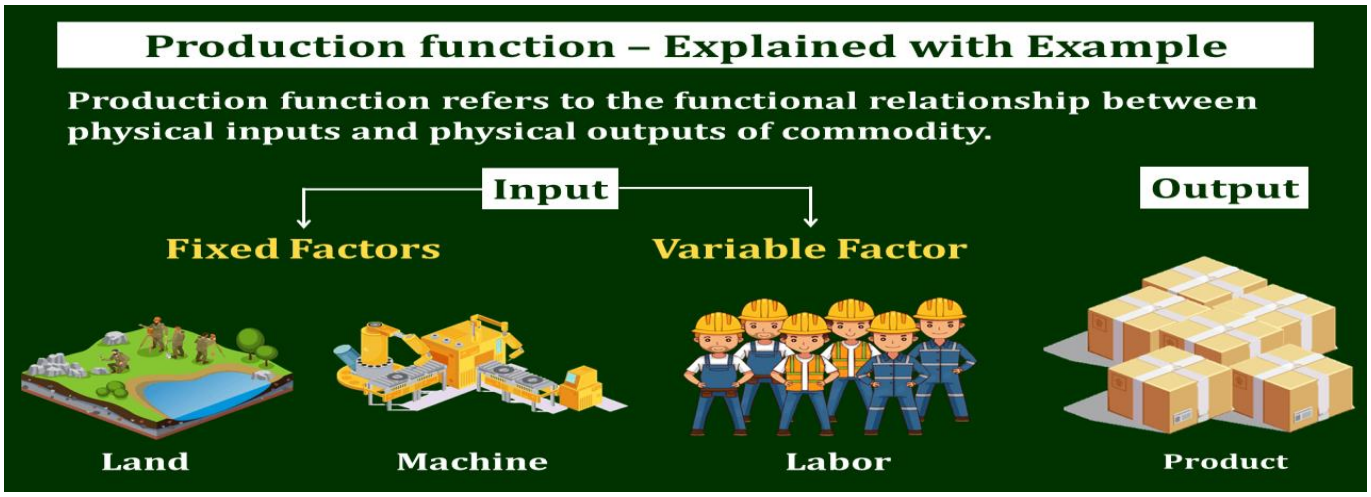
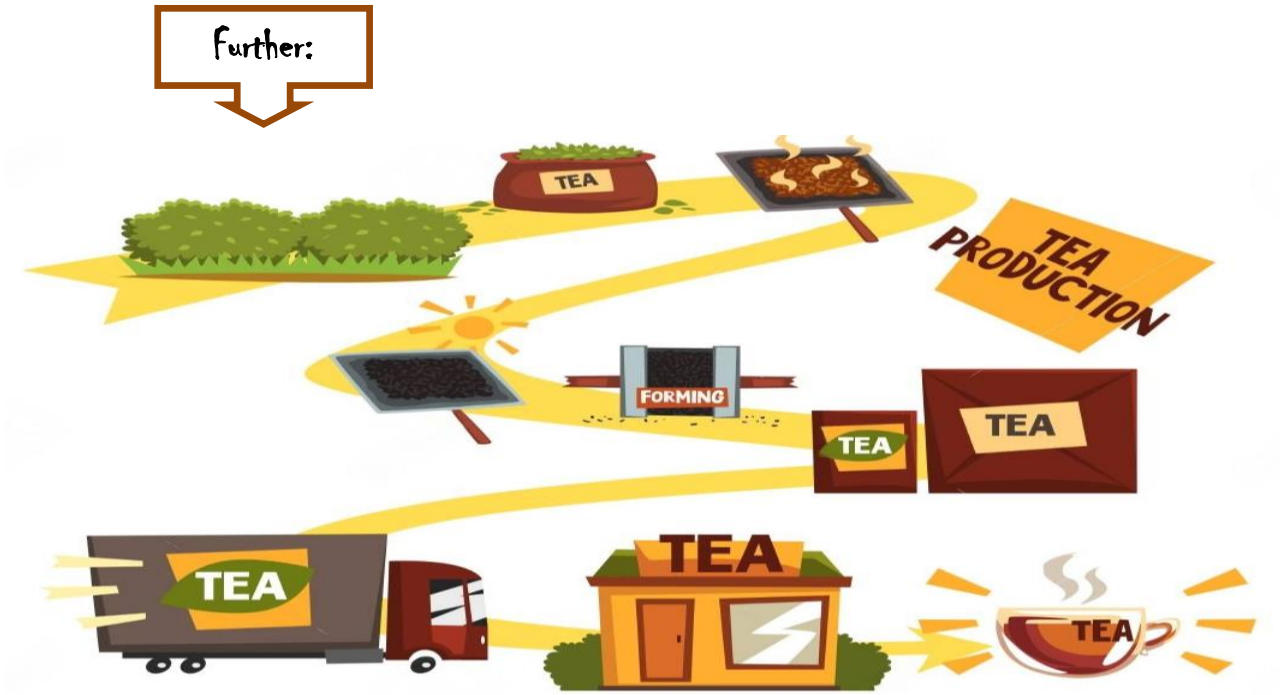
CHAPTER 3
THEORY OF PRODUCTION AND COST

UNIT – 1
THEORY OF PRODUCTION

MEANING OF PRODUCTION-

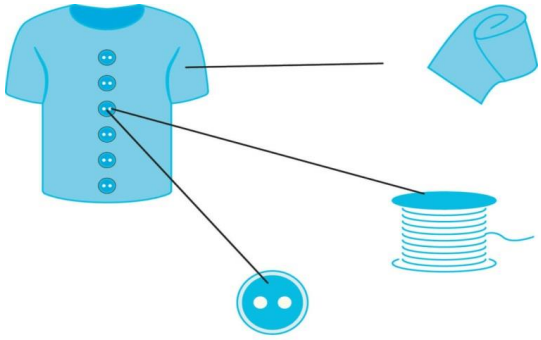
According to James Bates and J.R. Parkinson "Production is the organized activity of transforming resources into finished products in the form of goods and services; and the objective of production is to satisfy the demand of such transformed resources".



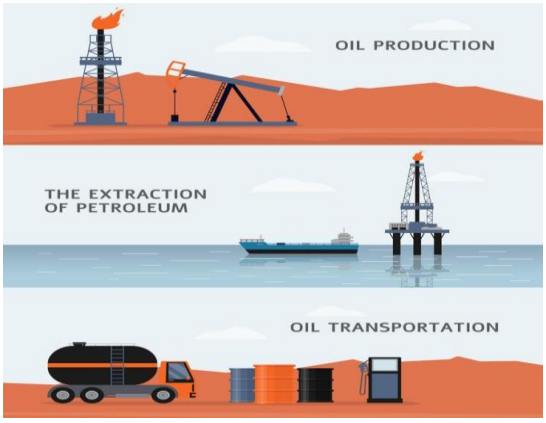


Production consists of various processes to add utility to natural resources for gaining greater satisfaction from them by:

Form Utility: Changing the form of natural resources. Most manufacturing processes consist of use of physical inputs such as raw materials and transforming them into physical products possessing utility, e.g., changing the form of a log of wood into a table or changing the form of iron into a machine. This may be called conferring utility of form.



Form Utility



Place Utility: Changing the place of the resources from a place where they are of little or no use to another place where they are of greater use. This utility of place can be obtained by:

a) Extraction from earth e.g., removal of coal, minerals, gold and other metal ores from mines and supplying them to markets.

b) Transferring goods from where they give little or no satisfaction, to places where their utility is more.

Time Utility: Making available materials at times when they are not normally available e.g., harvested food grains are stored for use till next harvest.

Personal Utility: Making use of personal skills in the form of services, e.g., those of organizers, merchants, transport workers etc.

TOPIC – 1
MEANING OF PRODUCTION

Question 1

Production also includes voluntary services & goods produces for self-consumption.

a) True
b) false
c) Can't say
d) None

Question 2

Which of the following statements is true?

a) The services of a doctor are considered production
b) Man can create matter.
c) The services of a housewife are considered Production
d) When a man creates a table he creates Matter

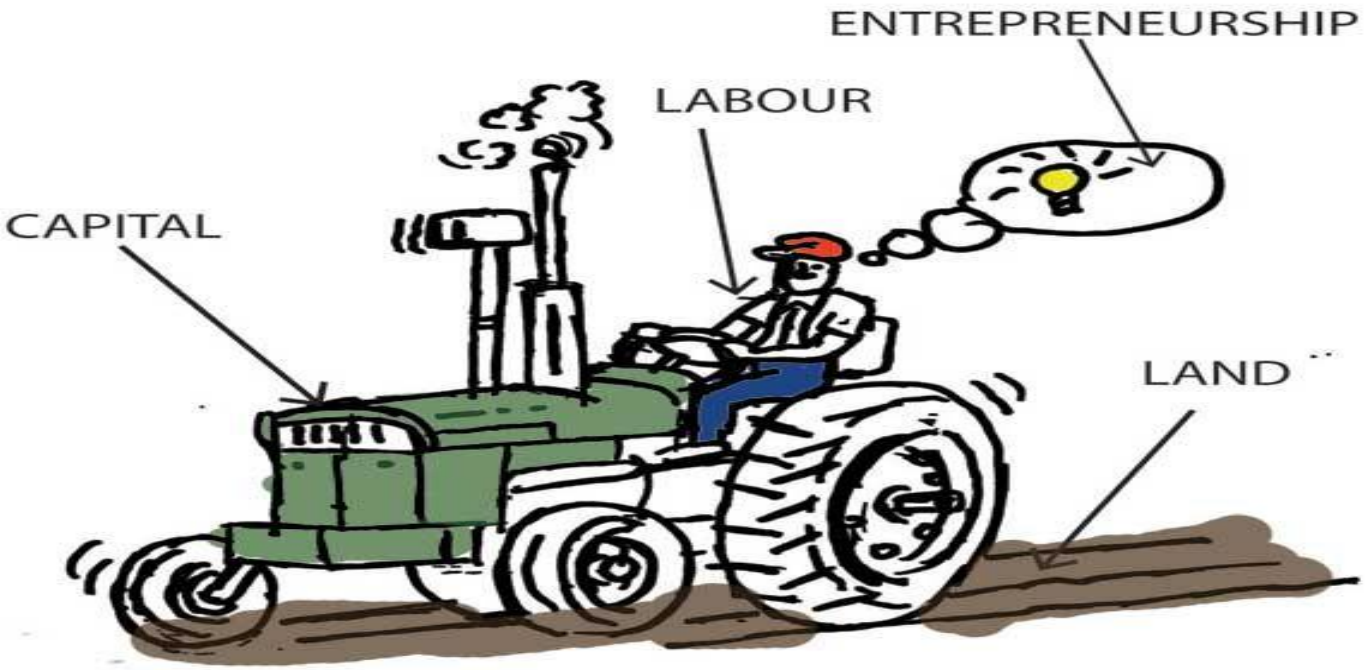
Question 3

Production is defined as:

a) Creation of matter
b) Creation of utility
c) Creation of infrastructural facilities
d) None of these

Answer:-1(a),2(a),3(b)

FACTORS OF PRODUCTION:



LAND:

The term 'land' is used in a special sense in Economics. It does not mean soil or earth's surface alone, but refers to all free gifts of nature which would include besides land in common parlance, natural resources, fertility of soil, water, air, light, heat natural vegetation etc. Therefore, as a theoretical concept, we may list the following characteristics which would qualify a given factor to be called land:

CHARACTERISTICS OF LAND:

- **Land is a free gift of nature:** No human effort is required for making land available for production. It has no supply price in the sense that no payment has been made to mother nature for obtaining land.
- **Supply of land is fixed:** Land is strictly limited in quantity. It is different from other factors of production in that, no change in demand can affect the amount of land in existence. In other words, the total supply of land is perfectly inelastic from the point of view of the economy. However, it is relatively elastic from the point of view of a firm.
- **Land is permanent and has indestructible powers:** Land is permanent in nature and cannot be destroyed. According to Ricardo, land has certain original and indestructible powers and these properties of land cannot be destroyed.
- **Land is a passive factor:** Land is not an active factor. Unless human effort is exercised on land, it does not produce anything on its own.
- **Land is immobile:** in the geographical sense. Land cannot be shifted physically from one place to another. The natural factors typical to a given place cannot be shifted to other places.
- **Land has multiple uses:** and can be used for varied purposes, though its suitability in all the uses is not the same.
- **Land is heterogeneous:** No two pieces of land are alike. They differ in fertility and situation.

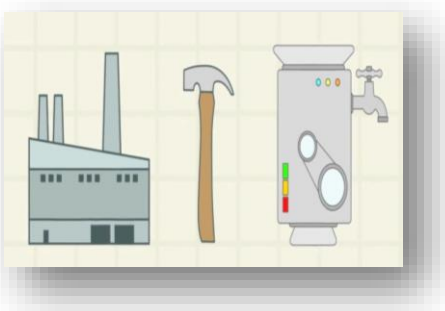
LABOUR:

The term 'labour', means any mental or physical exertion directed to produce goods or services. All human efforts of body or of mind undergone partly or wholly with a view to secure an income apart from the pleasure derived directly from the work is termed as labour.

CHARACTERISTICS OF LABOUR:

- **Human Effort:** Labour, as compared with other factors is different. It is connected with human efforts whereas others are not directly connected with human efforts. As a result, there are certain human and psychological considerations which may come up unlike in the case of other factors. Therefore, leisure, fair treatment, favourable work environment etc. are essential for labourers.
- **Labour is perishable:** Labour is highly 'perishable' in the sense that a day's labour lost cannot be completely recovered by extra work on any other day. In other words, a labourer cannot store his labour.
- **Labour is an active factor:** Without the active participation of labour, land and capital may not produce anything.
- **Labour is inseparable from the Labour:** A labourer is the source of his own labour power. When a labourer sells his service, he has to be physically present where they are delivered. The labourer sells his labour against wages, but retains the capacity to work.
- **Labour power differs from labourer to labourer:** Labour is heterogeneous in the sense that labour power differs from person to person. Labour power or efficiency of labour depends upon the labourers' inherent and acquired qualities, characteristics of work environment, and incentive to work.
- **All labour may not be productive:** (i.e.) all efforts are not sure to produce resources.
- **Labour has poor bargaining power:** Labour has a weak bargaining power. Labour has no reserve price. Since labour cannot be stored, the labourer is compelled to work at the wages offered by the employers. For this reason, when compared to employers, labourers have poor bargaining power and can be exploited and forced to accept lower wages.
- **Labour is mobile:** Labour is a mobile factor. Apparently, workers can move from one job to another or from one place to another. However, in reality there are many obstacles in the way of free movement of labour from job to job or from place to place.
- **There is no rapid adjustment of supply of labour to the demand for it:** The total supply of labour cannot be increased or decreased instantly.
- **Choice between hours of labour and hours of leisure:** A labourer can make a choice between the hours of labour and the hours of leisure. This feature gives rise to a peculiar backward bending shape to the supply curve of labour.

CAPITAL:



Capital has been rightly defined as 'produced means of production' or 'man-made instruments of production'. In other words, capital refers to all man made goods that are used for further production of wealth. This definition distinguishes capital from both land and labour because both land and labour are not produced factors.

They are primary or original factors of production, but capital is not a primary or original factor; it is a produced factor of production. It has been produced by man by working with nature. Machine tools and instruments, factories, dams, canals, transport equipment etc., are some of the examples of capital. All of them are produced by man to help in the production of further goods.

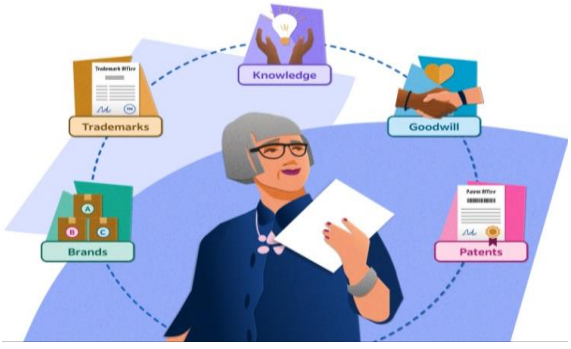
TYPES OF CAPITAL:

Fixed Capital: Fixed Capital is that which exists in a durable shape and renders a series of service over a period of time. For example tools, machine, etc.

Circulating capital: Circulating capital is another form of capital which performs its function in production in a single use and is not available for further use. For example, seeds, fuel, raw material, etc.

Real Capital: Real Capital refers to physical goods such as building, plant, machines, etc.

Human Capital: Human capital refers to human skill and ability. This is called human capital because a good deal of investment has gone into creation of these abilities in humans.



Tangible Capital: Tangible capital can be perceived by senses whereas intangible capital is in the form of certain rights and benefits which cannot be perceived by senses. For example, patents, goodwill, patent rights, etc.

Individual Capital: Individual capital is personal property owned by an individual or a group of individuals.

GOVERNMENT FACILITIES LIKE ROADS, BRIDGES ETC.

Social Capital: Social Capital is what belongs to the society as a whole in the form of roads, bridges, etc.

Capital Formation: Capital Formation Capital formation means a sustained increase in the stock of real capital in a country. In other words, capital formation involves production of more capital goods like, machines, tools, factories, transport equipments, electricity etc. which are used for further production of goods. Capital formation is also known as investment.

Stages of Capital formation: There are mainly three stages of capital formation which are as follows:

Savings: The basic factor on which formation of capital depends is the ability to save. The ability to save depends upon the income of an individual. Higher incomes are generally followed by higher savings. This is because, with an increase in income, the propensity to consume comes down and the propensity to save increases.

Mobilisation of savings: It is not enough that people save money; the saved money should enter into circulation and facilitate the process of capital formation. Availability of appropriate financial products and institutions is a necessary precondition for mobilisation of savings.

Investment: The process of capital formation gets completed only when the real savings get converted into real capital assets. An economy should have an entrepreneurial class which is prepared to bear the risk of business and invest savings in productive avenues so as to create new capital assets.

ENTREPRENEUR:

There must be some factor which mobilises these factors, combines them in the right proportion, initiates the pro0cess of production and bears the risks involved in it. This factor is known as the entrepreneur. He has also been called the organiser, the manager or the risk taker.

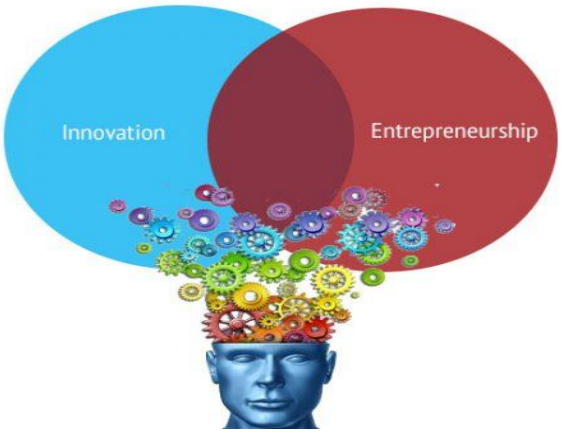
FUNCTIONS OF AN ENTREPRENEUR:

In general, an entrepreneur performs the following functions:

Initiating business enterprise and resource co-ordination: An entrepreneur senses business opportunities, conceives project ideas, decides on scale of operation, products and processes and builds up, owns and manages his own enterprise The first and the foremost function of an entrepreneur is to initiate a business enterprise.

An entrepreneur perceives opportunity, organizes resources needed for exploiting that opportunity and exploits it.

Risk bearing or uncertainty bearing: The ultimate responsibility for the success and survival of business lies with the entrepreneur. What is planned and anticipated by the entrepreneur may not come true and the actual course of events may differ from what was anticipated and planned. The economy is dynamic and changes occur every day.



Innovations: According to Schumpeter, the true function of an entrepreneur is to introduce innovations. Innovation refers to commercial application of a new idea or invention to better fulfillment of business requirements. Innovations, in a very broad sense, include the introduction of new or improved products, devices and production processes, utilisation of new or improved source of raw-materials, adoption of new or improved technology, novel business models, extending sales to unexplored markets etc. According to Schumpeter, the task of the entrepreneur is to continuously introduce new innovations.

Quick Notes

Feel free to note your thought.....

TOPIC - 2
FACTORS OF PRODUCTION

Question 1

Who has given the concept of Innovates Entrepreneurship?

a) Robbins
b) Schumpeter
c) Adam Smith
d) Sweezy

Question 2

Factor of Product does not Includes:-

a) Land
b) Labor
c) Capital
d) Machine

Question 3

State the statement with reason "labor has poor bargaining power":-

a) True
b) False
c) Either a or b
d) None

Question 4

Capital refers to physical goods is known as:

a) Tangible capital
b) Circulating capital
c) Real capital
d) None

Question 5

Which of the following statement about factors of production is not true?

a) Land is a passive factor
b) Land is a free gift of nature
c) Land is immobile
d) Land is perishable

Question 6

Land is heterogeneous because of:

a) Lands are alike
b) Lands are not alike
c) Lands are fixed
d) Lands are mobile

Question 7

Which one of the following is not a necessary function of an entrepreneur?

a) Risk and uncertainty bearing.
b) Initiating a business enterprise
c) Innovations.
d) Supervision of day-to-day production activities.

Question 8

Which of the following is not a passive factor of production?

a) Land
b) Building
c) Labour
d) Machine

Answer:-1(b),2(d),3(a),4(c),5(d),6(b),7(d),8(c)

ENTERPRISE'S OBJECTIVE AND CONSTRAINTS

The standard assumption about an enterprise is that its business activity is carried out with the sole objective of earning profits. However, in the real world, enterprises do not make decisions based exclusively on profit maximisation objective alone. Since an enterprise functions in the economic, social, political and cultural environment, its objectives will have to be set up in relation to its survival and growth in such environments.
Thus, the objectives of an enterprise may be broadly categorised under the following heads:

- Organic objectives
- Economic objectives
- Social objectives
- Human objectives
- National objectives

Organic objectives: The basic minimum objective of all kinds of enterprises is to survive or to stay alive. An enterprise can survive only if it is able to produce and distribute products or services at a price which enables it to recover its costs. If an enterprise does not recover its costs of staying in business, it will not be in a position to meet its obligations to its creditors, suppliers and employees with the result that it will be forced into bankruptcy.

Economic Objectives: The profit maximizing behaviour of the firm has been the most basic assumption made by economists over the last more than two hundred years and is still at the heart of neo classical micro economic theory. This assumption is simple, rational and quantitative and is amenable to equilibrium analysis.

Social Objectives: Since an enterprise lives in a society, it cannot grow unless it meets the needs of the society. Some of the important social objectives of business are:

- To maintain a continuous and sufficient supply of unadulterated goods and articles of standard quality.
- To avoid profiteering and anti-social practices.
- To create opportunities for gainful employment for the people in the society.
- To ensure that the enterprises output does cause any type of pollution – air, water or noise.

Human Objectives: Human beings are the most precious resources of an organisation. If they are ignored, it will be difficult for an enterprise to achieve any of its other objectives.

Some of the important human objectives are:

- To provide fair deal to the employees at the different levels.
- To develop new skills and abilities and provide a work climate in which they will grow as mature and productive individuals.
- To provide the employees an opportunity to participate in decision-making in matters affecting them.
- To make the job contents interesting and challenging.

National objectives: An enterprise should endeavor for fulfillment of national needs and aspirations and work towards implementation of national plans and policies. Some of the national objectives are:

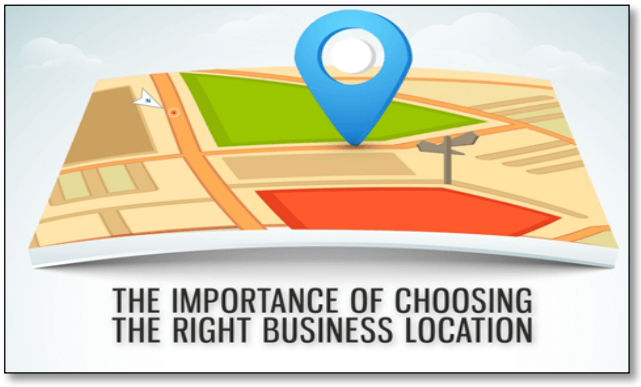
- ✓ To remove inequality of opportunities and provide fair opportunity to all to work and to progress
- ✓ To produce according to national priorities.
- ✓ To help the country becomes self – reliant and avoid dependence on other nations.
- ✓ To train young men as apprentices and thus contribute in skill formation for economic growth and development.
- ✓ Important among them are:

IMPORTANT AMONG THEM ARE:

- Lack of knowledge and information: The enterprise functions in an uncertain world where due to lack of accurate information, many variables that affect the performance of the firm cannot be correctly predicted for the current month or the current year, let alone for the future years.
- There may be other constraints such as restrictions imposed in the public interest by the state on the production, price and movement of factors. In practice, there are several hindrances for free mobility of labour and capital.
- There may be infrastructural inadequacies and consequent supply chain bottlenecks resulting in shortages and unanticipated emergencies.
- Changes in business and economic conditions which becomes contagious due to the highly connected nature of economies, place constraints by causing demand fluctuations and instability in firms' sales and revenues.
- Events such as inflation, rising interest rates, unfavourable exchange rate fluctuations cause increased raw material, capital and labour costs and affect the budgets and financial plans of firms.

ENTERPRISES PROBLEMS:

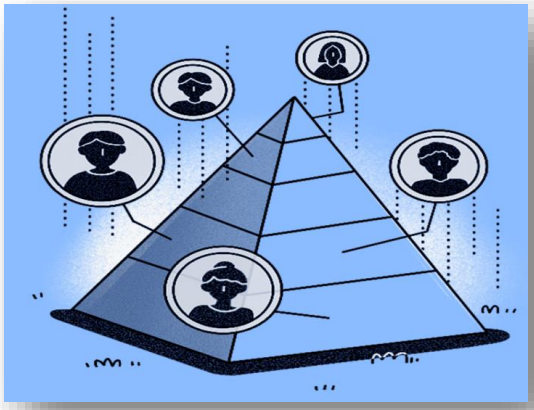
Problems relating to objectives: As mentioned earlier, an enterprise functions in the economic, social, political and cultural environment. Therefore, it has to set its objectives in relation to its environment. The problem is that these objectives are multifarious and very often conflict with one another.



Problems relating to location and size of the plant: An enterprise has to decide about the location of its plant. It has to decide whether the plant should be located near the source of raw material or near the market. It has to consider costs such as cost of labour, facilities and cost of transportation.

Problems relating to selecting and organising physical facilities: A firm has to make decision on the nature of production process to be employed and the type of equipments to be installed. The choice of the process and equipments will depend upon the design chosen and the required volume of production.

Problems relating to Finance: An enterprise has to undertake not only physical planning but also expert financial planning. Financial planning involves (i) determination of the amount of funds required for the enterprise with reference to the physical plans already prepared (ii) assessment of demand and cost of its products (iii) estimation of profits on investment and comparison with the profits of comparable existing concerns to find out whether the proposed investment will be profitable enough and (iv) determining capital structure and the appropriate time for financing the enterprise etc.



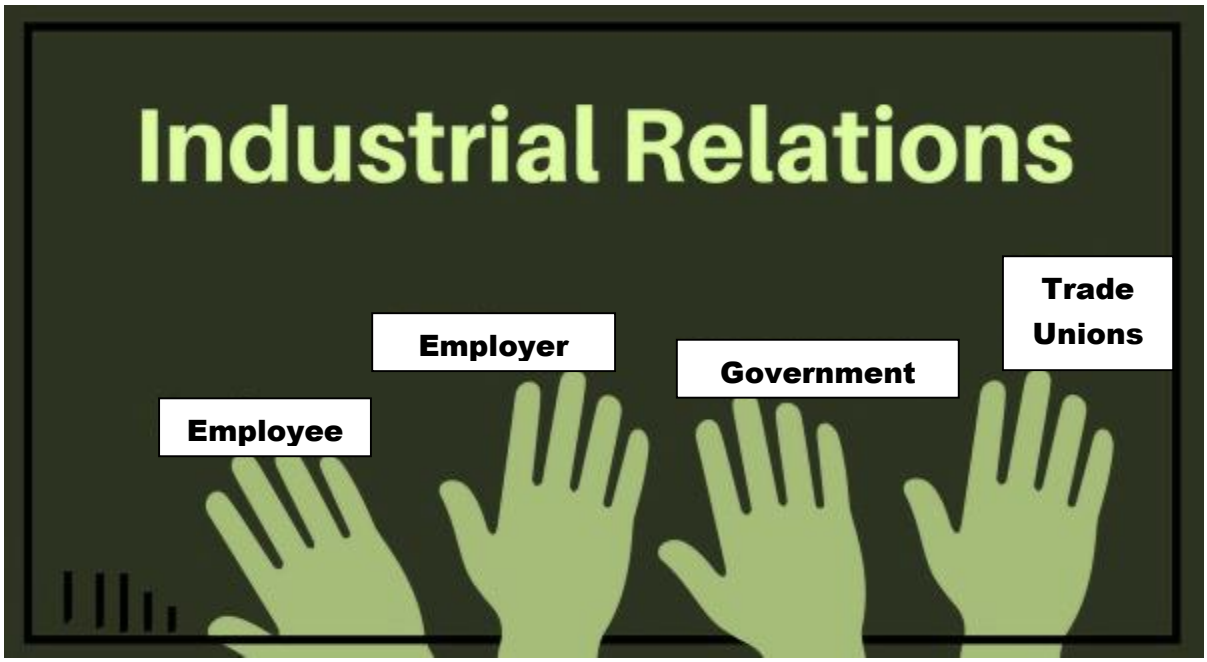
Problems relating to organisation structure: An enterprise Also faces problems relating to the organisational structure. It has To divide the total work of the enterprise into major specialised Functions and then constitute proper departments for each of its Specialized functions.

Problems relating to marketing: Proper marketing of its products and services is essential for the survival and growth of an enterprise. For this, the enterprise has to discover its target market by identifying its actual and potential customers, and determine tactical marketing tools it can use to produce desired responses from its target market. After identifying the market, the enterprise has to make decision regarding 4 P's namely, enterprise into major specialised function and then constitute proper departments for each of its specialized functions.

- Product: variety, quality, design, features, brand name, packaging, associated services, utility etc.
- Promotion: Methods of communicating with consumers through personal selling, social contacts, advertising, publicity etc.
- Price: Policies regarding pricing, discounts, allowance, credit terms, concessions, etc.
- Place: Policy regarding coverage, outlets for sales, channels of distribution, location and layout of stores, inventory, logistics etc.

- Problem relating to legal formalities: A number of legal formalities have to be carried out during the time of launching of the enterprises as well as during its life time and its closure. These formalities relate to assessing and paying different types of taxes (Corporate tax, excise duty, sales tax, custom duty, etc.), maintenance of records, submission of various types of information to the relevant authorities from to time, adhering to various rules and laws formulated by government (for example, laws relating to location, environmental protection and control of pollution, size, wage and bonus, corporate management licensing, prices) etc.

- Problems relating to industrial relations: With the emergence of the present day factory system of production, the management has to devise special measures to win the co-operation of a large number of workers employed in industry. Misunderstanding and conflict of interests have assumed enormous dimensions that these cannot be easily and promptly dealt with.



TOPIC - 3
ENTERPRISE OBJECTIVES

Question 1

The objectives of enterprise include.

a) Economics objectives
b) National objectives
c) Human objective
d) All of the above

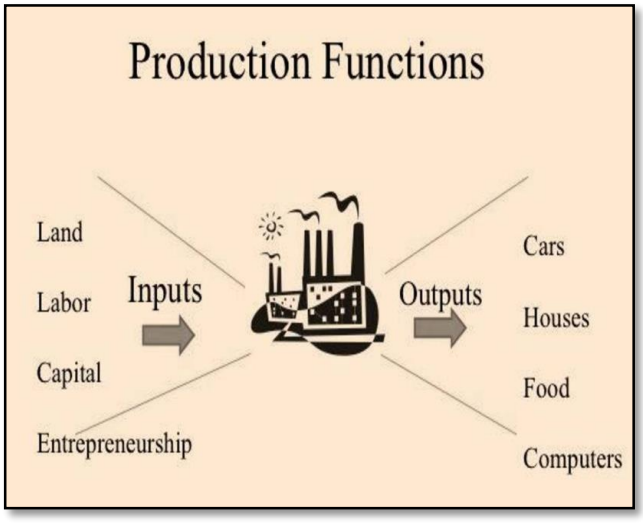
Answer:-1(d)

PRODUCTION FUNCTION:-

The production function is a statement of the relationship between a firm's scarce resources (i.e. its inputs) and the output that results from the use of these resources. More specifically, it states technological relationship between inputs and output.

Q = f (a, b, c, d …….n)

Where 'Q' stands for the rate of output of given commodity and a, b, c, d…….n, are the different factors (inputs) and services used per unit of time.



ASSUMPTIONS OF PRODUCTION FUNCTION:

- First we assume that the relationship between inputs and outputs exists for a specific period of time. In other words, Q is not a measure of accumulated output over time.
- Second, it is assumed that there is a given "state-of-the-art" in the production technology. Any innovation would cause change in the relationship between the given inputs and their output.
- Third assumption is that whatever input combinations are included in a particular function, the output resulting from their utilization is at the maximum level.

THE PRODUCTION FUNCTION CAN BE DEFINED AS:

- The relationship between the maximum amount of output that can be produced and the input required to make that output. It is defined for a given state of technology i.e., the maximum amount of output that can be produced with given quantities of inputs under a given state of technical knowledge.
- It can also be defined as the minimum quantities of various inputs that are required to yield a given quantity of output.

TOPIC - 4
PRODUCTION FUNCTION

Question 1

__shows the overall output generated at a given level of input:

a) Cost function
b) Production function
c) ISO cost
d) Marginal rate of technical

Question 2

Define Average Product (AP)

a) AP is the total product per unit of a Variable input
b) AP is the change in total product Consequent upon a change in Variable input
c) Both
d) None

Question 3

Which statement is correct about product marketing?

a) The average product is at its maximum When product is equal to average product
b) The law of increasing returns to scale relates to the effect of change in factor Proportions.
c) Economics of scale arise only because
d) Internal economics of scale can accrue

of Indivisibilities of factor proportion

on to the exporting sector

Question 4

Which of the following statement is correct?

a) Fixed costs vary with change in output
b) If we add total variable cost and total fixed cost we get the average cost.
c) Marginal cost is the result of total cost Divided by number of units produced
d) Total cost is obtained by adding up the fixed cost and total variable cost

Question 5

Law of production does not include?

a) Returns to scale
b) Law of variable proportion
c) Law of diminishing returns to a factor
d) least cost combination factors

Question 6

A functional relationship between inputs and output is called __

a) Cost function
b) Revenue function
c) Consumption function
d) Production function

Question 7

Which of the following is correct in relation to Marginal product?

a) What is produced units when all factors of production are employed at optimum efficiency
b) The extra output obtained from employing an additional unit of a factor
c) The left revenue to the entrepreneur after he has incurred all expenses
d) None of the above

Question 8

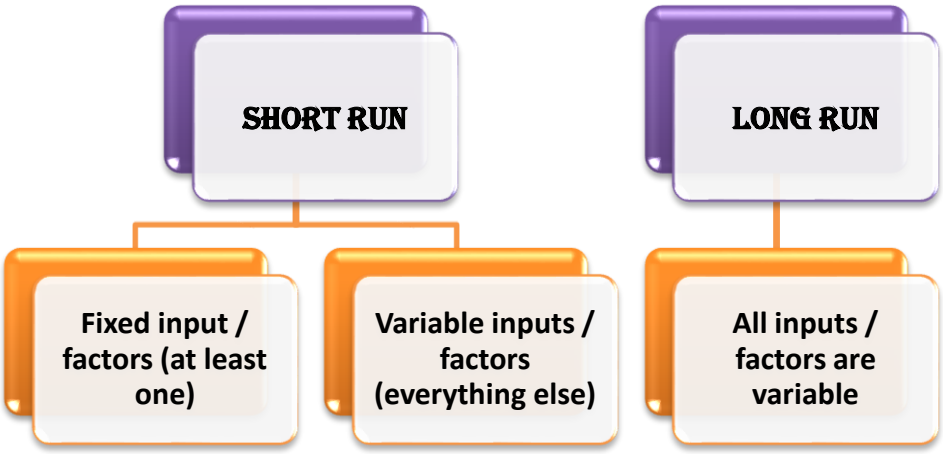
When TP is decreasing, MP becomes?

a) Positive
b) Zero
c) Undefined
d) Negative

Answer:-1(b),2(a),3(a),4(d),5(d),6(d),7(b),8(d)

SHORT RUN AND LONG RUN

The functional relationship between change in output due to change in inputs is studied in two phases: Short run and Long run time periods.



SHORT RUN

Short run refers to a period in which output can be changed by changing only variable factors. In the short run, fixed inputs like plant, machinery, building, etc. cannot be changed. It means, Production can be raised by increasing variable factors, but till the extent of capacity of fixed factors.

For example: If a producer wants to increase output in the short run, then this objective can be achieved by using more of raw materials and increasing number of workers with the existing factory building, plant and equipment. One cannot immediately expand factory building, install additional plant and equipment. So, in the short run, some factors are fixed and some are variable and fixed factors cannot be changed during such a short span of time.

LONG RUN

Long run refers to a period in which output can be changed by changing all factors of production.

Long run is a period that is long enough for the firm to adjust all its inputs according to change in the conditions. In the long run, firm can change its factory size, switch to new techniques of production, purchase new machinery, etc.

IMPORTANT POINTS ABOUT SHORT RUN AND LONG RUN

* The distinction between short run and long run does not refers to a calendar period and is not based on a fixed time span.
* The period is rather a functional concept, which depends on production conditions. It varies from firm to firm and industry to industry. For example, a period of 10 years may be short run period for a steel industry, while a period of one year may be a long-run period for a wheat producer.

SHORT-RUN VS LONG – RUN PRODUCTION FUNCTION:

❖ It is to be noted that in economic analysis, the distinction between short-run and long-run is not related to any particular measurement of time (e.g. days, months, or years). In fact, it refers

to the extent to which a firmcan vary the amounts of the inputs in the production process. A period will be considered short-run period if the amount of at least one of the inputs used remains unchanged during that period. Thus, short-run production function shows the maximum amount of a good or service that can be produced by a set of inputs, assuming that the amount of at least one of the inputs used remains unchanged.

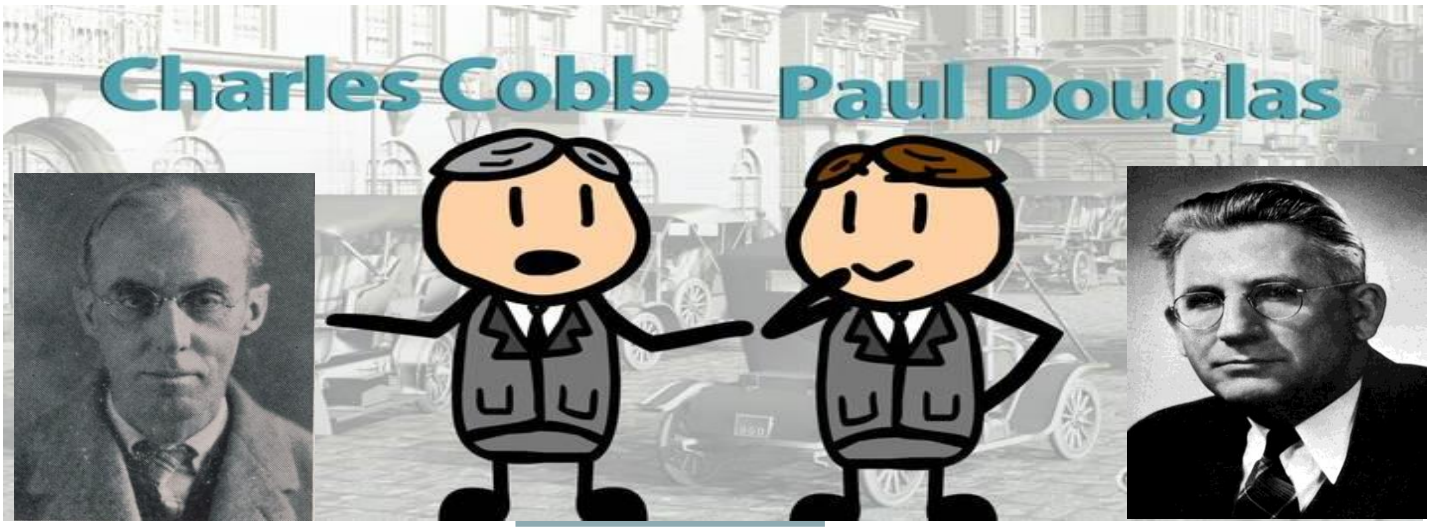
SHORT RUN: q = f (L)

LONG RUN: q = f (K, L)

- The long run is a period of time (or planning horizon) in which all factors of production are variable. It is a time period when the firm will be able to install new machines and capital equipments apart from increasing the variable factors of production. A longrun production function shows the maximum quantity of a good or service that can be produced by a set of inputs, assuming that the firm is free to vary the amount of all the inputs being used. The behaviour of production when all factors are varied is the subject matter of the law of returns to the scale.

COBB-DOUGLAS PRODUCTION FUNCTION

A famous statistical production function is Cobb-Douglas production function. Paul H. Douglas and C.W. Cobb of the U.S.A. studied the production function of the American manufacturing industries. In its original form, this production function applies not to an individual firm but to the whole of manufacturing in the United States. In this case, output is manufacturing production and inputs used are labour and capital.



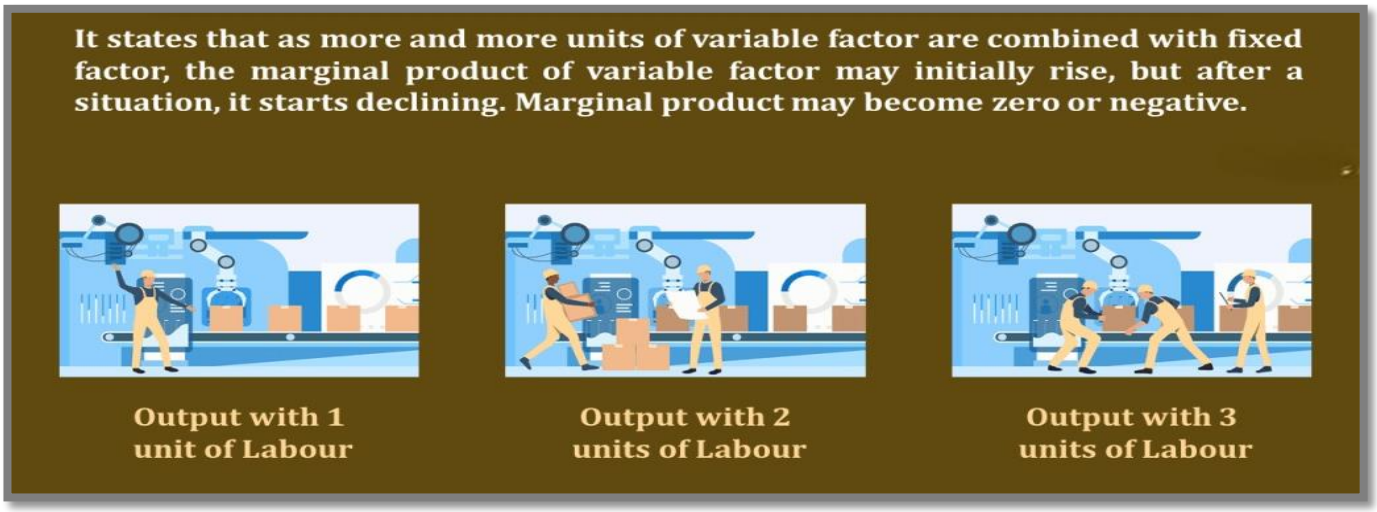
The conclusion drawn from this famous statistical study is that labour contributed about 3/4th and capital about 1/4th of the increase in the manufacturing production. Although, the Cobb-Douglas production function suffers from many shortcomings, it is extensively used in Economics as an approximation.

How is Cobb-Douglas production function calculated?

$$Q=AL^{\alpha}K^{\beta}$$
$$\alpha+\beta=1$$

Q – total output
L – labor input
K – capital input
Parameter A – Technology of the production process
alpha – The elasticity of production of labor
beta – The elasticity of production of capital

LAW OF VARIABLE PROPORTION OR THE LAW OF DIMINISHING RETURNS



In the short run, the input output relations are studied with one variable input (labour) with all other inputs held constant. The laws of production under these conditions are known under various names as the law of variable proportions (as the behaviour of output is studied by changing the proportion in which inputs are combined) the law of returns to a variable input (as any change in output is taken as resulting from the additional variable input) or the law of diminishing returns (as returns eventually diminish).

The law states that as we increase the quantity of one input which is combined with other fixed inputs, the marginal physical productivity of the variable input must eventually decline. In other words, an increase in some inputs relative to other fixed inputs will, in a given state of technology, cause output to increase; but after a point, the extra output resulting from the same addition of extra input will become less and less.

- Total Product (TP): Total product is the total output resulting from the efforts of all the factors of production combined together at any time. If the inputs of all but one factor are held constant, the total product will vary with the quantity used of the variable factor.
- Average Product (AP): Average product is the total product per unit of the variable factor.

$$\frac{\text{Total Product}}{\text{No. of units of variable factor}}$$

- Marginal Product (MP): Marginal product is the change in total product per unit change in the quantity of variable factor. In other words, it is the addition made to the total production by an additional unit of input.

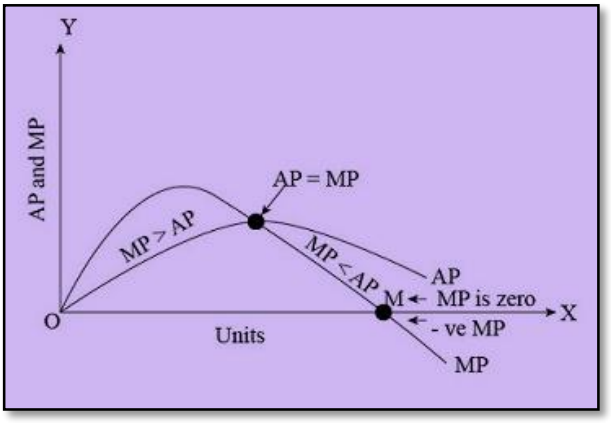
$$MP_n = TP_n - TP_{n-1}.$$

$$MP = \frac{\Delta TP}{\Delta Q}$$

RELATIONSHIP BETWEEN AVERAGE PRODUCT AND MARGINAL PRODUCT:

Both average product and marginal product are derived from the total product. Average product is obtained by dividing total product by the number of units of the variable factor and marginal product is the change in total product resulting from a unit increase in the quantity of variable factor. The relationship between average product and marginal product can be summed up as follows:

- ♣ When average product rises as a result of an increase in the quantity of variable input, marginal product is more than the average product.
- ♣ When average product is maximum, marginal product is equal to average product. In other words, the marginal product curve cuts the average product curve at its maximum.
- ♣ When average product falls, marginal product is less than the average product.

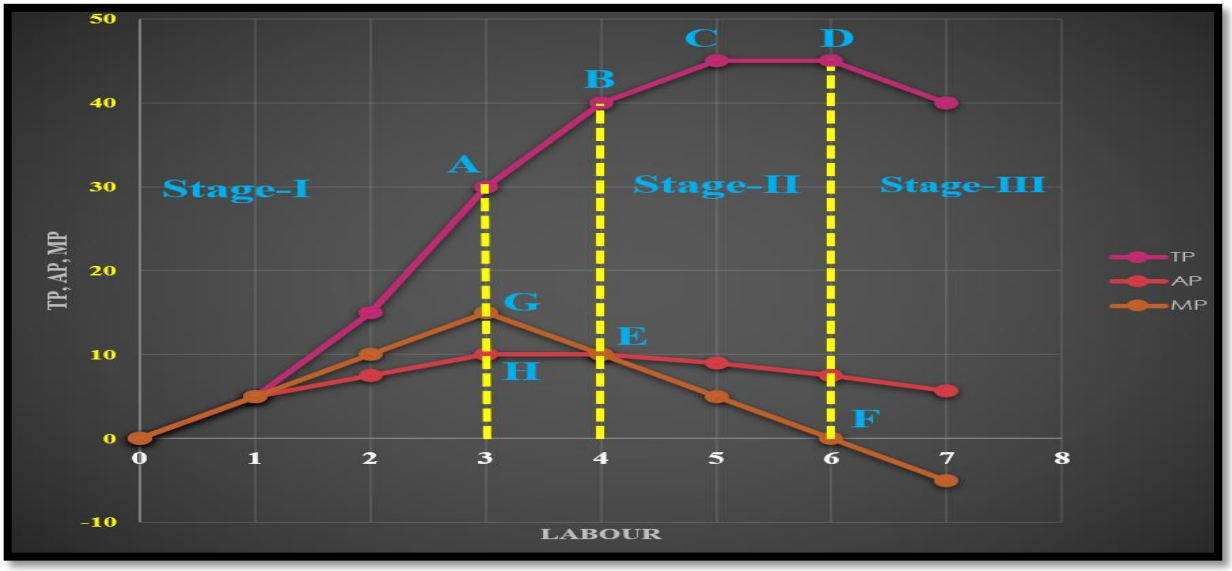


LAW OF VARIABLE PROPORTION (SHORT RUN)

The Law of Variable Proportions or the Law of Diminishing Returns examines the production function with one factor variable, keeping quantities of other factors fixed. In other words, it refers to input-output relationship, when the output is increased by varying the quantity of one input. This law operates in the short run 'when all factors of production cannot be increased or decreased simultaneously (for example, we cannot build a plant or dismantle a plant in the short run).

The law operates under certain assumptions which are as follows:

* The state of technology is assumed to be given and unchanged. If there is any improvement in technology, then marginal product and average product may rise instead of falling.
* There must be some inputs whose quantity is kept fixed. This law does not apply to cases when all factors are proportionately varied. When all the factors are proportionately varied, laws of returns to scale are applicable.
* The law does not apply to those cases where the factors must be used in fixed proportions to yield output. When the various factors are required to be used in fixed proportions, an increase in one factor would not lead to any increase in output i.e., marginal product of the variable factor will then be zero and not diminishing.
* We consider only physical inputs and outputs and not economic profitability in monetary terms.



Law of variable proportion

Land	Labour (L)	Total Product (TP)	Average Product (AP)	Marginal Product (MP)	Stage
5	0	0	-	-	First Stage
5	1	5	5	5	
5	2	15	7.5	10	
5	3	30	10	15	
5	4	40	10	10	
5	5	45	9	5	Second stage
5	6	45	7.5	0	
5	7	40	5.7	-5	Third Stage

♠ Stage 1: The Stage of Increasing Returns: In this stage, the total product increases at an increasing rate upto a point (in figure upto point F), marginal product also rises and is maximum at the point corresponding to the point of inflexion and average product goes on rising.

Explanation of law of increasing returns: The law of increasing returns operates because in the beginning, the quantity of fixed factors is abundant relative to the quantity of the variable factor. As more units of the variable factor are added to the constant quantity of the fixed factors, the fixed factors are more intensively and effectively utilised i.e., the efficiency of the fixed factors increases as additional units of the variable factors are added to them. This causes the production to increase at a rapid rate. For example, if a machine can be efficiently operated when four persons are working on it and if in the beginning we are operating it only with three persons, production is bound to increase if the fourth person is also put to work on the machine since the machine will be effectively utilised to its optimum. This happens because, in the beginning some amount of fixed factor remained un utilised and, therefore, when the variable factor is increased, fuller utilisation of the fixed factor becomes possible and it results in increasing returns. A question arises as to why the fixed factor is not initially taken in a quantity which suits the available quantity of the variable factor. The answer is that, generally, those factors which are indivisible are taken as fixed. Indivisibility of a factor means that due to technological requirements, a minimum amount of that factor must be employed whatever be the level of output. Thus, as more units of the variable factor are employed to work with an

indivisible fixed factor, output greatly increases due to fuller utilisation of the latter. The second reason why we get increasing returns at the initial stage is that as more units of the variable factor are employed, the efficiency of the variable factor increases. This is because introduction of division of labour and specialization becomes possible with sufficient quantity of the variable factor and these results in higher productivity.

- Stage 2: Stage of Diminishing Returns: In stage 2, the total product continues to increase at a diminishing rate until it reaches its maximum at point H, where the second stage ends. In this stage, both marginal product and average product of the variable factor are diminishing but are positive.

Explanation of law of diminishing returns: The question arises as to why we get diminishing returns after a certain amount of the variable factor has been added to the fixed quantity of that factor. As explained above, increasing returns occur primarily because of more efficient use of fixed factors as more units of the variable factor are combined to work with it. Once the point is reached at which the amount of variable factor is sufficient to ensure efficient utilisation of the fixed factor, any further increases in the variable factor will cause marginal and average product to decline because the fixed factor then becomes inadequate relative to the quantity of the variable factor. Continuing the above example, when four men were put to work on one machine, the optimum combination was achieved. Now, if the fifth person is put on the machine, his contribution will be nil. In other words, the marginal productivity will start diminishing.

The phenomenon of diminishing returns, like that of increasing returns, rests upon the indivisibility of the fixed factor. Just as the average product of the variable factor increases in the first stage when better utilisation of the fixed indivisible factor is being made, so the average product of the variable factor diminishes in the second stage when the fixed indivisible factor is being worked too hard. Another reason offered for the operation of the law of diminishing returns is the imperfect. Substitutability of one factor for another. Had the perfect substitute of the scarce fixed factor during the second stage would have been made up by increasing the supply of its perfect substitute with the result that output could be expanded without diminishing returns.

- Stage 3: Stage of Negative Returns: In Stage 3, total product declines, MP is negative, average product is diminishing. This stage is called the stage of negative returns since the marginal product of the variable factor is negative during this stage.

Explanation the law of negative returns: As the amount of the variable factor continues to be increased to a constant quantity of the other, a stage is reached when the total product declines and marginal product becomes negative. This is due to the fact that the quantity of the variable factor becomes too excessive relative to the fixed factor so that they get in each other's ways with the result that the total output falls instead of rising. In such a situation, a reduction in the units of the variable factor will increase the total output.

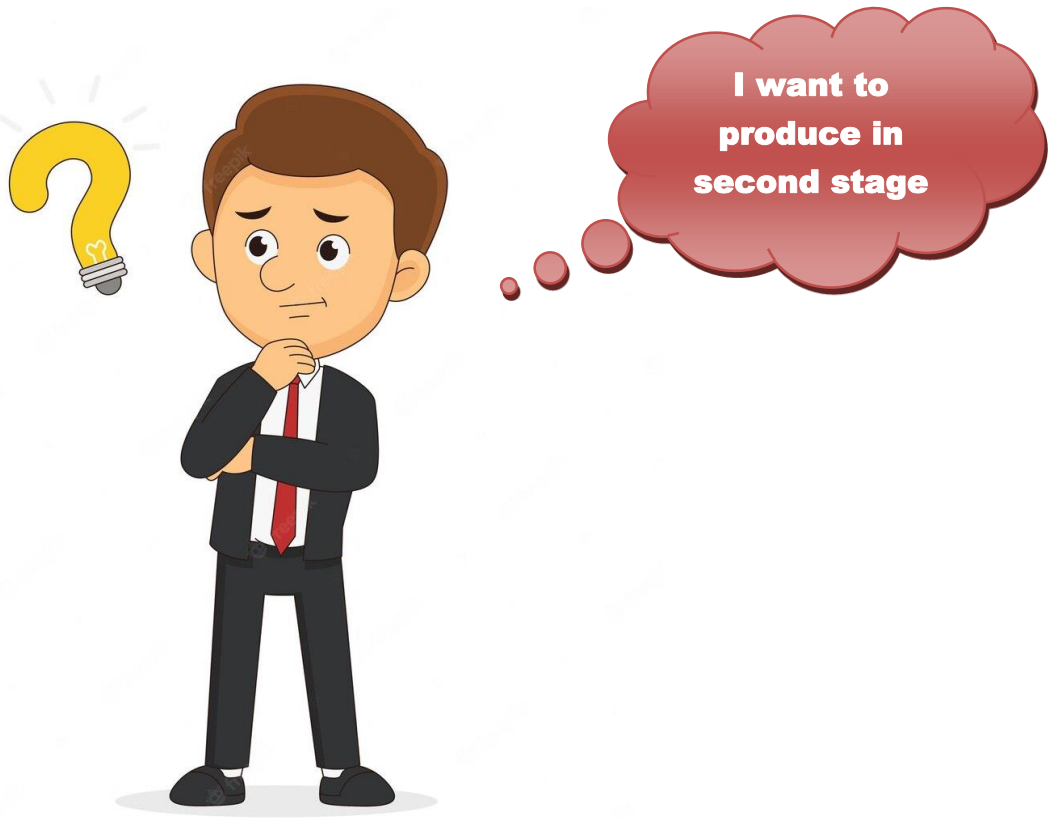
STAGE OF OPERATION

An important question is in which stage a rational producer will seek to produce. A rational producer will never produce in stage 3 where marginal product of the variable factor is negative. This being so, a producer can always increase his output by reducing the amount of variable factor. Even if the variable factor is free of cost, a rational producer stops before the beginning of the third stage.

A rational producer will also not produce in stage 1 as he will not be making the best use of the fixed factors and he will not be utilising fully the opportunities of increasing production by increasing the quantity of the variable factor whose average product continues to rise throughout stage 1. Even if the fixed factor is free of cost in this stage, a rational entrepreneur will continue adding more variable factors.

It is thus clear that a rational producer will never produce in stage 1 and stage 3. These stages are called stages of 'economic absurdity' or 'economic non-sense'.

A rational producer will always produce in stage 2 where both the marginal product and average product of the variable factors are diminishing. At which particular point in this stage, the producer will decide to produce depends upon the prices of factors. The optimum level of employment of the variable factor (here labour) will be determined by applying the principle of marginalism in such a way that the marginal revenue product of labour is equal to the marginal wages. (The principle of marginalism is explained in detail in the chapter discussing equilibrium in different types of markets.)



TOPIC - 4
LAW OF VARIABLE PROPORTION (SHORT RUN)

Question 1

When average product falls, marginal product is:-

a) More than average product
b) Less than average product
c) Equal to average product
d) None

Question 2

In short run the input are _

a) Vary
b) Fixed
c) Variables
d) None

Question 3

Diminishing marginal returns implies:

a) Decreasing average variable
b) Decreasing marginal costs
c) Increasing, marginal cost
d) Decreasing average fixed costs

Question 4

Law of variable proportion is valid when:

a) Only one inputs is fixed and all other Inputs are kept variable
b) All factor are kept constant
c) All inputs are varied in the same Proportion
d) None of these

Question 5

During IInd stage of law of Diminishing returns:

a) MP and TP is maximum
b) MP and AP decreasing
c) AP is negative
d) TP is negative

Question 6

Production activity in the short run is analyzed by :-

a) Returns to scale
b) Economics of scale
c) Law of variable proportion
d) None of these

Question 7

At point of inflexion the marginal product is:

a) Increasing
b) Decreasing
c) Maximum
d) Revenue lines

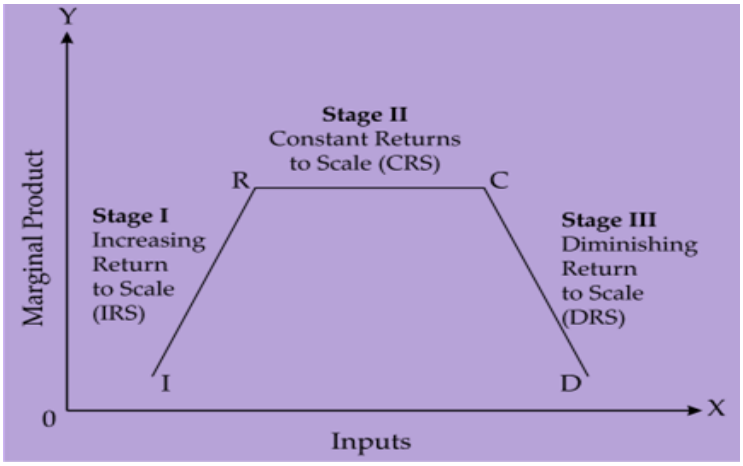
Answer:-1(b),2(b),3(c),4(a),5(b),6(c),7(c)

RETURNS TO SCALE: (LONG RUN)

A change in scale means that all factors of production are increased or decreased in the same proportion. Change in scale is different from changes in factor proportions. Changes in output as a result of the variation in factor proportions, as seen before, form the subject matter of the law of variable proportions. On the other hand, the study of changes in output as a consequence of changes in scale forms the subject matter of returns to scale which is discussed below.

It should be remembered that increasing returns to scale is not the same as increasing marginal returns. Increasing returns to scale applies to 'long run' in which all inputs can be changed. Increasing marginal returns refers to the short run in which at least one input is fixed. The existence of fixed inputs in the short run gives rise to increasing and later to diminishing marginal returns.

Factor combination	Scale of inputs (labour & capital in units)	TP (in quintals)	MP (in quintals)
IRS	2+1	20	20
	4+2	50	30
	6+3	90	40
CRS	8+4	140	50
	10+5	190	50
	12+6	240	50
	14+7	290	50
DRS	16+8	320	30
	18+9	340	20
	20+10	350	10



- Constant Returns to Scale: As stated above, constant returns to scale means that with the increase in the scale in some proportion, output increases in the same proportion. Constant returns to scale, otherwise called as "Linear Homogeneous Production Function", may be expressed as follows: kQx = f(kK, kL) = k (K, L)
- Increasing Returns to Scale: As stated earlier, increasing returns to scale means that output increases in a greater proportion than the increase in inputs.
- Decreasing Returns to Scale: When output increases in a smaller proportion with an increase in all inputs, decreasing returns to scale are said to prevail. When a firm goes on expanding by increasing all inputs, decreasing returns to scale set in.
- The Cobb-Douglas production function, explained earlier is used to explain "returns to scale" in production. Originally, Cobb and Douglas assumed that returns to scale are constant. The function was constructed in such a way that the exponents summed to a+1-a=1. However, later they relaxed the requirement and rewrote the equation as follows:

$$Q = K L^a C^b$$

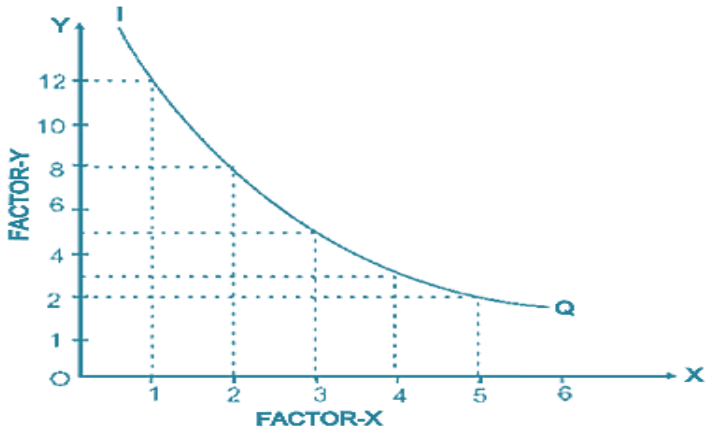
Where 'Q' is output, 'L' the quantity of labour and 'C' the quantity of capital, 'K' and 'a' and 'b' are positive constants.

- If a + b >1 Increasing returns to scale result i.e. increase in output is more than the proportionate increase in the use of factors (labour and capital).
- a + b = 1 Constant returns to scale result i.e. the output increases in the same proportion in which factors are increased.
- a + b <1 decreasing returns to scale result i.e. the output increases less than the proportionate increase in the labour and capital.

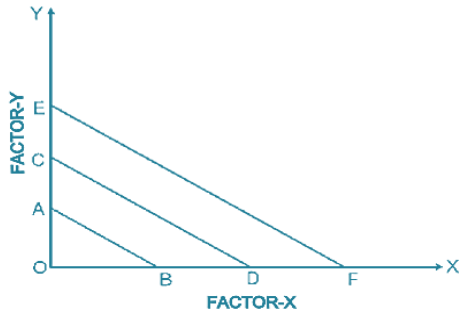
PRODUCTION OPTIMISATION

Isoquants: Isoquants are similar to indifference curves in the theory of consumer behaviour. An isoquant represents all those combinations of inputs which are capable of producing the same level of output. Since an isoquant curve represents all those combination of inputs which yield an equal quantity of output, the producer is indifferent as to which combination he chooses. Therefore, Isoquants are also called equal-product curves, production indifference curves or iso-product curves. The concept of isoquant can be easily understood with the help of the following schedule.

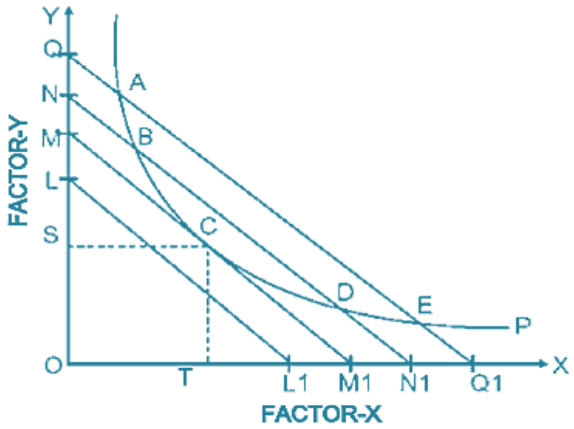
Factor combination	Factor X	Factor Y	MRTS
A	1	12	
B	2	08	4
C	3	05	3
D	4	03	2
E	5	02	1



Isocost or Equal-cost Lines: Isocost line, also known as budget line or the budget constraint line, shows the various alternative combinations of two factors which the firm can buy with given outlay.



Producer's Equilibrium: Suppose the firm has already decided about the level of output to be produced. Then the question is with which factor combination the firm should try to produce the pre-decided level of output. The firm will try to use the least-cost combination of factors. The least cost combination of factors can be found by super-imposing the isoquant that represents the pre decided level of output on the iso- cost lines. This is shown in Figure 4.



Least – cost Combination of Factors: Producer's Equilibrium

Quick Notes
Feel free to note your thought.....

TOPIC - 5
RETURNS TO SCALE (LONG RUN)

Question 1

__show all those combinations of different factor of production which give the same Output to the producer.

a) Iso quant
b) Production indifference curves
c) Both a and b
d) None

Question 2

Isoquants are equal to:

a) Product line
b) Total utility lines
c) cost lines
d) Revenue

Question 3

An isoquant__ to an ISO cost line at equilibrium point:

a) Convex
b) Tangent
c) Concave
d) Perpendicular

Question 4

Among the following statements which is incorrect in relation to isoquant

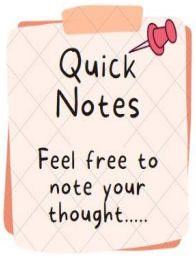
a) Isoquant are negatively sloped
b) Isoquant are concave to origin
c) Isoquant are not intersecting
d) Isoquant are convex to origin

Question 5

How many kinds are of Economies of scale?

a) 5
b) 3
c) 2
d) 1

Answer:-1(c),2(a),3(b),4(b),5(c)



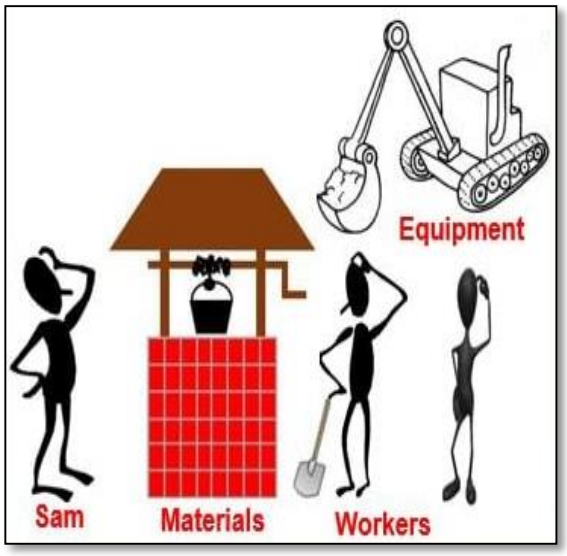
UNIT - 2
THEORY OF COST

INTRODUCTION

- In the production analysis we had considered quantitative relationship between inputs and outputs.
- In the cost analysis we are concerned with financial side of production i.e. the cost behaviour in relation to size of output, scale of operations, prices of factors of production, etc.
- Therefore, a businessman must have a clear understanding of various concepts of costs

CONCEPTS OF COST

1. Accounting costs



- These are those cash payments which firms make to outsiders for purchasing or hiring the services of various productive factors which do not belong to the entrepreneur.
- The accounting costs are in the nature of contractual payments to the factor suppliers.
  E.g. - Contractual payments like wages, rent on hired land, interest on borrowed capital, Cost of power and fuel, purchase of raw-materials, insurance premium, transportation, advertising, taxes, etc.
- These costs are recorded in firm's account book.
- All these money expenses are also known as EXPLICIT COSTS or accounting costs as they form part of the cost of production and accounted by the firm.

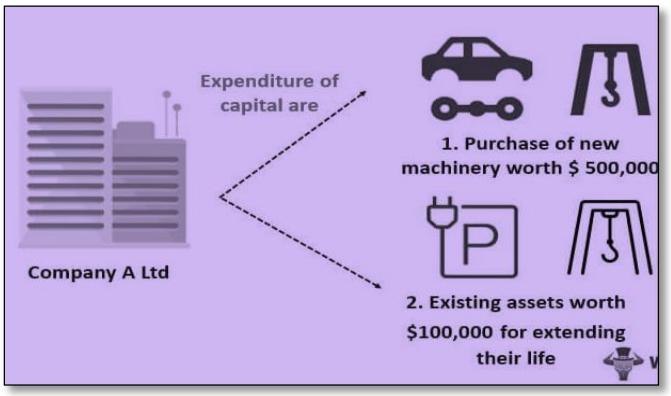
2. ECONOMIC COSTS

- Economists take a broader view of the cost concept. Economist's cost refer to what may be called FULL COSTS or ECONOMIC COSTS.
  Economic Costs = Explicit costs (or accounting costs) + Implicit costs (or imputed costs)
- Thus, economic cost is the sum total of accounting costs (also called explicit costs) and implicit cost (also called imputed costs or opportunity cost)

- Implicit costs are costs of self-owned and self-supplied resources by an entrepreneur which are generally not recorded in the firm's account book. There is no contractual obligation for payment to anybody else. E.g.- An entrepreneur may utilize his own building or his own capital or may act as a manager of his firm himself. For these productive services, he does not pay rent or interest or salary to himself although the payments accrue to him.
- These are implicit or imputed (estimated) costs of various factors owned and supplied by the owner himself. When an entrepreneur invests capital in his business, devotes his time and skills in his business, he has to forego the opportunity of investing his, capital, time and skills elsewhere.
- Implicit costs involve the sacrifice of alternatives that have been foregone in the production of a commodity. Hence, implicit costs are also called "opportunity cost" and forms part of the economic costs.
- A firm earns economic profits or normal profit when it recovers both explicit costs as well as implicit costs. Thus, normal profit is a part of implicit cost. Profit earned over and above normal profit is called super normal profit.

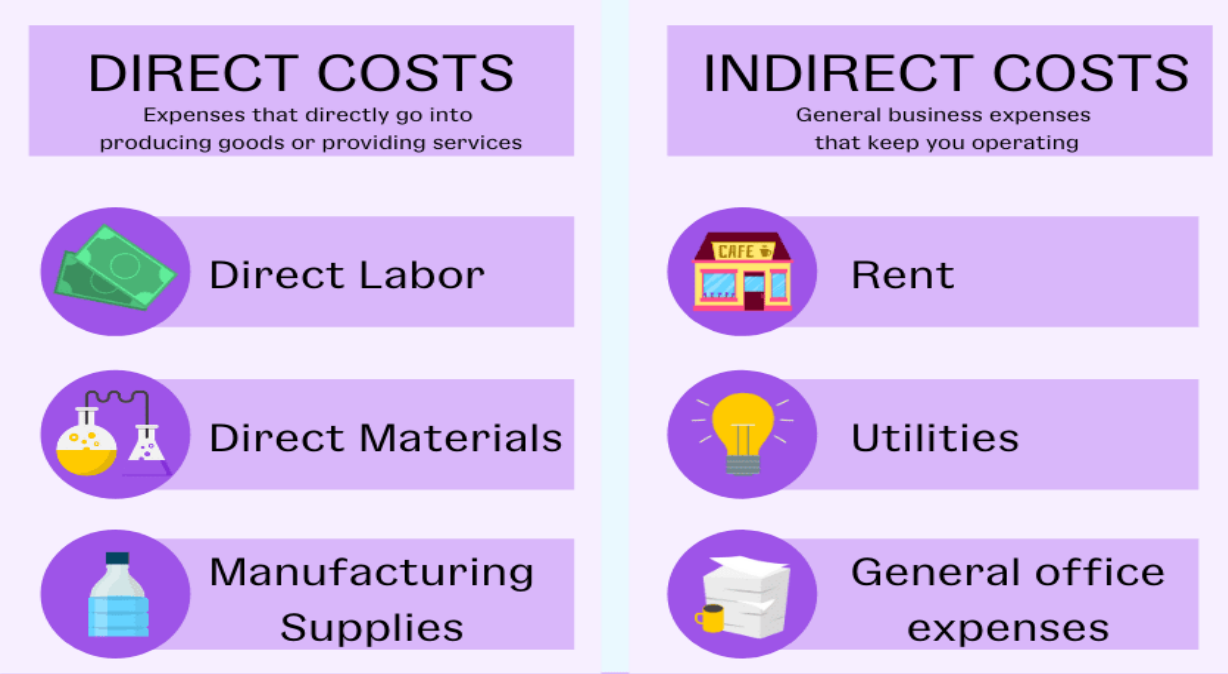
3. OUTLAY COSTS AND OPPORTUNITY COSTS

Outlay costs involve actual expenditure of funds on, say, wages, materials, rent, interest, etc. Opportunity cost, on the other hand, is concerned with the cost of the next best alternative opportunity which was foregone in order to pursue a certain action. It is the cost of the missed opportunity and involves a comparison between the policy that was chosen and the policy that was rejected.



4. DIRECT OR TRACEABLE COSTS AND INDIRECT OR NON – TRACEABLE COSTS

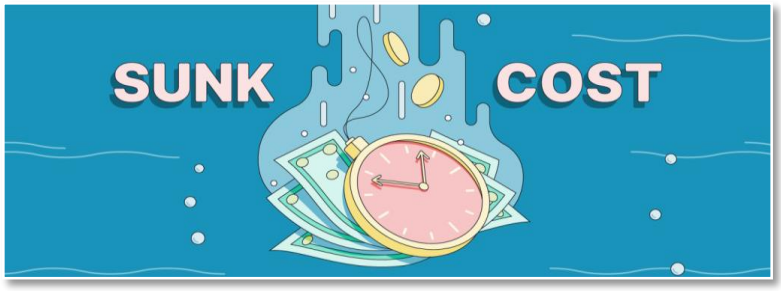
Direct costs are those which have direct relationship with a component of operation like manufacturing a product, organizing a process or an activity etc. Indirect costs are those which are not easily and definitely identified in relation to a plant, product, process or department.



5. INCREMENTAL COSTS AND SUNK COSTS

Theoretically, incremental costs are related to the concept of marginal cost. Incremental cost refers to the additional cost incurred by a firm as result of a business decision.

Sunk costs refer to those costs which are already incurred once and for all and cannot be recovered. They are based on past commitments and cannot be revised or reversed if the firm wishes to do so.



6. HISTORICAL COSTS AND REPLACEMENT COSTS

Historical cost refers to the cost incurred in the past on the acquisition of a productive asset such as machinery, building etc. Replacement cost is the money expenditure that has to be incurred for replacing an old asset. Instability in prices make these two costs differ. Other things remaining the same, an increase in price will make replacement costs higher than historical cost.

7. PRIVATE COSTS AND SOCIAL COSTS

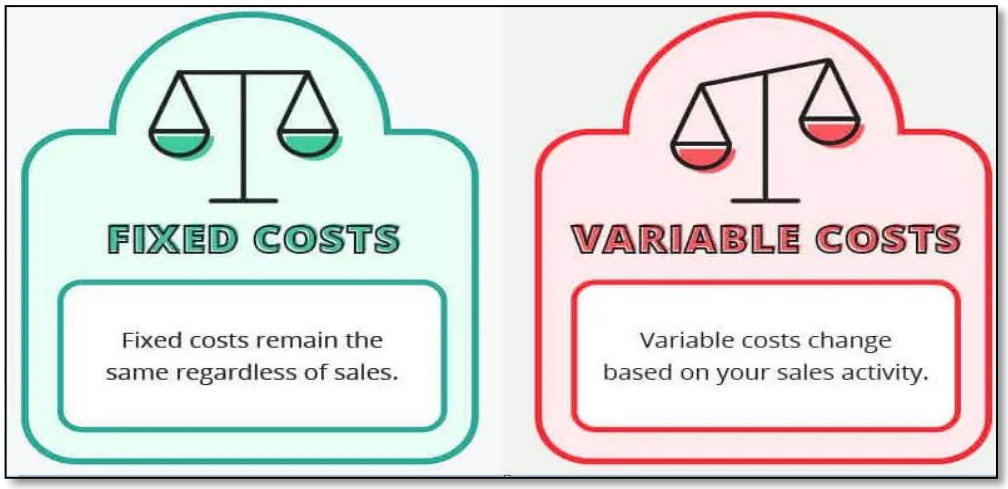
Private costs are costs actually incurred or provided for by firms and are either explicit or implicit. They normally figure in business decisions as they form part of total cost and are internalized by the firm. Social cost, on the other hand, refers to the total cost borne by the society on account of a business activity and includes private cost and external cost.

8. FIXED AND VARIABLE COSTS:

Fixed or constant costs are not a function of output; they do not vary with output upto a certain level of activity. These costs require a fixed expenditure of funds irrespective of the level of output, e.g., rent, property taxes, interest on loans and depreciation when taken as a function of time and not of output.

Fixed costs cannot be avoided. These costs are fixed so long as operations are going on. They can be avoided only when the operations are completely closed down. These are, by their very nature, inescapable or uncontrollable costs. But, there are some costs which will continue even after the operations are suspended, as for example, for storing of old machines which cannot be sold in the market. These are called shut down costs.

Variable costs are costs that are a function of output in the production period. For example, wages of casual labourers and cost of raw materials and cost of all other inputs that vary with output are variable costs. Variable costs vary directly and sometimes proportionately with output.



TOPIC - 1

INTRODUCTION & CONCEPT OF COST

Question 1

Opportunity cost is:-

a) Direct cost
b) Accounting cost
c) Total cost
d) Cost of foregone opportunity

Question 2

Economics cost excludes which of the following:

a) Accounting cost + explicit cost
b) Accounting cost + implicit cost
c) Explicit cost + Implicit cost
d) Accounting cost + opportunity cost

Question 3

Suppose the total cost of production of commodity X is 1, 25,000 out of this cost Are 35,000 and normal profits are 25, 000 what will be the explicit cost of Commodity X?

a) 90'000
b) 65'000
c) 60,000
d) 1,00,000

Question 4

Outlay cost involves:-

a) Nominal Expenditure
b) Fixed Expenditure
c) Actual expenditure
d) None

Question 5

Rent, property taxes, interest on loans and depreciation is example of which cost.

a) **Fixed**
b) **Variable**
c) **Opportunity**
d) **None**

Question 6

Implicit can be defined as:-

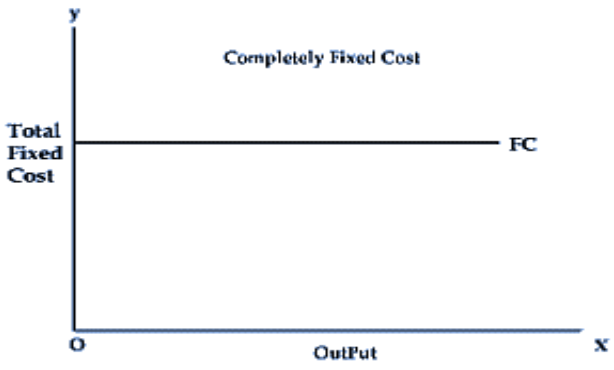
a) **Money payments made to the non-owners of the firm for the self- owned factor employed in the business and therefore not entered into books of accounts.**
b) **Money not paid out to the owners of the firm for the self-owned factor employed in a Business and therefore not entered into Books of account**
c) **Money payment which the self-owned and employed resources could have earned in their next best alternative employment and therefore entered into books of accounts**
d) **Money payment which the self-owned and employed resources earn their best use and therefore, entered into book of accounts.**

Answer:-1(d),2(a),3(b),4(c),5(a),6(b)

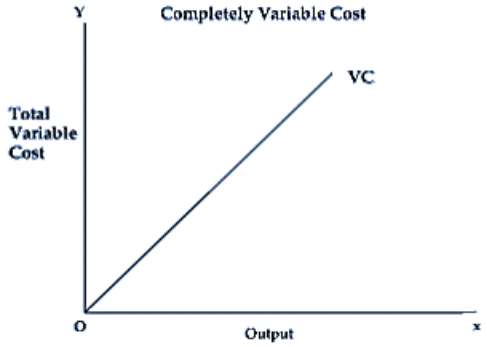
COST FUNCTION

Cost function refers to the mathematical relation between cost of a product and the various determinants of costs. In a cost function, the dependent variable is unit cost or total cost and the independent variables are the price of a factor, the size of the output or any other relevant phenomenon which has a bearing on cost, such as technology, level of capacity utilization, efficiency and time period under consideration.

Short Run Total Costs: Total, fixed and variable costs: There are some factors which can be easily adjusted with changes in the level of output. A firm can readily employ more workers if it has to increase output. Similarly, it can purchase more raw materials if it has to expand production.



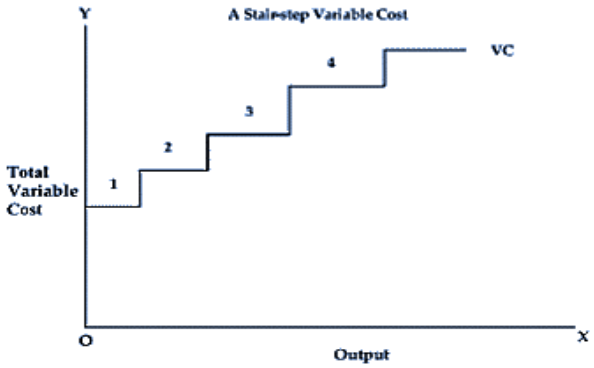
Completely Fixed Cost



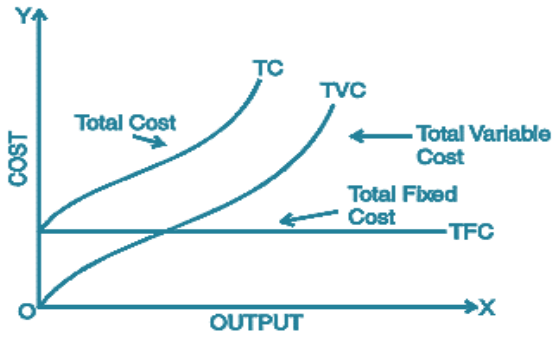
Completely Variable Cost

Variable costs, on the other hand are those costs which change with changes in output. These costs include payments such as wages of casual labour employed, prices of raw material, fuel and power used, transportation cost etc. There are some costs which are neither perfectly variable, nor absolutely fixed in relation to the changes in the size of output. They are known as semi-variable costs.

There are some costs which may increase in a stair-step fashion, i.e., they remain fixed over certain range of output; but suddenly jump to a new higher level when output goes beyond a given limit.



A Stair – step Variable Cost



Total Cost Curve

TOPIC - 2
COST FUNCTION

Question 1

Which function refers to the mathematical relation between cost of a product and the various determinate?

a) Cost
b) Income
c) Both
d) None of the above

Answer:-1(a),

SHORT RUN TOTAL COST CURVES

Short run average costs

- Average fixed cost (AFC): AFC is obtained by dividing the total fixed cost by the number of units of output produced.

$$AFC = TFC/Q$$

- Average variable cost (AVC): Average variable cost is found out by dividing the total variable cost by the number of units of output produced,

$$AVC = TVC/Q$$

where Q is the number of units produced. Thus, average variable cost is the variable cost per unit of output. Average variable cost normally falls as output increases from zero to normal capacity output due to occurrence of increasing returns to variable factors.

- Average total cost (ATC): Average total cost is the sum of average variable cost and average fixed cost. i.e.,

$$ATC = AFC + AVC.$$

$$ATC = TC/Q$$

It is the total cost divided by the number of units produced. The behaviour of average total cost curve depends upon the behaviour of the average variable cost curve and the average fixed cost curve. In the beginning, both AVC and AFC curves fall, therefore, the ATC curve will also fall sharply.

♠ Marginal cost: Marginal cost is the addition made to the total cost by the production of an additional unit of output.

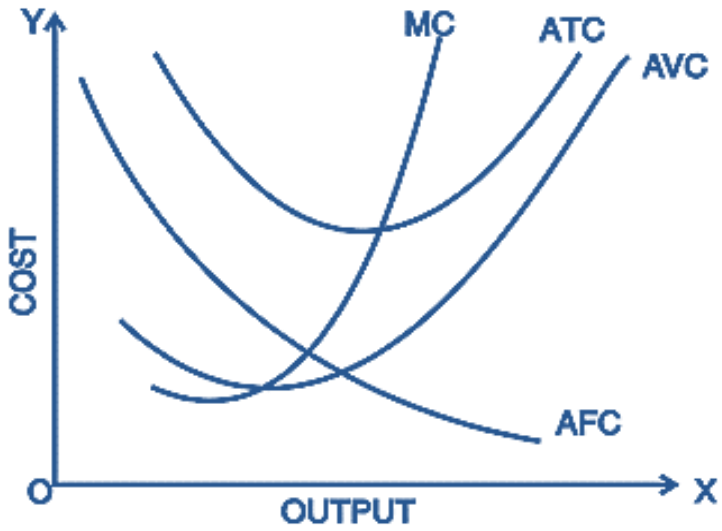
$$MC = \frac{\Delta TC}{\Delta Q}$$

ΔTC = Change in Total Cost

ΔQ = Change in Output

or

$$MC_n = TC_n - TC_{n-1}$$

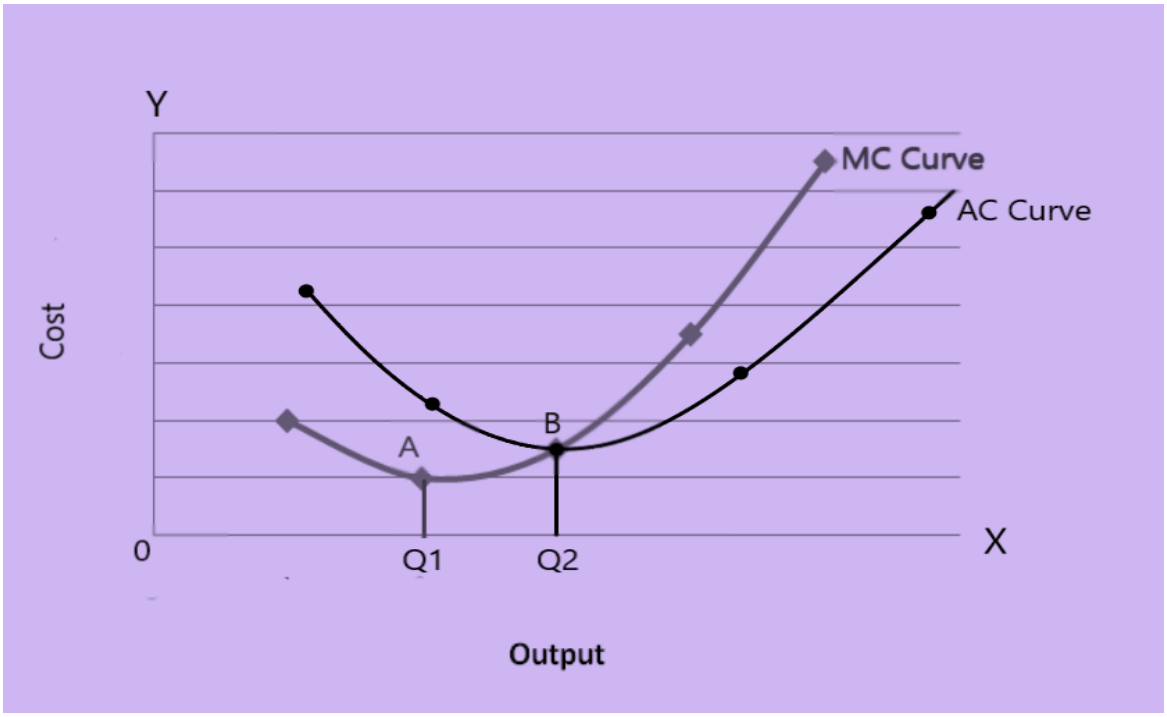


Short run Average and Marginal Cost Curves

Relationship between Average Cost and Marginal Cost: The relationship between marginal cost and average cost is the same as that between any other marginal-average quantities. The following are the points of relationship between the two.

- ❖ When average cost falls as a result of an increase in output, marginal cost is less than average cost.
- ❖ When average cost rises as a result of an increase in output, marginal cost is more than average cost.

- When average cost is minimum, marginal cost is equal to the average cost. In other words, marginal cost curve cuts average cost curve at its minimum point.



Quick Notes

Feel free to note your thought.....

TOPIC - 3
SHORT RUN TOTAL COST CURVE

Question 1

Average fixed cost can be obtained through:

a) AFC = TFC/TC
b) AFC = TFC /TS
c) AFC = TC/TC
d) AFC = TFC/TU

Question 2

AFC curve is:

a) Convex & downward slopping
b) Convex & upward slopping
c) Concave & downward slopping
d) Concave & upward rising

Question 3

Which of the following cost curves is never ` U 'shaped.

a) Average total cost
b) Marginal cost curve
c) Total cost curve
d) Total fixed cost curve

Question 4

At which point does the marginal cost intersect the average variable cost curve and short run average total cost curve?

a) At equilibrium point
b) At their lowest point
c) At their optimum point
d) They don`t intersect at all

Question 5

A firm's average fixed cost is 20 at 6 units of output what will be at 3 units of outputs?

a) 60
b) -30
c) 40
d) 20

Question 6

When AC Curve is at minimum then MC Curve is__?

a) Minimum then AC Curve
b) equals to AC Curve
c) Above AC Curve
d) Less than AC Curve

Question 7

The difference between TFC and TC is equal to

a) Zero
b) TVC
c) MC
d) AFC

Question 8

Use the table and answer for the following questions

Output	0	1	2	3	4	5	6
Total Cost in Rs.	100	180	250	310	360	420	490

The average fixed cost of 4 units of output is

a) 80 b) 90
c) 25 d) 350

Question 9

The average variable cost of 5 units of output

a) 84 b) 64
c) 420 d) 104

Question 10

The marginal cost of 5th unit of output is

a) 60 b) 70
c) 540 d) 90

Question 11

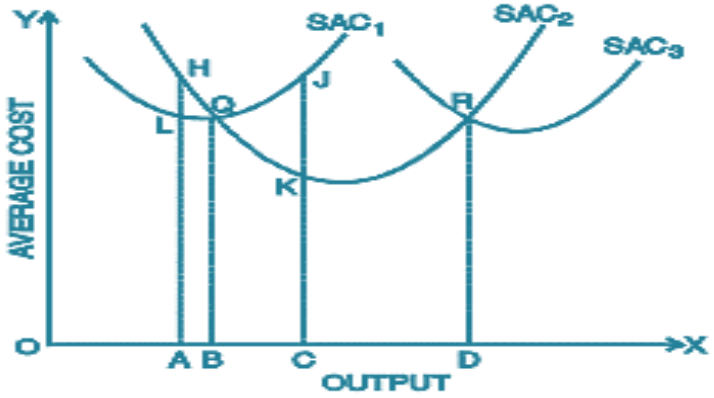
The total cost is Rs.4200 and fixed cost is Rs.1200 then find the variable cost

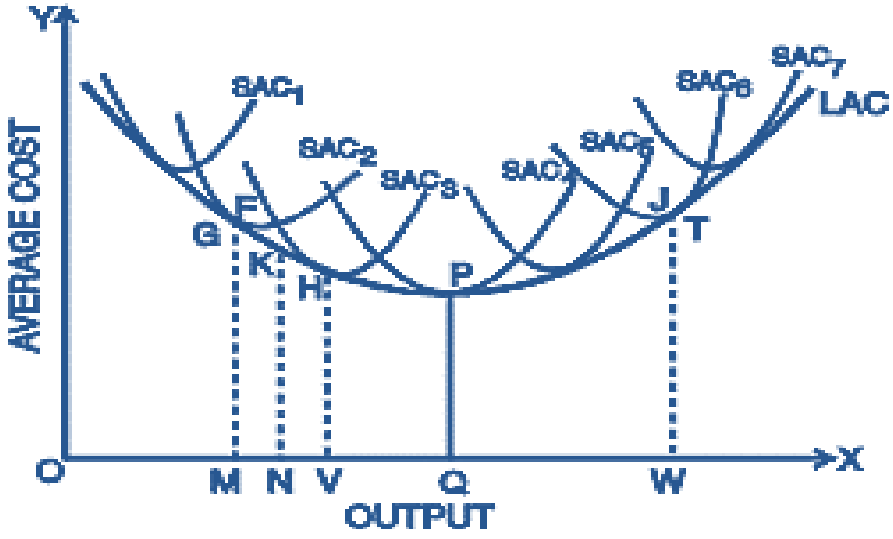
a) 5450 b) 1200
c) 4200 d) 3000

Answer:-1(d),2(a),3(d),4(b),5(c),6(b),7(b),8(c),9(b),10(a),11(d)

LONG RUN AVERAGE COST CURVE:

The long run average cost curve is often called as 'planning curve' because a firm plans to produce any output in the long run by choosing a plant on the long run average cost curve corresponding to the given output. The long run average cost curve helps the firm in the choice of the size of the plant for producing a specific output at the least possible cost.





Short run Average cost Curves Long run Average Cost Curve

Quick Notes

Feel free to note your thought.....

TOPIC - 4
LONG RUN AVERAGE COST CURVE

Question 1

If LAC curve fall as output expands, this is due to__:

a) Law of diminishing returns
b) Economics of scale
c) Law of variable proportion
d) Diseconomies of scale

Question 2

U – Shaped average cost curve is based on: __

a) Law of increasing cost
b) Law of decreasing cost
c) Law of constant returns to scale
d) Law of variable proportions

Question 3

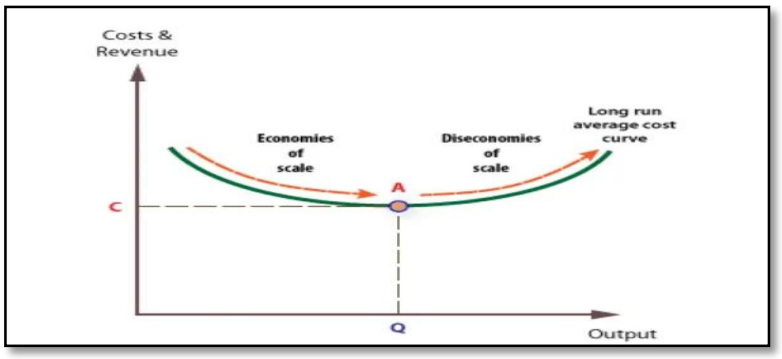
Average cost curve is

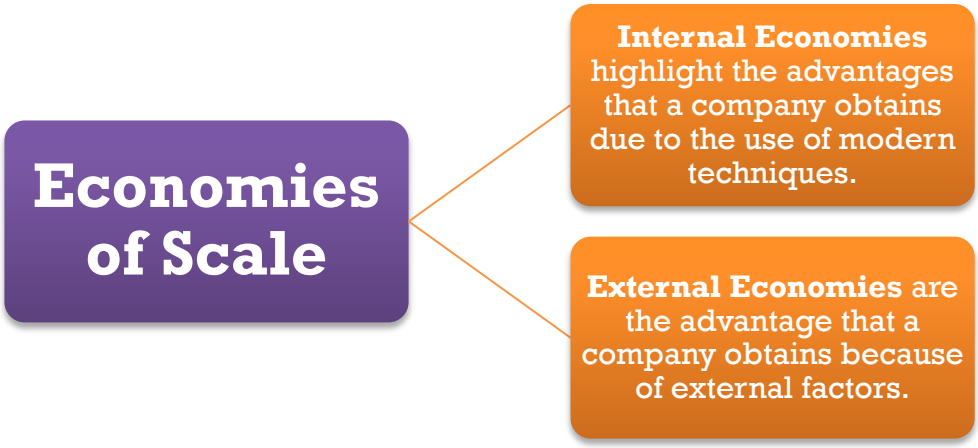
a) 'U' shaped
b) Positively sloped
c) Negatively sloped
d) Rectangular hyperbola

Answer:-1(b),2(d),3(a)

ECONOMICS AND DISECONOMIES OF SCALE

The Scale of Production: Production on a large scale is a very important feature of modern industrial society. As a consequence, the size of business undertakings has greatly increased. Large-scale production offers certain advantages which help in reducing the cost of production. Economies arising out of large-scale production can be grouped into two categories; viz., internal economies and external economies. Internal economies are those economies of production which accrue to the firm when it expands its output, so that the cost of production would come down considerably and place the firm in a better position to compete in the market effectively.

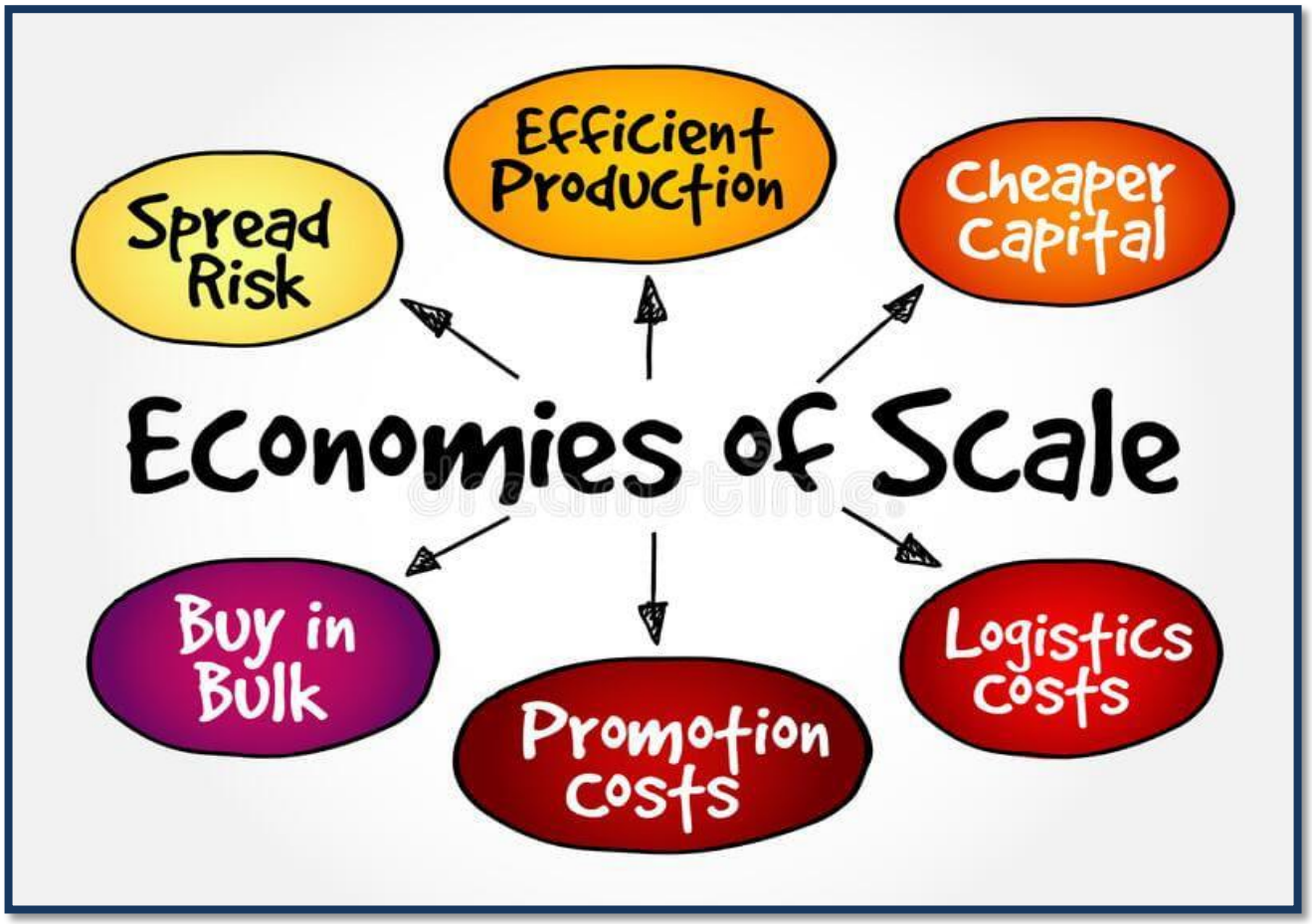




Internal Economies and Diseconomies: We saw that returns to scale increase in the initial stages and after remaining constant for a while, they decrease. Internal economies and diseconomies are of the following main kinds:

- Technical economies and diseconomies: Large-scale production is associated with economies of superior techniques. As the firm increases its scale of operations, it becomes possible to use more specialised and efficient form of all factors, specially capital equipment and machinery. For producing higher levels of output, there is generally available a more efficient machinery which when employed to produce a large output yields a lower cost per unit of output.
- Managerial economies and diseconomies: Managerial economies refer to reduction in managerial costs. When output increases, specialization and division of labour can be applied to management. It becomes possible to divide its management into specialised departments under specialised personnel, such as production manager, sales manager, finance manager etc.
- Commercial economies and diseconomies: Production of large volumes of goods requires large amount of materials and components. A large firm is able to place bulk orders for materials and components and enjoy lower prices for them. Economies can also be achieved in marketing of the product. If the sales staff is not being worked to full capacity, additional output can be sold at little or no extra cost.

- Financial economies and diseconomies: A large firm has advantages over small firms in matters related to procurement of finance for its business activities. It can, for instance, offer better security to bankers and avail of advances with greater ease. On account of the goodwill enjoyed by large firms, investors have greater confidence in them and therefore would prefer their shares which can be readily sold on the stock exchange. A large firm can thus raise capital at lower cost.
- Risk bearing economies and diseconomies: It is said that a large business with diverse and multi production capability is in a better position to withstand economic ups and downs, and therefore, enjoys economies of risk bearing. However, risk may increase if diversification, instead of giving a cover to economic disturbances, increases these.



EXTERNAL ECONOMIES AND DISECONOMIES

Internal economies are economies enjoyed by a firm on account of use of greater degree of division of labour and specialised machinery at higher levels of output. They are internal in the sense that they accrue to the firm due to its own efforts. Besides internal economies, there are external economies which are very important for a firm. External economies and diseconomies are those economies and diseconomies which accrue to firms as a result of expansion in the output of the whole industry and they are not dependent on the output level of individual firms. They are external in the sense that they accrue to firms not out of their internal situation but from outside i.e. due to expansion of the industry. These are available to one or more of the firms in the form of:

- Cheaper raw materials and capital equipment: The expansion of an industry may result in exploration of new and cheaper sources of raw material, machinery and other types of capital equipments. Expansion of an industry results in greater demand for various kinds of materials and capital equipments required by it.

- Technological external economies: When the whole industry expands, it may result in the discovery of new technical knowledge and in accordance with that, the use of improved and better machinery and processes than before. This will change the technical co-efficient of

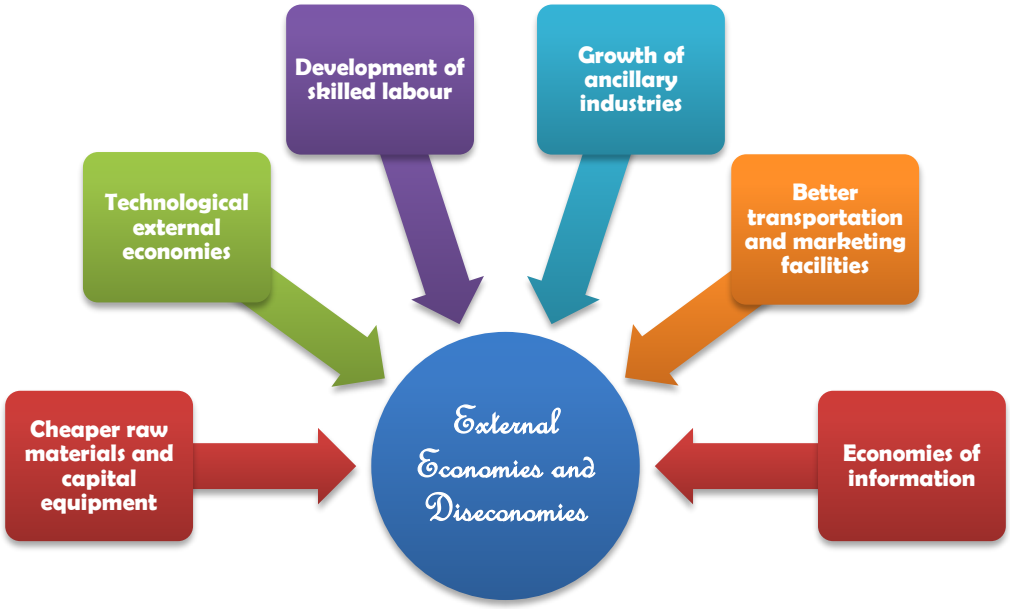
production and enhance productivity of firms in the industry and reduce their cost of production.

- Development of skilled labour: When an industry expands in an area, the labourers in that area are well accustomed with the different productive processes and tend to learn a good deal from experience. As a result, with the growth of an industry in an area, a pool of trained labour is developed which has a favourable effect on the level of productivity and cost of the firms in that industry.

- Growth of ancillary industries: Expansion of industry encourages the growth of a number of ancillary industries which specialise in the production and supply of raw materials, tools, machinery, components, repair services etc. Input prices go down in a competitive market and the benefits of it accrue to all firms in the form of reduction in cost of production. Likewise, new units may come up for processing or recycling of the waste products of the industry. This will tend to reduce the cost of production in general.

- Better transportation and marketing facilities: The expansion of an industry resulting from entry of new firms may make possible the development of an efficient transportation and marketing network. These will greatly reduce the cost of production of the firms by avoiding the need for establishing and running these services by themselves. Similarly, communication systems may get modernised resulting in better and speedy information dissemination.

- Economies of information: Necessary information regarding technology, labour, prices and products may be easily and cheaply made available to the firms on account of publication of information booklets and bulletins by industry associations or by government in public interest.



TOPIC - 5
ECONOMICS AND DISECONOMIES OF SCALE

QUESTION 1

External economics accrue due to_

a) Increasing returns to scale
b) Increasing returns to factor
c) Law of variable proportion
d) Low coat

QUESTION 2

How many kinds are of Economies of scale?

a) 5
b) 3
c) 2
d) 1

Answer:-1(a),2(c)