Subject: **ECONOMICS**

Subject Code: **030**

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**Person with Disabilities:** Yes / No

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Each letter to be written in one box and one box to be left blank between each part of the name. In case Candidate's Name exceeds 34 letters, write first 34 letters.
Section A

1. The difference between Average Variable cost (AVC) and Average Total cost (ATC) is the Average Fixed cost (AFC)

Since Total Fixed cost = 0

\[ \frac{ATC}{Q} = AFC \]

\[ AFC = \frac{FC}{Q} = 0 \]

Since AFC is 0, the AVC = AFC

Hence, the Average Variable cost is equal to Average Total cost.

Equal to Average Revenue

3. Change in demand takes place when some determinant of demand of a commodity, other than its own price changes.

For example, income of the consumers, price of related good, etc. It results in shift of the demand curve.
4. (x) Both monopolistic competition and oligopoly

5. (a) Perfect competition

6. (a) The consumer is in equilibrium when:

(i) \[ Mux = Muy = \frac{Mux}{P}\text{ and } \frac{Muy}{P} \text{ spent on both commodities} \]

(ii) Law of Diminishing Marginal Utility is operational.

In the given case:
\[ Mux = \frac{3}{4} \sqrt{P} \]

\[ Muy = \frac{4}{7} \sqrt{P} \]

whereas \[ Mux < Muy \]
\[ \frac{Mux}{P} < \frac{Muy}{P} \]
The consumer is not in equilibrium as the Marginal Utility of the last rupee spent on Good Y is more than Marginal Utility of last rupee spent on Good X.

Therefore, the consumer will transfer funds from Good X to Good Y and increase the consumption of Good Y.

As consumption of Good Y increases, MULY falls (due to law of diminishing marginal utility).

This continues till MULX = MULY

\[ \frac{P_x}{P_y} \]

Conclusion: The consumer will increase the consumption of Good Y till the utility derived from the last rupee spent on both commodities is the same and he attains equilibrium.
The price elasticity of demand = \( \frac{\text{change in Quantity Demanded}}{\text{change in Price}} \)

(a) \[ E_p = \frac{\Delta Q}{\Delta P} \frac{P}{Q} \]

\[ 0 = \frac{\Delta Q}{\Delta P} \frac{P}{Q} \]

\[ \Rightarrow \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} = 0 \]

Hence, the demand for the commodity will not change at all.

(b) \[ E_p = \frac{\Delta Q}{\Delta P} \frac{P}{Q} \]

\[ \Rightarrow 10 = \frac{\Delta Q}{\Delta P} \frac{P}{Q} \]

\[ \Rightarrow 10\% = \frac{\Delta Q}{\Delta P} \frac{P}{Q} \]

The quantity demanded of the commodity will fall by 10\% if the price rises by 10\%.

(unitary elastic demand)
1. \[ -2 \cdot \frac{1}{10} \Delta \text{ in } \Phi D \]

2. \[ 20 \cdot \frac{1}{10} \Delta \text{ in } \Phi D \]

The quantity demanded will fall by 20 if the price rises by 10%.

In the above diagram, X-axis denotes quantity demanded/supplied and Y-axis denotes the price.

The equilibrium point is E, with equilibrium price OP and equilibrium quantity OQ.
When the prevailing market price is $P_A$, above the equilibrium price.

At this price, the quantity supplied is more than the quantity demanded. This will create a situation of excess supply. This will result in competition among sellers, leading to a fall in price.

As price falls, there is entension in demand (downward movement along the demand curve) and contraction in supply (downward movement along the supply curve).

The price will keep falling till entire excess supply is eliminated and equilibrium is established at point $E$, with equilibrium price $O_P$ and equilibrium quantity $O_Q$. 
Demand is the desire to buy a commodity, backed by ability and willingness to pay, at a particular price, during a given period of time. It is a flow variable.

Apart from factors affecting individual demand, there are factors that additionally affect market demand:

(i) Number of households in the market.
The more in the population, the greater number of households, thus will be and greater demand for goods and services. Few households will imply less market demand and more households affect will imply more market demand.

(ii) Composition of population.
The composition of population also affects the market demand. This is because factors like age and gender affect demand for certain commodities. Needs of the young and old differ. Needs of the male and female population differs too.
(iii) Distribution of Income

If the income is distributed in the favour of rich, comfort and luxuries will be more in demand. Whereas, if the income is distributed in the favour of the poor, necessaries will have higher market demand.

Generally, market demand is higher if the income distribution is even, rather than when it is uneven.

Behavior of MP in the short run production function.
Marginal product (MP) is the additional output produced when an additional unit of variable input is employed.

Behaviour of MP:

Steps:
(i) Initially, MP rises. (TP increases at an increasing rate)
In the above diagram, this lasts till Qz level of input.

Steps (ii) MP starts falling, but is still positive (TP increases at a decreasing rate).
This happens between Qz and Qf level of input.
When MP becomes zero, TP is maximum.

Steps (iii) MP becomes negative (TP starts falling)
This happens after Qf level of input.

Note: MP is Marginal Product
TP is Total Product.

This is because of laws of variable proportions. As output increases, the productivity of variable inputs will fall, and the pressure on fixed
Price elasticity of supply = \frac{1}{\text{change in quantity supplied}} \frac{1}{\text{change in price}}

\[ E_s = \frac{75}{21 \times 100} \]
\[ E_s = \frac{75}{21} \]
\[ E_s = -3 \]
\[ E_s > 1 \]

Hence price elasticity of supply is \( E_s = -3 \). Therefore, supply is elastic.
12. The Economic Problem is essentially the problem of making a choice.

We have limited resources, having alternative uses. However, we have unlimited wants, differing in urgency.

How to employ these limited resources, having alternative uses to satisfy our wants is the central problem of economics.

Scarcity arises due to scarcity of resources. Scarcity is a relative term. It means limited supply of a commodity in relation to its demand. It is a situation where the demand of a commodity exceeds its supply even at zero price.
To summarise the economic problem due to:

(i) limited resources (scarcity of resources)

(ii) resources have alternative uses

(iii) unlimited wants

- We need to *economise* the resources, that is, make the best possible use of the resources and use them judiciously.

The central problem is:

(i) What to produce and in what quantities?

(ii) How to produce?

(iii) For whom to produce?

The problem of "for whom to produce" is the problem of distribution of income among various factors of production. The factors act as customers and their share in goods and services produced will depend on their purchasing power, which will depend on the income they get.
who will consume what goods and services will depend on how the National Income is distributed in the economy.

The distribution should be such that the most urgent needs of people should be met to the maximum extent possible.

Another aspect of this problem is whether production should be done for present generation or future generations. For present generation, more consumer goods will be produced, whereas for future generations, more producer goods will be produced, as they lead to future production.
13. Indifference curve is the graphical representation of different combinations of two goods that give the consumer the same level of satisfaction.

Proposing IC (Indifference curves)

1. Indifference curve is downward sloping from left to right. This is because some units of one good will have to be sacrificed to consume an additional unit of another good, in order to keep the level of satisfaction same.
(2) Indifference curve is concave to the origin.

This is due to diminishing Marginal Rate of Substitution (MRS).

Marginal Rate of Substitution is the amount of one good sacrificed to obtain an additional unit of another good, without changing the level of satisfaction.

Diminishing MRS implies that the consumer is willing to sacrifice less and less of one good, for every successive increase in consumption of other good.

This is because the consumer's capacity to sacrifice is more when it is plentiful and less when it is scarce.
(3) Higher IC implies higher level of satisfaction.

IC₁ represents a higher level of satisfaction than IC₂,
and IC₃ represents a higher level of satisfaction than IC₁.

This is because a higher IC would show combinations
which will have either more of both goods or
more of one good and some of other good.
Since preferences are monotonic, more goods will
always be preferred.
Hence, higher IC would imply higher level
of satisfaction.
If they were to intersect, as shown in the diagram,

It will imply that A and B represent some level of satisfaction, since they lie on the same I~.

But B and C will also represent some level of satisfaction, as they lie on I~. This will mean A and C show some level of satisfaction, C lies on higher I~, therefore it will show higher level of satisfaction. This is a contradiction.
Law of supply states that, all other things constant, the quantity supplied of a commodity varies directly with its price.
Hence, when there is fall in its own price say from $P$ to $O'P$, the quantity supplied of a commodity will fall from $OQ$ to $O'Q$.

This is called contraction of supply.
It results in downward movement along the same demand curve (from $B$ to $A$).

(b) Fixing a tax rate on good X.
When there is ruin in times, the cost of production of the commodity rises. This reduces the profit of the producer. Hence, it will result in a decrease in supply.

The supply curve will shift downward from $S_2$ to $S_1$.

due to the commodity will be supplied at the same price. (Earlier $OQ$ was supplied at $Q_1$ price; now $OQ_2$ is supplied.)
There are large number of sellers in perfectly competitive market. This means that the output produced by a single firm is an insignificant part of market supply (total output).

Therefore, a single firm by changing its supply can not influence the market price.

Therefore, individual sellers have no influence over the market price. They are Price-Takers. They can sell any amount of commodity at the given price. The price is determined in the industry as a whole by market forces of supply and demand.
(b) Homogeneous product

The product sold in perfectly competitive market are perfect substitutes of each other. They are identical in terms of quality and the services related to their sale and delivery are identical.

Therefore, the consumer has no preferences of firms. He is indifferent to firms. Therefore, the firm cannot increase the price as the consumers will buy from another firm.

Hence, homogeneous product implies uniformity in price.
Section B.

14. Flows are variables that are measured over a period of time. They have a time dimension. For example, National Income is measured over a year.

(c) Residents

Revenue receipts in the government budget are those which neither create a liability nor reduce an asset. e.g., Taxes.

(c) Borrowings less interest payment.

20. (c) Autonomous transactions
21. Real Income = Nominal Income \times \frac{100}{Price\ Index} \\
200 = Nominal\ Income \times 100 \times \frac{135}{100} \\
Nominal\ Income = \frac{200 \times 135}{100} \\
= 270 \\
Hence, Nominal\ Income\ is\ £270\ pounds. \\

22. Aggregate Demand is the value of all goods and services that an economy plans to buy during a given period of time. \\
\[ AD = C + I + G + (X - M) \] \\
(Aggregate\ Demand\ is\ equal\ to\ Aggregate\ Expenditure)
where, hence

(17) C is a Consumption Expenditure - This is the planned expenditure of all households in an economy on final consumption goods and services.

(18) I is the Investment Expenditure - It is the planned expenditure of all the production units on new capital goods.

It is of three types:

(i) Surplus of fixed assets
(ii) Addition to inventory
(iii) Construction of residential structures

(19) G is the Government Expenditure - It is the planned expenditure of the general government providing public goods and services to the citizens. Can be demand orders.

(20) \((X-M)\) is the Net exports - It is the net planned expenditure of foreigners on the domestic product.
When an economy is in equilibrium,

\[ Y = C + I \]

\[ Y = \bar{C} + \bar{I} \]

\[ 1000 = 200 + (MPC)1000 + 100 \]

\[ 1000 - 200 - 100 = (MPC)1000 \]

\[ 700 = MPC \]

\[ \frac{700}{1000} = MPC \]

\[ MPC + \frac{7}{10} = 0.7 \]

Hence the Marginal Propensity to

\[ \text{Consume is 0.7} \]

Where:

- \( Y \) = National Income
- \( I \) = Autonomous consumption
- \( \bar{I} \) = Autonomous investment
- \( b \cdot MPC = \text{Marginal Propensity to Consume} \)
2. The sale of petrol and diesel cars is increasing, demand for domestic product is rising.

Therefore it will result in rise in Gross Domestic Product.

With rise in cars, one can assume that people will be having higher standards of living. Hence it will result in economic welfare.

However, petrol cars also lead to an increase in pollution levels of the country. This is an externality that is not accounted for in estimating Gross Domestic Product. It will harm the healthy citizens and hence may actually reduce social welfare in some ways.
In the barter system, there was a problem of lack of double coincidence of wants. An exchange could only happen if both the buyer and the seller wanted to buy each other's goods and sell their own goods to each other. It would be a rare occasion unless two people would want to mutually exchange their commodities. It would usually involve a series of unwanted intermediary exchanges before one got the desired commodity in exchange of one's own.

Money solved this problem.

* Money acts as a medium of exchange

1. No one has any objection to receiving money in exchange of their goods and services. With the money received, the person can buy whatever he wants.
2. Hence money acts as an intermediary between the buyer and the seller and increases ease of trade.
(III) With money, a person can buy whatever he wants. Hence it acts as a store of generalised purchasing power and gives freedom of choice to the consumer.

26. **Repos**: Repo Rate is the rate at which central bank lends to commercial banks for short-term.

   * An increase in repo rate will increase the cost of borrowing from the central bank for the commercial bank. This will induce the commercial banks to increase their rate of interest. This will discourage borrowing, and people will borrow less. Hence, this will lead to reduction in credit creation and money supply.
   * It is used during situation of inflation, as it reduces AD.

   * A decrease in repo rate will reduce the cost of borrowing from the central bank. Hence the commercial banks will lower their rate of interest, hence encouraging borrowing.
This will lead to more credit creation and money supply.

It is used in situations of deflationary pressures in the economy, as it results in an increase in AD.

<table>
<thead>
<tr>
<th>Revenue Expenditure</th>
<th>Capital Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>* It neither creates an asset, nor reduces a liability.</td>
<td></td>
</tr>
<tr>
<td>* It is incurred for normal running of govt departments and provision of various services.</td>
<td></td>
</tr>
<tr>
<td>* In salaries and pensions, subsidies and grants given to state, central and UTs, interest on debt, incurred by the govt etc.</td>
<td></td>
</tr>
<tr>
<td>* It either creates an asset, or reduces a liability.</td>
<td></td>
</tr>
<tr>
<td>* Incapable. It is incurred on developmental activities, or to reduce the liabilities of the govt.</td>
<td></td>
</tr>
<tr>
<td>* In repayment of loans, acquisition of machinery, building, equipment etc.</td>
<td></td>
</tr>
</tbody>
</table>
The key aim of the budget is to promote economic equality. Economic inequalities are inherent in all economic systems, but they need to be curbed to a socially acceptable level.

Through the budget, it can undertake redistribution of income and wealth in the society.

* Taxation: i) It can adopt a progressive tax regime where the rich are taxed more than the poor.

ii) Luxury items can be taxed more, which are only consumed by those with excess income, whereas necessities can be tax exempt as they are also consumed by the poorer sections.
Government Expenditure

- Government can spend on subsidies given to poor on necessities such as food items.
- It can spend on social welfare schemes.

Hence, in such away, redistribution of income and wealth can be undertaken.
In the above diagram, X axis denotes income and Y axis denotes savings and consumption.

Y in the income line where consumption is equal to income on every point.

S is the savings curve with OA (~) as savings at zero level of income.
+ B on the X axis is the break-even point where savings are zero. Hence, income is equal to consumption.

+ To the left of point B, the savings curve lies in the negative quadrant, hence there are disavings.
  To the right of point B, savings curve lies in the positive quadrant, hence there are positive savings.

To derive consumption curve:

(i) Take OD on the upper part of X axis, equal to OA on the lower part of Y axis.
    This is because autonomous consumption is equal to disavings at zero level of income.

(ii) Draw a perpendicular from point B on X axis to the income line, at B'. This is the break-even point, where consumption is equal to income.
(III) Draw a straight line joining through $D$ and $E'$ to derive the consumption curve ($C$).

To the right of $E'$, income is more than consumption, hence there are positive savings.

To the left of point $E'$, income is less than consumption, hence there are savings.

(IV) The difference between $X$ axis and savings curve is equal to difference between money line and consumption curve.

\[ \text{Hence, } \quad CH \equiv II \]
\[ \text{and } \quad KL \equiv MN. \]

Hence, consumption curve is derived from savings curve.
29. a) When investors lend abroad, it will recorded in the Capital Account of BOP. This is because it affect the asset and liability status of the country. It reduces leads to creating an asset for the investor.

   It will be recorded in the debit side as it leads to outflow of foreign exchange.

b) Lending will lead to outflow of foreign exchange.
   It will increase the liability of foreign exchange. 

   Therefore,

   To lend abroad, the investor will need foreign exchange.
   Hence, it will result in increase in demand for foreign exchange.

As the demand for foreign exchange increases, it results in rightward shift of the foreign exchange demand curve from D to D'.
This will create a situation of excess demand at original price OR. Hence, the exchange rate will rise. As exchange rate rises, its demand contracts (inward shift on the demand curve) and supply curve expands (outward shift on the supply curve). This will continue till entire excess demand is eliminated and equilibrium is attained at E', with a new exchange rate OR and a new quantity Q'R.

Therefore, lending would result in rise in market exchange rate.
Using Expenditure Method,

\[ \text{GNDP}_m = (i) + (iv) + (vii) - (ix) + (viii) - (iii) \]

\[ = 800 + 300 + 200 - 30 + 100 + 10 \]

\[ = 1400 + 10 - 30 \]

\[ = 1410 - 30 \]

\[ = 1380 \text{ crores} \]

Private Income = \( \text{GNDP}_m - (vii) - (x) + [(xii) + (vii) - (iii)] \)

\[ = 1380 - 100 - 150 - 90 + [50 + 40 - 20] \]

\[ = 1280 - 150 - 90 + [70] \]

\[ = 1110 \text{ crores} \]