also show the same in a single diagram. [6]

Answer : The different phases of changes in Total Product (TP) and Marginal Product (MP) can be understood with the help of Law of Variable Proportions. As per this law, if more and more of variable factor (labour) is combined with the same quantity of fixed factor (capital), then initially the total product will increase but gradually after a point, the total product will become smaller and smaller. The following are the three phases (stages) of the Changes in the two variables.

1st Stage : Increasing returns to a factor

This stage starts from the origin point 0 and continues till the point of inflexion (K) on the TP curve. During this phase, TP increases at an increasing rate and is also accompanied by rising MP curve (in figure ii). The MP curve attains its maximum point (U) corresponding to the point of inflexion. Throughout this stage, AP continues to rise.

IInd Stage : Diminishing returns to a factor

This stage starts from point K and continues till point B on the TP curve. During this stage, the TP increases but at a decreasing rate and attains its maximum point at B, where it remains constant. On the other hand (in the figure (ii)), the MP curve continues to fall and cuts AP from its maximum point Z, where MP equals AP. When TP attains its maximum point, corresponding to it, MP becomes zero. AP, in this stage initially rises, attains its maximum point at Z and thereafter starts falling.

IIIrd Stage : Negative Returns to a Factor

This stage begins from the point B on the TP curve. Throughout this point, TP curve is falling and MP curve is negative. Simultaneously, the AP curve continues to fall and approaches the x-axis (but does not touch it). Like the first stage, this stage is also known as non-economic zone as any rational producer would not operate in this zone. This is because the addition to the total output by the additional labour unit (*i.e.*

marginal product) is negative. This implies that employing more labour would not contribute anything to the total product but will add to cost of the production in form of additional wage. Hence, the cost of the additional labour input is greater the benefit of employing it.

The law of variable propotion can be easily understood with the help of following schedule and diagram.

| Units of Capital	Units of Labour	TP	AP	MP
1	0	0	0	–
1	1	7	7	7
1	2	18	9	11
1	3	33	11	15
1	4	44	11	11
1	5	48	9.6	4
1	6	51	8.5	3
1	7	51	7.4	0
1	8	49	6.1	–2

Fig (i)

Fig (ii)
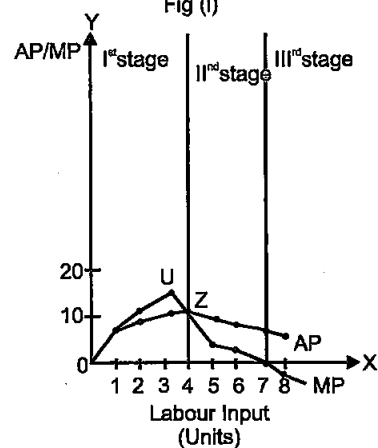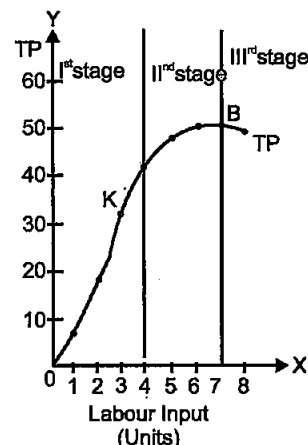
13. Why is the equality between marginal cost

and marginal revenue necessary for a firm to be in equilibrium? Is it sufficient to ensure equilibrium? Explain. **[6]**

Answer : According to MR-MC approach, the firm (or producer) will attain equilibrium where the following two necessary and sufficient conditions are fulfilled.

Case A : If Price (MR) > MC
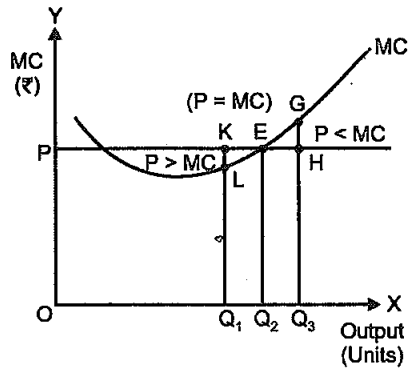
At output OQ_1, price is KQ_1 and the marginal cost is LQ_1, such that $KQ_1 > LQ_1$. Therefore, OQ_1 is not the profit maximising output. This is due to the fact that the firm can increase its profit by increasing the production of output to OQ_2.

Case B : If Price (MR) < MC

At output OQ_3, price is HQ_3 and the marginal cost is GQ_3, such that $HQ_3 < GQ_3$. Therefore, OQ_3 is not the profit maximising output. This is due to the fact that the firm can increase its profit by reducing its output level to OQ_2.

Thus, we can conclude that at profit maximisation output, the equilibrium price (or MR) must be equal to the MC curve and it cannot be greater or lesser than the MC curve. The equality of MR and MC is only the necessary condition, The sufficient condition is that the MC should be rising at the point of intersection with MR.
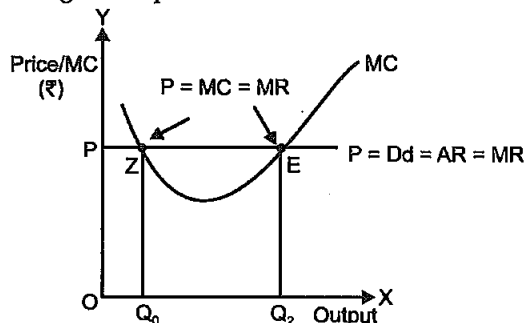
In the figure, the MC curve cuts the price line (or MR) at two different points *i.e.*, at 'Z' and 'E'. The first order condition of profit maximisation, *i.e.*, Price (or MR) " MC is fulfilled at both of these points. Now let us evaluate which of the

following two cases fulfill the second order condition of profit maximisation.

Case A: At point 'Z'

At point 'Z', price is equal to MC but MC is falling and is negatively sloped. At this point, any output level slightly more than the OQ_0, the firm is facing price that exceeds the MC. This implies that, the profit can be maximised by increasing output level beyond OQ_0. Therefore, OQ_0 is not a profit maximisation output.

Case B : At point 'E'

To the left of the point 'E', if the firm produces slightly lesser level of output than OQ_2, then the firm is facing price that exceeds the MC. This implies that higher profits can be achieved by increasing the level of output to OQ_2. On the other hand, to the right of the point 'E', if the firm produces slightly higher level of output than OQ_2, then the firm is facing price that falls short of the MC. This implies that higher profits can be achieved by reducing the output level to OQ_2. Thus, the point E is the producer's equilibrium and OQ_2 is the profit maximizing output level, where Price = MC and also MC curve is rising.

14. **Market for a good is in equilibrium. The demand for the good 'increases'. Explain the chain of effects of this change.** **[6]**

Answer :
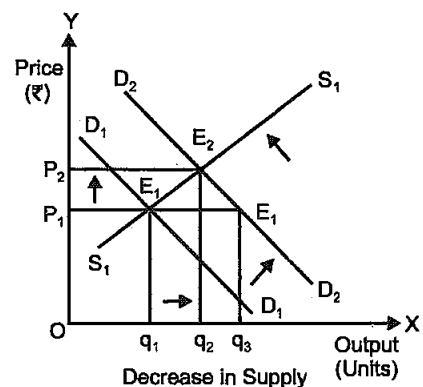
Suppose D_1D_1 and S_1S_1 are the initial market demand curve and market supply curve, respectively. The initial equilibrium is established at point E_1, where the market demand curve and the market supply curve intersects each other. Accordingly, the equilibrium price is OP_1 and the equilibrium quantity demanded is Oq_1.

Now, assume that market demand increases

(may be due to an increase in the consumer's income). This shifts the market demand curve parallel rightwards to D_2D_2 from D_1D_1. While the market supply curve remains unchanged at S_1S_1. This imples that at the initial price OP_1. There exist excess demand equivalent to $(Oq_1 - Oq_3)$ units. This excess demand will increase competition among the buyers and they will now be ready to pay a higher price to acquire more units of good. This will further raise the market price. The rise in the price will continue till the market price becomes OP_2. The new equilibrium is established at point E_2 where the new demand curve D_2D2 intersects the supply curve S_1S_1. Observe that at the new equilibrium both market price and quantity demanded are more than the initial equilibrium. The new equilibrium quantity supplied Oq_2 and the new equilibrium price is OP_2 Hence, an increase in demand with supply remaining constant, results in rise in the equilibrium price as well as the equilibrium quantity.

To summarise,

Increase in demand $\Rightarrow$ Excess demand at the existing price $\Rightarrow$ Competition among the buyers $\Rightarrow$ Rise in the price level $\Rightarrow$ New equilibrium $\Rightarrow$ Rise in both quantity demanded as well as price.

SECTION B

15. What is 'aggregate supply' in macroeconomics? [1]

Answer : Aggregate supply refers to the total output produced in the country or the total national product of the country at a given level of employment.

16. The value of multiplier is : (choose the correct alternative) [1]

(a) $\dfrac{1}{MPC}$

(b) $\dfrac{1}{MPS}$

(c) $\dfrac{1}{1-MPS}$

(d) $\dfrac{1}{MPC-1}$

Answer : (b) $\dfrac{1}{MPS}$

17. Borrowing in government budget is: (choose the correct alternative) [1]

(a) Revenue deficit

(b) Fiscal deficit

(c) Primary deficit

(d) Deficit in taxes

Answer : Borrowing in the government is the fiscal deficit. The fiscal deficit basically shows the borrowing requirement of a country. It is defined as the excess of government expenditure over government revenue.

Hence, the correct answer is option **(b)**.

18. The non-tax revenue in the following is: (choose the correct alternative) [1]

(a) Export duty

(b) Import duty

(c) Dividends

(d) Excise

Answer : The non-tax revenue is dividends. This is because the import duty, export duty and excise are different kinds of tax revenues for the government. Hence, the correct answer is option **(c)**.

19. Other things remaining unchanged, when in a country the price of foreign currency rises, national income is : (choose the correct alternative) [1]

(a) Likely to rise

(b) Likely to fall

(c) Likely to rise and fall both

(d) Not affected

Answer : When the prices of foreign currency rises, the national income is likely to rise. This is because rise in foreign prices will lead to increase in the one of the components of national income *i.e.* net exports. That is, exports will increase and imports will decrease (as imports have become expensive), this will ultimately lead to increase in national income.

Hence, the correct answer is option **(a)**.

20. If Real GDP is ₹ 200 and Price Index (with base = 100) is 110, calculate Nominal GDP. [3]

Answer : We know,

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Incex of Current Year}} \times 100$$

$$200 = \frac{\text{Nominal GDP}}{110} \times 100$$

Nominal GDP = ₹220

21. Name the broad categories of transactions recorded in the 'capital account' of the Balance of Payments Accounts. [3]

OR

Name the broad categories of transactions recorded in the 'current account' of the Balance of Payments Accounts.

Answer : The following are the three broad categories of transactions recorded under capital account of BOP.

1. **Foreign direct investment (FDI) and portfolio investment :** Foreign Direct Investment refers to the investment in the assets of a foreign country. By investing, the government or any resident of domestic country owns the control over the asset of the foreign country. On the contrary, Portfolio Investment refers to the investment in the assets of a foreign country without any control over that asset.

FDI and Portfolio Investment cause an inflow of foreign exchange into the country. Thus, they are recorded as positive items in the Capital Account of BOP. It should also be noted that FDI and Portfolio Investment are the non-debt creating capital transactions.

2. **Loans and Borrowings :** Loans and borrowings by a country from the foreign countries or from the international money market are recorded in the Capital Account of the BOP. These borrowings can be in the form of commercial borrowings or in the form of assistance. When a country borrows with the consideration of assistance, the transaction would involve a lower rate of interest as compared to the prevailing market rate of interest. As against this, commercial borrowings involve open market rate of interest. Loans and borrowings result in inflow of foreign exchange into the country. Hence, they are recorded as positive items in the Capital Account of BOP. Unlike FDI and Portfolio Investments, loans and borrowings are debt creating capital transactions.

3. **Banking Capital Transactions :** Another form of Capital Account transactions are banking capital transactions. Such transactions refer to the transactions of external financial assets and liabilities of the commercial banks and co-operative banks that operate as authorised dealers in the foreign exchange market.

OR

The following are the broad categories of transactions recorded under current account of BOP.

1. **Export and import of goods :** The transactions of a country in the form of export and import of goods is recorded in the current account of the BOP. This record of export and import of goods is also called the 'Balance of Visible Trade'. The export of goods is recorded as a positive item in the Current Account of BOP. This is because exports result in the inflow of foreign exchange into the country. On the other hand, imports of goods are recorded as negative items in the Current Account of BOP, as they result in an outflow of the foreign exchange from the country.

2. **Export and import of services :** Another component of the Current Account is the export and import of services. The record of export and import of services is also called the 'Balance of invisible trade'. Similar to the export of goods, export of services is also recorded as positive items in the Current Account of BOP. As against this, the import of services is recorded as negative items in the Current Account of BOP. The following are some of the major services that are included in the Current Account of BOP.

(a) Shipping services, insurance and banking services, etc.

(b) Income from investment (*i.e.* income from profits and dividends)

(c) Foreign travel

(d) Miscellaneous transactions such as royalties, consultancy services, telephone services, etc.

3. **Unilateral Transfers :** Unilateral transfers refer to the one-sided transfers such as gifts, donations, grants from foreign governments, etc. A country makes such transfers to the rest of the world as well as receives transfers from the rest of the world. Receipts of unilateral transfers are recorded as positive items in the Current Account of BOP, while payments of unilateral transfers are recorded as negative items in the Current Account of BOP.

22. **Where will sale of machinery to abroad be recorded in the Balance of Payments Accounts? Give reasons.** [3]

Answer : Sale of machinery to abroad (exports) will be recorded as positive item in the current account of BOP,

The current account of BOP is that account which maintains the records of imports and exports of goods and services as well as record of unilateral

transfers. Those transactions that result in an inflow of foreign exchange in the country are recorded as positive items in the current account of BOP. On the other hand, those items that lead to an outflow of foreign exchange from the country are recorded as negative items in the current account of BOP. Therefore, as sale of machinery abroad leads to an inflow of foreign exchange in the country it will be recorded as a positive item in the current account of BOP.

23. Explain the 'bank of issue' function of the central bank. [4]

<p style="text-align:center">OR</p>

Explain 'Government's Bank' function of central bank.

Answer : Bank of issue function of central bank implies that the central bank of a country has the exclusive authority to issue the currency (notes + coins). The currency issued by the central bank is known as 'legal tender money' *i.e.* the value of such currency is backed by the central bank. However, the currency issued by the central bank is its monetary liability. In other words, the central bank is obliged to back the currency issued by it by assets such as gold coins and bullions, foreign exchange. In addition to issuing currency to the general public, the central bank also issues currency to the central government of the country. That is, the central government if required, can sell its securities to the central bank and in return gets the required cash currency.

<p style="text-align:center">OR</p>

Central bank acts as a banker and financial advisor to the government. As a banker to the government, it performs the following functions.

(a) It manages the account of the government.

(b) It accepts receipts from the government and makes payment on behalf of it.

(c) It grants short-term loans and credit to the government.

(d) It performs the task of managing the public debt.

(e) The central bank advises the government on all the banking and financial related matters.

24. Government of India has recently launched 'Jan-Dhan Yojna' aimed at every household in the country to have at least one bank account. Explain how deposits made under the plan are going to affect national income of the country. [4]

Answer : With the 'Jan Dhan Yojna' a greater number of individuals are brought under the ambit of banking system. Those individuals who

earlier did not have savings account now have access to banking facilities and have opened savings account with the commercial banks. In this way, the commercial banks are able to tap greater savings which in turn can be used to lend loans for investment purposes. Thus, the yojna indirectly helps in increasing the investment and production in the economy which in turn would help in improving the national income.

25. An economy is in equilibrium. Calculate national income from the following. [4]

Autonomous consumption = 100

Marginal propensity to save = 0.2

Investment expenditure = 200

Answer : Given

Autonomous consumption $(\bar{C}) = 100$

$MPS(s) = 0.2$

i.e. MPC $(c) = 1 - MPS = 1 - 0.2 = 0.8$

$1 = 200$

$y = ??$

We know that at equilibrium,

$Y = C + I$

i.e. $Y = (\bar{C}) + cY + I$

$\Rightarrow Y = 100 + 0.8Y + 200$

$\Rightarrow Y = 0.8Y + 300$

$\Rightarrow Y - 0.8Y = 300$

$\Rightarrow 0.2Y = 300$

so, $Y = 1,500$

26. Giving reason explain how should the following be treated in estimation of national income : [6]

(i) **Expenditure by a firm on payment of fees to a chartered accountant**

(ii) **Payment of corporate tax by a firm**

(iii) **Purchase of refrigerator by a firm for own use**

Answer : (a) The services of chartered accountant hired by the firm should not be included in the estimation of national income. This is because it forms a part of the firm's intermediate consumption.

(b) Payment of corporate tax is not included in the national income as it is a mere transfer payment from the firm to the government. It is a part of corporate profits which already form part of national income, therefore, it should not be separately included in national income (in addition to corporate profits).

(c) Purchase of refrigerator by a firm for own use will be included in the national income as it is regarded as final consumption expenditure.

27. Explain the concept of Inflationary Gap. Explain the role of Repo Rate in reducing this gap. **[6]**

OR

Explain the concept of Deflationary Gap and the role of 'Open Market Operations' in reducing this gap.

Answer : Due to the excess of aggregate demand, there exists a difference (or gap) between the actual level of aggregate demand and full employment level of demand. This difference is termed as inflationary gap. This gap measures the amount of surplus in the level of aggregate demand. Graphically, it is represented by the vertical distance between the actual level of aggregate demand (AD_E) and the full employment level of output (AD_F). In the figure, EY denotes the aggregate demand at the full employment level of output and FY denotes the actual aggregate demand. The vertical distance between these two represents inflationary gap. That is,

FY – EY = FE (Inflationary Gap)

Let us understand the situation of excess demand and concept of inflationary gap with the help of the following figure.
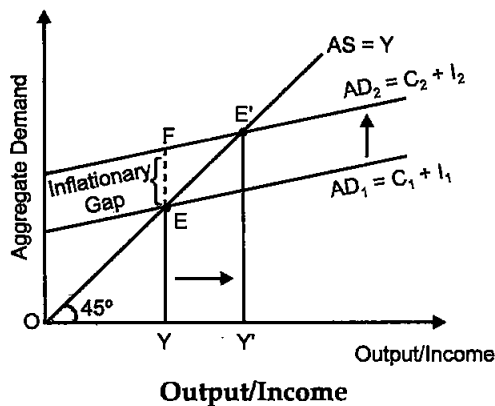
Output/Income

In the figure, AD_1 and AS represents the aggregate demand curve and aggregate supply curve respectively. The economy is at full employment equilibrium at point 'E', where AD_1 intersects AS curve. At this equilibrium point, OY represents full employment level and EY is aggregate demand at the full employment level of output.

Let us suppose that the actual aggregate demand for output is FY, which is higher than EY. This implies that actual aggregate output demanded by the economy FY is more than the potential (full employment) aggregate output EY. Thus, the economy is facing surplus demand. This situation is termed as excess demand. As a result of the excess demand, inflationary gap arises.

The inflationary gap is measured by the vertical distance between the actual aggregate demand for output and the potential (or full employment level) aggregate demand. In other words, the distance between FY and EY, *i.e.* FE represents the inflationary gap.

Repo rate refers to the rate at which the central bank lends to the commercial bank. In such inflationary gap, the central bank would increase repo rate. An increase in the repo rate increases the cost of borrowings for the commercial banks. This discourages the demand for loans and borrowings. Thereby, the consumption expenditure falls, and hence aggregate demand falls.

OR

Due to the deficiency in the aggregate demand, there exists a difference (or gap) between the actual level of aggregate demand and full employment level of demand. This difference is termed as deflationary gap. This gap measures the amount of deficiency in the level of aggregate demand. Graphically, it is represented by the vertical distance between the aggregate demand at the full employment level of output (AD_E) and the actual level of aggregate demand (AD_f). In the figure below, EY denotes the aggregate demand at full employment level of output and CY denotes the actual aggregate demand. The vertical distance between these two represents deflationary gap. That is,

EY – CY = EC (Deflationary Gap)

Let us understand the situation of deficit demand and concept of deflationary gap with the help of the following figure.
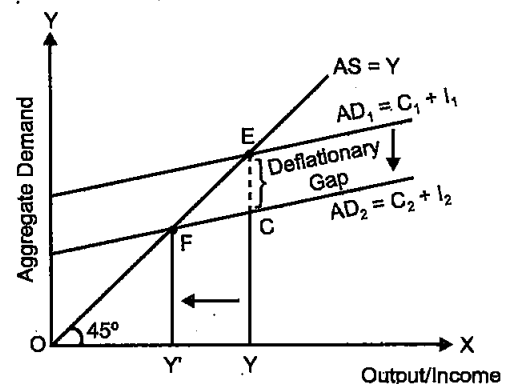
In the figure, AD_1 and AS represents the aggregate demand curve and aggregate supply curve. The economy is at full employment equilibrium at point 'E', where AD_1 intersects AS curve. At this equilibrium point, OY represents the full employment level of output and EY is the aggregate demand at the full employment level of output.

Let us suppose that the actual aggregate demand for output is only CY, which is lower than EY. This implies that actual aggregate output demanded by the economy CY falls short of the potential (full employment) aggregate output EY. Thus, the economy is facing a deficiency in demand. This situation is termed as deficit demand. As a result of the deficit demand, deflationary gap arises. The deflationary gap is measured by the vertical distance between the potential (or full employment level) aggregate demand and the actual aggregate demand for output. In other words, the distance between EY and CY, *i.e.* EC represents the deflationary gap.

To correct deflationary gap, the central bank purchases the securities in the market, thereby, increasing the flow of money and subsequently enhancing the purchasing power of the people. The higher purchasing power increases the aggregate demand.

28. Explain the role the government can play through the budget in influencing allocation of resources. [6]

Answer : The government through its budgetary policy can reallocate the resources to different areas. In a mixed economy, the private producers aim towards profit maximisation, while, the government aims towards welfare maximisation. The private sector always tend to divert resources towards areas of high profit, while, ignoring areas of social welfare. In such a situation, the government through its budgetary policy reallocates resources to maintain a balance between the social objectives of welfare maximisation and economic objective of profit maximisation. For example- government levies taxes on socially harmful goods such as tobacco, etc., and provides subsidies for the socially

desirable goods such as food grains, kerosene, etc.

29. Calculate National Income and (Personal Disposable Income**).** [6]

		(₹ crores)
(i)	Personal tax	80
(ii)	Private final consumption expenditure	600
(iii)	Undistributed profits	30
(iv)	Private income	650
(v)	Government final consumption expenditure	100
(vi)	Corporate tax	50
(vii)	Net domestic fixed capital formation	70
(viii)	Net indirect tax	60
(ix)	Depreciation	14
(x)	Change in stocks	(-) 10
(xi)	Net imports	20
(xii)	Net factor income to abroad	10

Answer : National Income = Private final consumption expenditure + Government final consumption expenditure + (Net domestic fixed capital formation + depreciation + change in stock) - net imports - depreciation - Net Indirect Taxes - Net factor income to abroad

National income :

= 600 + 100 + (70 + 14 -10) - 20 -14 - 60 -10 = ₹ 670
or, National income = ₹ 670 crore

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Economics 2015 (Delhi)   SET II

Time allowed : 3 hours   **Maximum marks : 70**

> **Note : Except for the following questions, all the remaining questions have been asked in previous set.**

SECTION—A

2. Give equation of Budget Set. [1]

** Answer is not given due to change in present syllabus

Answer : The budget set or the consumption bundles available to the consumer will be governed by the following inequality condition :

$$P_1 x_1 + P_2 x_2 \leq M$$

(Budget Constraint)
where,

x_1 = Quantity of good 1

x_2 = Quantity of good 2

P_1 = Price of good 1

P_2 = Price of good 2

5. **Giving reason comment on the shape of Production Possibilities curve based on the following schedule :** **[3]**

Good X (units)	Good Y (units)
0	8
1	6
2	4
3	2
4	0

Answer : Based on the below schedule, we can say that PPC is a downward sloping straight line. This is because the opportunity cost of producing one good (*i.e.* Good X) in terms of another (*i.e.* Good Y) remains the same, that is, 2 (ignoring the minus sign).

Good X (Units)	Good Y (units)	Opportunity Cost
0	8	-
1	6	2
2	4	2
3	2	2
4	0	2

The following figure depicts the shape of PPC.
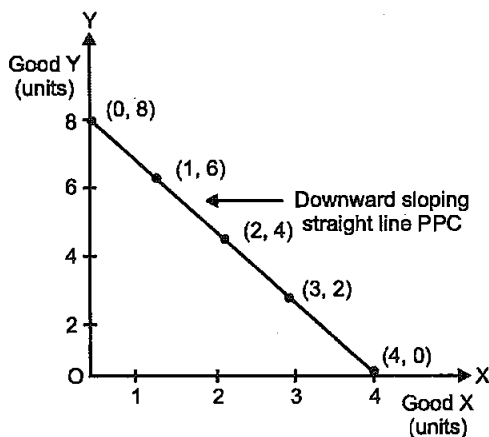
Thus, the shape of PPC is downward sloping straight line which can be attributed to the constant opportunity cost.

10. **A consumer spends ₹60 on a good priced at ₹5 per unit. When price falls by 20 percent, the consumer continues to spend ₹60 on the good. Calculate price elasticity of demand by percentage method.** **[4]**

Answer : Given :

Initial Total Expenditure (TE_0) = ₹60

Final Total Expenditure (TE_1) = ₹60

Initial Price (P_0) = ₹5

Percentage change in price = – ₹20

Percentage change in price = $\dfrac{P_1 - P_0}{P_0} \times 100$

$$-20 = \dfrac{P_1 - 5}{5} \times 100$$

$$\dfrac{-100}{100} = P_1 - 5$$

$$P_1 = 4$$

Price (P)	Total Expenditure (TE) = Price (P) × Quantity (Q)	Quantity (Q) = $\dfrac{TE}{P}$
P_0 = ₹5	TE_0 = ₹60	Q_0 = 12
P_1 = ₹4	TE_1 = ₹60	Q_1 = 15

Now,

$E_d = (-) \dfrac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$

$E_d = (-) \dfrac{\dfrac{Q_1 - Q_0}{Q_0} \times 100}{}$

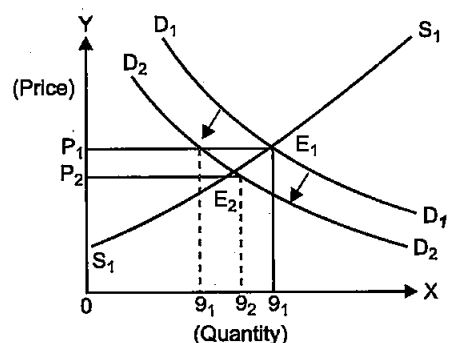$E_d = (-) \dfrac{\dfrac{15 - 12}{12} \times 100}{-20}$

$E_d = (-) \dfrac{25}{-20}$

$E_d = 1.25$

$\therefore E_d = \mathbf{1.25}$

Thus, the price elasticity of demand is 1.25.

11. **Market for a good is in equilibrium. The demand for the good 'decreases'. Explain the chain of effects of this change.** **[6]**

Answer : If market demand decreases, then the market demand curve shifts parallel leftwards to D_2D_2. Now, at the initial price OP_1, there exists excess supply equivalent to $Oq_1 - Oq'_1$ units of output. Due to the excess supply, the competition among the producers increases and they try to

get rid of the excess stock by selling their output at comparatively lower price. The price will continue to fall until it reaches OP_2, and the new equilibrium is established at point E_2, where the new demand curve D_2D_2 intersects the initial market supply curve S_1S_1. Hence, a decrease in market demand with supply remaining constant, results in fall in the equilibrium price as well as the equilibrium quantity.

Decrease in demand $\Rightarrow$ Excess supply at the existing price $\Rightarrow$ Competition among the producers $\Rightarrow$ Fall in the price level $\Rightarrow$ New equilibrium $\Rightarrow$ Fall in both quantity demanded as well as price.

SECTION B

21. If the Nominal GDP is ₹1,200 and Price Index (with base = 100) is 120, calculate Real GDP. [3]

Answer : Real GDP $= \dfrac{\text{Nominal GDP}}{\text{Price Index}} \times 100$

substituting the given values in the question

$$\text{Real GDP} = \frac{1200}{120} \times 100$$

or, Real GDP $= ₹ 1000$

23. An economy is in equilibrium. Find 'autonomous consumption' from the following : [4]

National income = 1,000

Marginal propensity to consume = 0.8

Investment expenditure = 100

Answer : Given

$Y = 1,000$

MPC $(c) = 0.8$

$I = 100$

Autonomous consumption $(\overline{C}) = ??$

We know that at equilibrium,

$$Y = C + I$$

i.e. $1,000 = \overline{C} + cY + I$

$\Rightarrow$ $1,000 = \overline{C} + 0.8 \times 1,000 + 100$

$\Rightarrow$ $1,000 = \overline{C} + 900$

$\Rightarrow$ $1,000 - 900 = \overline{C}$

so, $\overline{C} = 100$

29. Calculate 'Gross National Product at Market Price' and 'Net National Disposable Income'** : [6]

		(₹ crores)
(i)	Rent	100
(ii)	Net current transfers to rest of the world	30
(iii)	Social security contributions by employers	47
(iv)	Mixed income	600
(v)	Gross domestic capital formation	140
(vi)	Royalty	20
(vii)	Interest	110
(viii)	Compensation of employees	500
(ix)	Net domestic capital formation	120
(x)	Net factor income from abroad	(–)10
(xi)	Net indirect tax	150
(xii)	Profit	200

Answer : GNP_{MP} = Compensation of employees + Rent + Interest + Royalty + Profit + Mixed income + NFIA + Net indirect taxes + Gross domestic capital formation – Net domestic capital formation

$GNP_{MP} = 500 + 100 + 110 + 20 + 200 + 600 - 10 + 150 + 140 - 120$

$GNP_{MP} = ₹ 1690$ **crore**

● ●

Economics 2015 (Delhi)   SET III

Time allowed : 3 hours   **Maximum marks : 70**

> **Note :** Except for the following questions, all the remaining questions have been asked in previous set.

SECTION—A

3. **Define Budget Set.** [1]

Answer : A budget set represents those combinations of consumption bundles that are available to the consumer given his/her income

level and at the existing market prices. In other words, it represents those consumption bundles that the consumer can purchase using his/her money income (M).

5. **Explain the feature 'interdependence of firms' in an oligopoly market.** [3]

Answer : There exists a very high degree of mutual interdependence between the firms in an oligopoly market. The price and the quantity decisions of a particular firm are dependent

** Answer is not given due to change in present syllabus

on the price and the quantity decisions of the rival (other) firms. Hence, a firm must take into consideration the probable rival reactions, while formulating its own price and output decisions.

8. **Giving reason comment on the shape of Production Possibilities curve based on the following schedule :** [3]

Good X (units)	Good Y (units)
0	20
1	18
2	14
3	8
4	0

Answer : Based on the below schedule, we can say that PPC is concave to origin. This is because as the production increases, to produce each additional unit of Good X, more and more units of Good Y are sacrificed. In other words, the opportunity cost of producing one good in terms of another increases.

Good X (units)	Good Y (units)	Opportunity cost
0	20	—
1	18	2
2	14	4
3	8	6
4	0	8
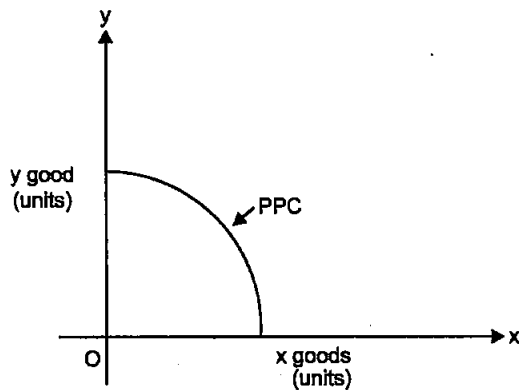
The following figure depicts the shape of PPC.

Thus, the shape of PPC is concave which can be attributed to the law of increasing opportunity cost.

9. **A consumer spends ₹100 on a good priced at ₹4 per unit. When price falls by 50 percent, the consumer continues to spend ₹100 on the good. Calculate price elasticity of demand by percentage method.** [4]

Answer : Given :

Initial Total Expenditure (TE_0) = ₹100

Final Total Expenditure (TE_1) = ₹100

Initial Price (P_0) = ₹4

Percentage change in price = –50

Percentage change in price = $\dfrac{P_1 - P_0}{P_0} \times 100$

$$-50 = \dfrac{P_1 - 4}{4} \times 100$$

$$\dfrac{-200}{100} = P_1 - 4$$

$$P_1 = 2$$

Price (P)	Total Expenditure (TE) = Price (P) × Quantity (Q)	Quantity (Q) = $\dfrac{TE}{P}$
P_0 = ₹4	TE_0 = ₹100	Q_0 = 25
P_1 = ₹2	TE_1 = ₹100	Q_1 = 50

Now,

$$E_d = (-) \dfrac{\text{Percentage change in quantiy demanded}}{\text{Percentage change in price}}$$

$$E_d = (-) \dfrac{\dfrac{Q_1 - Q_0}{Q_0}}{Q_0} \times 100$$

$$E_d = (-) \dfrac{\dfrac{50 - 25}{25_0}}{-50} \times 100$$

$$E_d = (-) \dfrac{100}{-50}$$

$$E_d = 2$$

∴ E_d = **2**

Thus, the price elasticity of demand is 2.

SECTION B

22. **If the Real GDP is ₹300 and Nominal GDP is ₹330, calculate Price Index (base = 100).** [3]

Answer : We know,

$$\text{Real GDP} = \dfrac{\text{Nominal GDP}}{\text{Price Index of Current year}} \times 100$$

$$300 = \dfrac{330}{\text{Price Index}} \times 100$$

Price Index = ₹110

24. **An economy is in equilibrium. Find Marginal Propensity to Consume from the following :** [4]

National income = 2,000

Autonomous consumption = 400

Investment expenditure = 200

Answer : $C = \overline{C} + cY$

where,

$\overline{C}$ represents autonomous consumption expenditure

c represents marginal propensity to consumre

So,

$$Y = C + cY + I$$

Substituting the given values,

$$2000 = 400 + c\,(2000) + 200$$

$$2000 = 600 + 2000\,c$$

or, $c = 0.7$

Thus, marginal propensity to consume is 0.7.

29. Calculate 'Net Domestic Product at Factor Cost' and 'Gross National Disposable Income'** : [6]

(₹ crores)

(i) Net current transfers to abroad   15

(ii) Private final consumption expenditure 800

(iii) New imports   (–)20

(iv) Net domestic capital formation   100

Answer : NDP_{FC} = Private final consumption expenditure + Government final consumption expenditure + (Net domestic capital formation + depreciation) – Net imports – depreciation – Net indirect taxes

or, $NDP_{Fc} = 800 + 200 + 100 + 50 - (-20) -50 -120$

or, $NDP_{FC} = ₹\,1000$ crore

●●

Economics 2014 (Outside Delhi)   SET I

Time allowed : 3 hours   Maximum marks : 70

SECTION—A

1. The government has started promoting foreign capital. What is its economic value in the context of Production Possibilities Frontier ?   [1]

   Answer : Promotion of foreign capital by the government will lead to an increment in resources as fresh investment into the country. It will increase the production in the country and will lead to a rightward shift in Production Possibility Frontier (*PPF*).

2. Define indifference curve.   [1]

   Answer : A curve that shows different combinations of two commodities that yield the same level of satisfaction to a consumer is called an indifference curve.

3. Define marginal product.   [1]

   Answer : Marginal product refers to the change in the total output brought by employing one additional unit of labour. Algebraically, marginal product = change in total product/change in labour units $MP = \dfrac{\Delta TP}{\Delta L}$

4. What is market supply of a product?   [1]

   Answer : The total quantity of a commodity supplied by all the producers at a given price during a given period of time is called the market supply of a product.

5. What is imperfect oligopoly?   [1]

   Answer : When the firms produce different products in an oligopoly market, it is called imperfect oligopoly, e.g., automobile industry.

6. Why is Production Possibilities Curve concave? Explain.   [3]

   Answer : The Production Possibility Curve is concave because marginal rate of transformation, which is the slope of the curve, increases continuously as each additional unit of one good is produced by reducing quantity of the other good. It means to produce more and more units of one good, more and more units of other good need to be sacrificed. *MRT* and opportunity cost increases because no resource is equally efficient in production of all goods. This can be explained with the help of the following diagram.

** Answer is not given due to change in present syllabus

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