ISC Solved Paper 2020
Economics
Class-XII

(Maximum Marks : 80)

(Time allowed : Three hours)

Answer all questions in Section A, Section B and Section C.
Section A consists of objective / very short answer questions.
Section B consists of short answer questions.
Section C consists of long answer questions.
The intended marks for questions or parts of questions are given in brackets [].

PART- I [20 Marks]

Answer all questions.

1. Answer briefly each of the question (i) to (x). [10×2]

(i) What is production function?

(ii) Explain the meaning of *income effect*.

(iii) What is *progressive tax*?

(iv) State the Law of Diminishing Marginal Utility. Mention any two assumptions of the law.

(v) Differentiate between *autonomous capital flow* and *accommodating capital flow*.

(vi) What is meant by MPS? How is MPS related to investment multiplier?

(vii) Briefly explain *any one* primary function of money.

(viii) Show with the help of a diagram, a situation when change in supply will keep the equilibrium quantity of the commodity unchanged.

(ix) What is meant by *selling cost*? Name *one* market where selling cost is applicable.

(x) What is meant by *operating surplus*?

Ans. (i) It is a functional relationship or interdependence between output and factors of production which are needed to produce that output. (Maximum quantity of a commodity which can be produced per unit of time with the given amount of inputs when the best production technique is used.)

Ans. (ii) Income effect refers to change in quantity demanded of a commodity when real income of the consumer changes owing to change in own price of the commodity.

Ans. (iii) A progressive tax is a tax in which the tax rate increases as the taxable base amount increases. A progressive tax takes a larger percentage of income from high-income groups than from low-income groups and is based on the concept of ability to pay.

Ans. (iv) The Law of Diminishing Marginal Utility states that as more and more units of a commodity are consumed (continuously), marginal utility derived from every additional unit must decline.

The law of diminishing marginal utility is based on these assumptions : (i) The utility can be measured in terms of units; (ii) the marginal utility of money is constant.

Ans. (v) Autonomous transactions or capital flows are those which are not influenced by other transactions in Balance of Payment Account. Accommodating transactions or capital flows are those which are undertaken to cover Deficit / Surplus in BOP.

Ans. (vi) MPS (Marginal Propensity to Save) is the ratio of change in saving to a change in income.

$$MPS = \frac{\text{Change in Saving}}{\text{Change in Income}} = \frac{\Delta S}{\Delta Y}$$

There is inverse relationship between k (investment multiplier) and MPS. If MPS is high, k will be low but if MPS is low, k will be high.

Ans. (vii) **Medium of exchange:** It means that money acts as an intermediary for the exchange of goods and services. Use of money as a medium of exchange has removed the major difficulty of double coincidence of wants in the barter system.

Ans. (viii)
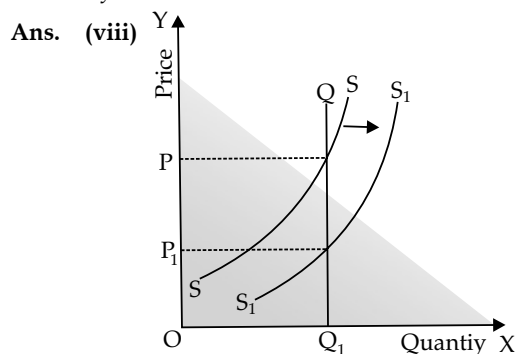
(ix) Selling costs are the sales promotion expenses like samples, advertisement, free delivery, etc. which are incurred by the firms to increase their sales. This cost is important for the markets where the products sold are similar but differentiated substitutes of each other.

Selling cost is applicable in Monopolistic Competition form of market.

(x) **Operating Surplus:** It is the income earned from property and entrepreneurship, rent, interest, profit, etc.

| PART- II | [60 Marks] |

*Answer any **five** questions.*

2. (a) **Explain the geometric method of calculating elasticity of supply.** **[3]**

(b) **Explain the concept of *Diminishing Marginal Rate of Substitution* and show how it affects the indifference curve.** **[3]**

(c) **The marginal utility schedule of a rational consumer is given below. If the price of a commodity is ₹ 35, explain with the help of a diagram, how the consumer attains equilibrium.** **[6]**

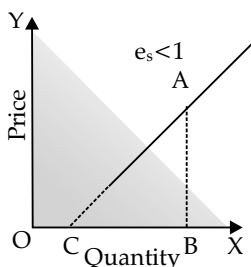| Number of the commodity bought	1	2	3	4	5
MU	50	45	40	35	30

Ans. (a) **Geometric method of calculating elasticity of supply conceives three possible situations :**

(i) Any straight line supply curve passing through the origin has volume of elasticity equal to one $e_s = 1$.
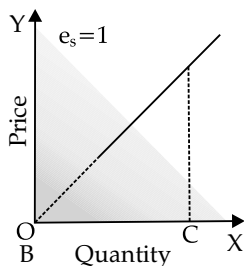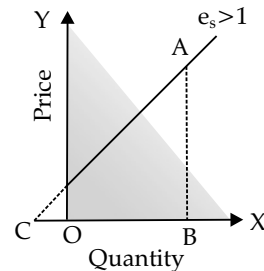

$$e_s = \frac{BC}{OB} \quad OR \quad BC = OB$$

[1]

(ii) If straight line supply curve goes through X axis, it is inelastic. $e_s < 1$.

$$e_s = \frac{BC}{OB} \quad OR \quad BC < OB$$

[1]

**(iii)** If a straight line supply curve goes through the Y-axis, it is elastic or highly elastic. $e_s > 1$.

$$e_s = \frac{BC}{OB} \quad OR \quad BC > OB$$

[1]

Ans. (b) Marginal Rate of Substitution refers to the rate at which the consumer is willing to sacrifice one good to obtain one more unit of the other good. Symbolically,

$$MRS_{XY} = \frac{\text{Quantity of goods } Y \text{ sacrificed}}{\text{Quantity of goods } X \text{ gained}} = \frac{\Delta Y}{\Delta X}$$

The marginal rate of substitution at a point on the indifference curve is equal to the slope of the indifference curve at that point and can therefore be found out by a tangent of the angle which the tangent line made with the X-axis. In the figure below three tangents GH, KL and MN are drawn at the points P, Q and R respectively on the given indifference curve.

Slope of the tangent GH is equal to OG/OH. Hence, the marginal rate of substitution of X for Y at point P is equal to OG/OH. Likewise, the marginal rate of substitution at point Q is equal to OK/OL and at point R is equal to OM/ON. It will be noticed that OK/OL, is smaller than OG/OH and OM/ON is smaller than OK/OL. It follows that MRS_{xy} diminishes as the consumer slides down on his indifference curve.
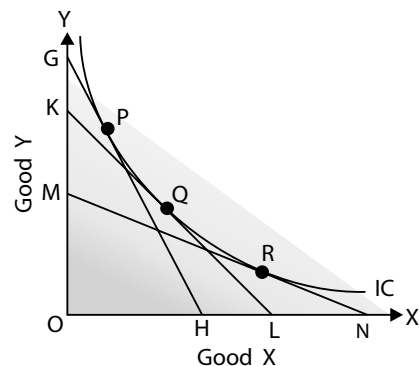
(c) A consumer purchasing a single commodity will be at equilibrium, when he is buying such a quantity of that commodity, which gives him maximum satisfaction. Being a rational consumer, he will be at equilibrium when marginal utility is equal to the price paid for the commodity, i.e.

$$MU_X = P_X$$

Number of Commodity Bought	MU
1	50
2	45
3	40
4	35
5	30

The consumer is at equilibrium when he buys 4 units of a commodity because here the equilibrium condition $MU_x = P_x$ is satisfied.
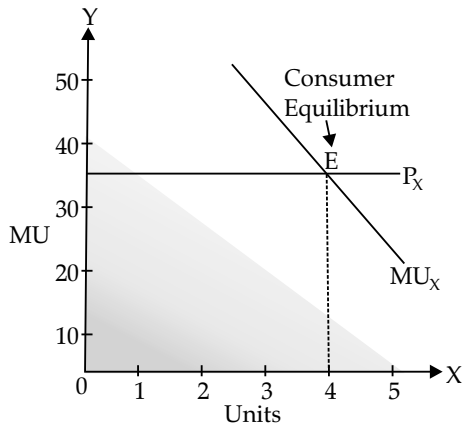

[6]

3. (a) Explain *any two* reasons for the shift in supply curve. **[3]**

(b) Briefly explain how equilibrium price is determined with the help of demand and supply curves. **[3]**

(c) Discuss the *three* stages of the Law of Variable Proportion with the help of diagrams. In which stage will a rational producer like to operate? **[6]**

Ans. (a) (i) Prices of Factors of Production: When the amount payable to factors of production and cost of inputs increases, the cost of production also increases. This decreases the profitability. As a result, seller reduces the supply of the commodity. On the other hand, decrease in prices of factors of production or inputs, increases the supply due to fall in cost of production and subsequent rise in profit margin.

(ii) State of Technology: Technological changes influence the supply of a commodity. Advanced and improved technology reduces the cost of production, which raises the profit margin. It induces the seller to increase the supply. However, technological degradation or complex and out-dated technology will increase the cost of production and it will lead to decrease in supply.

Ans.(b) The price that makes demand equivalent to supply is called the equilibrium price. Graphically, it can be said that the equilibrium price is the point where the demand curve and supply curve intersect. It is the price at which there is no unsold stock left neither is any demand unfulfilled. Thus, it is also known as the market clearing price.
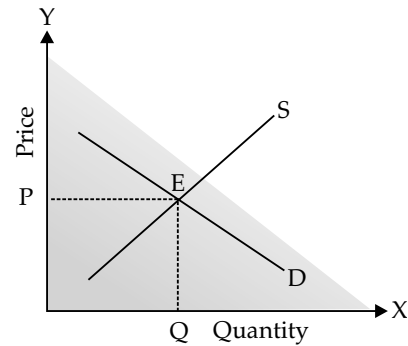
Ans.(c) Law of Variable Proportions states that as more and more of the variable factor is combined with the fixed factor, marginal product (MP) of the variable factor may initially increase and subsequently stabilise but must finally decrease. Phase of changes in Total Product according to the Law of Variable Proportion are shown in following figure:
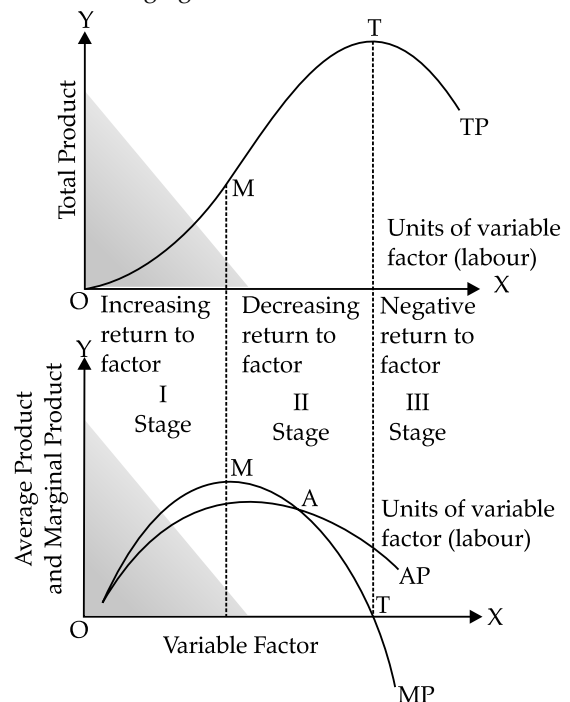
(i) Phase I Increasing Returns: This stage is in between O and M on TP curve. In this stage, MP tends to rise till OM units of labour are used with the constant application of fixed factor. When MP is rising, TP tends to rise at an increasing rate. This occurs till point M on TP curve and MP curve. This is a situation of increasing returns to a factor.

(ii) Phase II–Diminishing Returns: This stage is between M and T on TP curve. Beyond OM units of labour, MP tends to decline and TP increases only at diminishing rate. This occurs between M and T on MP curve and TP curve. This is a situation of diminishing return to a factor.

(iii) Phase III–Negative Returns: This stage is beyond T on TP curve. Beyond OT units of labour, MP becomes negative. Now, TP starts declining. This is a situation of negative returns to a factor.

According to the law of variable proportion, TP first increases at an increasing rate, then at decreasing rate and then starts falling. In the second stage, MP is decreasing but is still positive. This means that TP is still increasing. So, a rational producer would prefer to operate in the second stage of the law of variable proportions. [6]

4. (a) When price of commodity X changes from ₹ 40 per unit to ₹ 20 per unit, its demand increases by 20 units. If price elasticity of demand is 0.5, calculate the initial and the final quantity demand of commodity X. **[3]**

(b) Explain with the help of a diagram, the relationship between MR and TR under imperfect competition. **[3]**

(c) Using diagrams, explain the concepts of : **[6]**
(i) Shut-down point.
(ii) Break even point of a firm in perfect competition under short-run.

Ans.(a) $E_d = \dfrac{\text{Percentage Change in Quantity Demanded}}{\text{Percentage Change in Price}}$

$$E_d = (-)\dfrac{\dfrac{\Delta Q}{Q}}{\dfrac{\Delta P}{P}} = (-)\dfrac{\Delta Q}{\Delta P} \times \dfrac{P}{Q}$$
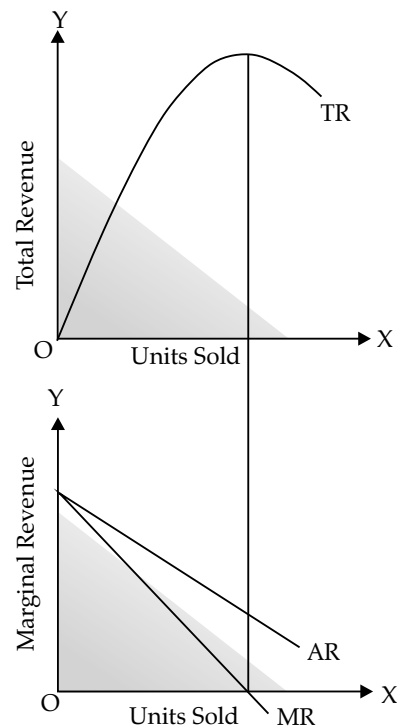
$$0.5 = \dfrac{20}{20} \times \dfrac{40}{Q}$$

$0.5 \times 1 \times Q = 40$

$0.5\,Q = 40$

$Q = 80$ units (Initial quantity)

Final quantity $(Q_1) = Q + 20$

$\qquad\qquad = (80 + 20)$ units

$\qquad\qquad = 100$ units

Ans.(b) A firm under imperfect competition such as under monopoly can sell more only by lowering its price.


Relationship between TR and MR

Under imperfect competition conditions, total revenue increases at a diminishing rate. It becomes maximum and then begins to decline. Under imperfect competition, price or AR is lowered to sell more. As a result, MR is falling. The rate of change in TR, that is MR, initially decreases at a diminishing rate and then becomes negative. As a result, TR initially increases at a diminishing rate but soon it starts falling.

Ans. (c) (i) Shut down point is defined as a situation where TR = TVC or AR = AVC. It occurs when a firm is just able to cover its variable cost, incurring the loss of fixed cost of production.
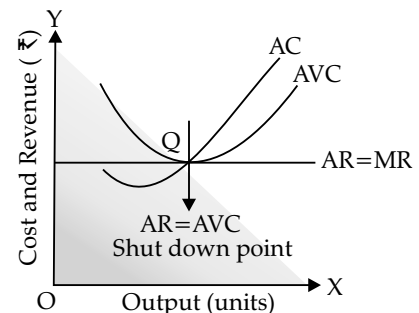

(ii) Breakeven point for a firm occurs when it is able to recover its all cost of production. Under this situation, the firms only get normal profits, i.e,

neither super normal profits nor super normal losses. At this point, TR = TC or AR = AC.
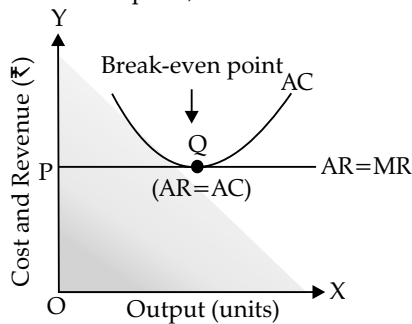
5. **(a)** **Give reasons for the following:** **[3]**

   (i) **TC and TVC curves do not start from the same point.**

   (ii) **ATC and AVC curves do not touch each other.**

   (b) **Explain** *any two* **factors affecting the demand of a commodity other than its price.** **[3]**

   (c) **Differentiate between** *perfectly competitive* **and** *monopolistically competitive market* **on the basis of the following:** **[6]**

   (i) Nature of the product

   (ii) Price influence

   (iii) Relationship of AR and MR

   (iv) Demand curve

Ans. (a) (i) TC is the sum total of TFC and TVC, i.e. TC = TFC + TVC. At zero level of output, TVC is zero, so TVC curve starts from origin. At zero level of output, TFC is not zero because there is an employment of fixed factors at zero level of output, so TFC curve starts from a point, above the origin. At zero level of output, TC = TFC, so TC curve starts at the same point where the TFC curve starts. The difference between TC and TVC is TFC, which is constant. So, TC and TVC curves are parallel to each other. Both TC and TVC curves rise at a diminishing rate and then at increasing rate.
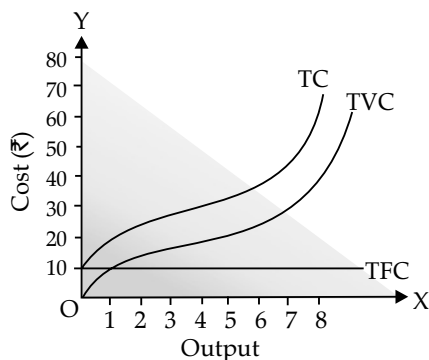
Ans. (ii) AVC and ATC curves do not intersect each other because the vertical distance between them is AFC which is always positive. The AVC

and ATC curves come closer to each other as AFC goes on diminishing with each unit of output, but they can never touch or intersect each other as AFC never becomes zero. (ATC = AFC + AVC)
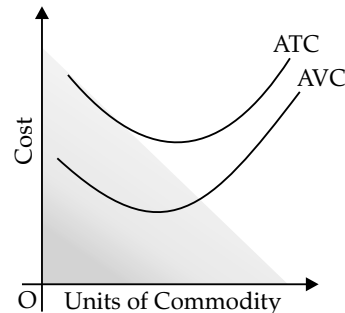
Ans.(b) **Demand for a commodity is affected by the following factors:**

   (i) **Income of the Consumer :** Market demand for a commodity is directly related to income of the consumer. Increase in income of consumer causes increase in market demand for the commodity.

   (ii) **Prices of Related Goods :** In case of substitute goods, demand for a commodity falls with fall in price of the substitute commodity. In case of complementary goods, market demand for the commodity rises with a fall in the price of complementary commodity.

   (iii) **Tastes and Preferences:** If consumer's tastes and preferences change, quantity demanded of the commodity will also change.

   (iv) **Income Distribution :** If income distribution is even, market demand for the commodity will be more than otherwise. **(Any two)**

   (c) (i) **Nature of Product :** Under perfect competition, firms produce homogeneous products. Under imperfect competition, all the firms produce differentiated products.

   (ii) **Price Influence:** Price, under perfect competition, is determined by the forces of demand and supply for the entire industry. Every firm has to sell its product at that price. It cannot influence price by its single action. It has to adjust its output to that price. Thus, every firm is a price-taker. On the other hand, every firm has its own price-policy under monopolistic competition. It cannot control more than a small portion of the total output of a product in a group.

   (iii) **Relationship of AR and MR:** Under perfect competition, average revenue and marginal revenue are equal, so both these curves coincide with each other. Under monopolistic competition, average revenue is more than marginal revenue because the firm has to lower the price to increase sales. Thus, marginal revenue is less than average revenue, i.e., AR > MR.

(iv) Demand Curve: The slope of the demand curve in perfect competition is horizontal, which shows perfectly elastic demand. This means that a little change in prices of goods and services leads to an infinite change in the number of products or services demanded. The slope of the demand curve in a monopolistic show a downward, which is elastic demand. This means that changes in prices lead to relatively significant changes in quantity.

6. (a) Discuss two methods of Redemption of *public debt* in an economy. **[3]**

(b) How is *fiscal deficit* different from *primary deficit*? Explain *one* implication of fiscal deficit. **[3]**

(c) Discuss *any four* causes of adverse Balance of Payment of a country. **[6]**

Ans. (a) **Budgetary Surplus :** Till the time the loans are repaid, the government can follow a policy of surplus budget, whereby revenue of the government is more than the expenditure. The surplus or the excess of revenue over expenditure can be utilised to repay the debt and interest obligations.

Terminal Annuities : It is the method of debt redemption whereby equated annual instalments of loan are paid. This instalment covers a portion of principal and interest on the balance due.

Ans. (b) Fiscal deficit is the difference between the estimated total expenditure and estimated total revenue (excluding the fresh borrowing). It is the main indicator of the budgetary deficit. Primary deficit is the difference between the fiscal deficit and the total interest payments. It indicates the real financial position of the government.

Implication of Fiscal Deficit: It measures the total borrowing requirements. It creates problem of interest payment and repayment of debt.

Ans. (c) **Causes of adverse Balance of Payment:**

(i) **Developmental Activities :** There are more developmental activities in an under developed and a developing country as compared to a developed country. Due to large amounts involved in developmental activities, there happens disequilibrium in the balance of payments.

(ii) **High Rate of Inflation :** Inflation prevailing in a country also influences value and quantum of exports and imports of the country.

(iii) **Trade cycle:** The prevailing trade cycle in the economy also influences the balance of payments. The phases of boom and depression cause disequilibrium in the balance of payments.

(iv) **Change in cost Structure of Trading Partners :** This also influences the balance of payments account as it creates surplus or deficit in the difference between value of imports and exports.

7. (a) Mention the components of M_1, M_2 and M_3 measures of money supply by RBI. **[3]**

(b) Explain the following functions of the Central Bank: **[3]**

(i) Custodian of foreign exchange reserves

(ii) Lender of the last resort.

(c) Discuss the different ways in which commercial banks extend loans to their customers. **[6]**

Ans. (a) $M_1 = C + DD + OD$

$M_2 = M_1 +$ Savings deposits with post office

$M_3 = M_1 +$ Time deposits of public with banks where,

$C =$ Currency with public

$DD =$ Demand deposits with banks

$OD =$ Other deposits with RBI

(b) **(i)** **Custodian of Foreign Exchange Reserves:** The foreign exchange reserves of every country are under the custody of the Central Bank of that country. The Central Bank maintains the foreign exchange reserves so that the international trade of the country does not suffer a setback.

(ii) **Lender of Last Resort:** It means that if a commercial banks fail to get financial accommodation from anywhere, it approaches the Central Bank as the last resort. Central Bank advances loan to such banks against approved securities. By offering loans to the commercial banks in situation of emergency, the Central Bank ensures that the banking system of the country does not suffer any setback and that the money market remains stable.

(c) **(i)** **Loan and Advances:** A loan is a direct advance made in lump-sum which is credited to a separate loan account in the name of the borrower. The borrower withdraws the full amount and repays it at one go or in installments. He has to pay an interest on the whole amount. Loans may be secured or unsecured.

(ii) **Cash Credits:** It is a revolving credit arrangement under which a borrower is allowed to borrow upto a certain limit. Unlike a loan, it is a running account from which the amount can be withdrawn as and when needed. Interest is charged only on the amount withdrawn and not the entire amount.

(iii) **Bank Overdarft:** Loan arrangement under which a bank extends credit upto a maximum amount (called overdraft limit) against which

a current account customer can write cheques or make withdrawals. Bank charges interest on overdrawn amount.

(4) **Discounting of Bill:** The purchase of bill exchange, promissory notes and hundies by banks before maturity. The bank pays less than the nominal value of the bill, deciding a certain percentage for interest. At maturity, the bank collects the full nominal value from the drawee.

8. (a) Briefly explain the mechanism of the investment multiplier with the help of a schedule. Take initial increase in autonomus investment as ₹ 1000 crores and MPC as 0.8. **[3]**

(b) Briefly discuss components of Aggregate Demand in an economy. **[3]**

(c) Explain the concept of deflationary gap with the help of a diagram. Discuss any two monetary measures to reduce the gap. **[6]**

Ans. (a) Investment multiplier refers to increase in national incomes as a multiple of a given increase in investment. Its value is determined by MPC. The value equals: Multiplier = 1/1–MPC or 1/MPS or suppose increase in investment is ₹1,000 and MPC = 0.8. The increase in national income is in the following sequence:

Round	Increase in Investment (ΔI)	Increase in Income (ΔY)	Increase in Consumption ($\Delta C = \Delta Y \times MPC$)	Increase in Saving ($\Delta S = \Delta Y - \Delta C$)
1st	1,000	1,000	800 = (1,000×0.8)	200
2nd	–	800	640 = (800×0.8)	160
3rd	–	640	512 = (640×0.8)	128
4th	–	512	409.6 = (512×0.8)	102.4
–	–	409.6	–	–
–	–	–	–	–
Last Round	–	–	–	–
Total		**5,000**	**4,000**	**1,000**

(i) Increase in investment raises incomes of those who supply investment good by ₹ 1,000. This is the first round increase.

(ii) Since MPC = 0.8, the income earners spend ₹ 800 on consumption. This raises the income of the supplier of consumption goods by ₹ 800. This is second round increase.

(iii) In the similar way, the third-round increase is ₹ 640 = 800×0.8. In this way national income goes on increasing round after round.

(iv) The total increase in income is ₹ 5,000 which equals.

$$\Delta Y = \Delta I \frac{1}{1 - MPC}$$

$$\Delta Y = 1,000 \times \frac{1}{1-0.8} = ₹ 5,000$$

(b) **Components of Aggregate Demand:**

(i) **Private (Household) Consumption Expenditure (C):** It refers to the total expenditure incurred by households on purchase of goods and services during an accounting year. Generally, consumption expenditure is directly influenced by the level of 'Disposable Income', i.e.,

higher the disposable income, more is the consumption expenditure and vice-versa. Disposable income refers to the income from all sources, which is available to households for spending on consumption and saving.

(ii) **Investment Expenditure (I):** It refers to the total expenditure incurred by all private firms on capital goods. It includes addition to the stock of physical capital assets such as machinery, equipment, buildings, etc. and change in inventory.

(iii) **Government Expenditure (G):** It refers to the total expenditure incurred by government on consumer goods and capital goods to satisfy the common needs of the economy. It means, government incurs consumption expenditure as well as investment expenditure. Consumption expenditure is incurred to meet public needs like law and order, education, health, transport, defence, etc. Investment expenditure involves construction of highways, roads, power plants, etc.

(iv) **Net Exports (X – M):** Exports indicate demand for goods produced within the domestic territory of a country by the rest of the world. Imports refer to demands of

the residents of a country for the goods that have been produced abroad. The difference between exports and imports is termed as net exports. The magnitude of net exports generally depends on rate of exchange, relative prices of goods, exchange duties, trade policy, etc.

(c) Deflationary Gap is the measurement of deficient demand and is equal to the difference between Aggregate Demand at Full employment (ADF) and actual Aggregate Demand. Deflationary Gap = ADF – AD
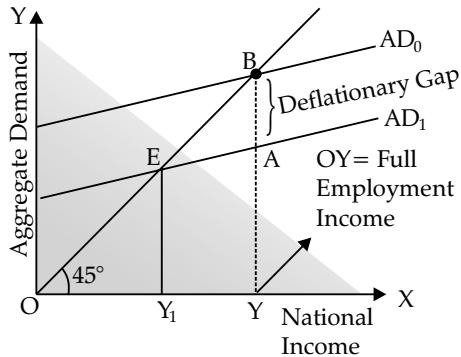
Measures to reduce Deflationary Gap:

(i) **Bank Rate or Discount Rate (Decrease in Bank Rate):** Bank rate is the rate of interest at which Central Bank lends to commercial banks without any collateral (security for purpose of loan). In a situation of deficient demand leading to deflation, Central Bank decreases bank rate that encourages commercial banks in borrowing from Central Bank as it will decrease the cost of borrowing of commercial banks. Decrease in bank rate makes commercial banks to decrease their lending rates, which encourages borrowers from taking loans, which encourages investment. Again, low rate of interest induces households to decrease their savings by increasing expenditure on consumption. Thus, expenditure on investment and consumption increase, which will control the deficient demand. [3]

(ii) **Open Market Operation (Purchase of Securities):** It consists of buying and selling of government securities and bonds in the open market by Central Bank. In a situation of deficient demand leading to deflation, Central Bank purchases government securities and bonds from commercial bank. With the purchase of these securities, the power of commercial banks of giving loans increases, which will control deficient demand.

9. (a) **How can you obtain :** [3]

(i) **National Income from GDP$_{MP}$.**

(ii) **Personal disposable income from personal income.**

(b) **With the help of relevant examples, explain the meaning of leakages and injections in the circular flow of income.** [3]

(c) **From the following data, calculate GNP$_{FC}$, NDP$_{FC}$ and national income:** [6]

S.No	Item	₹ in crores
(i)	Private final consumption expenditure	950
(ii)	Gross domestic fixed capital formation	370
(iii)	Consumption of fixed capital	20
(iv)	Government final consumption expenditure	410
(v)	Closing stock	300
(vi)	Subsidy	80
(vii)	Net exports	(-)50
(viii)	Wages and salaries	780
(ix)	Net factor income from abroad	(-)40
(x)	Indirect tax	180
(xi)	Opening stock	150
(xii)	Profit before tax	200

Ans. (a) (i) NNP$_{FC}$ = GDP$_{MP}$ – Depreciation + Net Factor Income from Abroad – Net Indirect taxes

(ii) Personal Disposable Income = Personal Income – Personal Taxes – Miscellaneous Receipts of the Government Administrative Departments.

(b) Injections into the circular flow are additions to investment, government spending or exports so boosting the circular flow of income leading to a multiplied expansion of output. Leakages are increases in savings, taxes or imports so reducing the circular flow of income and leading to a multiplied contraction of production (output).

(c) GNP$_{FC}$ = Private Final Consumption Expenditure + Gross Domestic Fixed Capital Formation + Government Final Consumption Expenditure + Change in Stock + Net Exports + NFIA – NIT (Tax–Subsidy)

= 950 + 370 + 410 + 150 + (–50) + (– 40) – 100

= ₹ 1,690 crore

GDP$_{MP}$ = GNP$_{FC}$ – NFIA + NIT

= 1,690 – (–40) + 100

= ₹ 1,830 crore

NDP_{FC} = GDP_{MP} – Consumption of Fixed Capital – NIT

= 1,830 – 20 – 100

= ₹ 1,710 crore

National income = NDP_{FC}+NFIA

= 1,710 + (– 40)

= ₹ 1,670 crore

∎∎