Self Study

1. Explain in short the classification of market demand.
2. What is demand ? State the different types of demand.
3. Explain the concept of individual demand and market demand.
4. Clarity the difference beween demand for consumer's goods and demand for producer's goods.
5. Explain the concept of demand for perishable goods and durable goods.
6. Explain the firm demand and Industry demand.
7. Explain the concept of price elasticity of demand and describe its type.
8. State the types of price elasticity of demand.
9. Describe the meaning and types of cross elasticity of demand.
10. What is meant by income elasticity of demand ? Describe its types.
11. Discuss the factors affecting price elasticity of demand.
12. Clarify the concept of price elasticity of demand. Explain its measurement with example.
13. Describe the factors affecting income elasticity of demand.
14. Explain the difference between price elasticity, cross elasticity and income elasticity of demand.
15. Explain the concept of income elasticity of demand.
16. Draw and explain income demand curve on the following situtation :
    (i) Unit elastic (ii) Income elastic more than unit,
    (iii) Income elastic less than unit.
17. Describe the type of elasticity of Demand and discuss the usefulness of the concept of it
18. Discuss the types and factors effecting income elasticity of demand.
19. Explain the concept of advertising elasticity of demand.
20. Write a note :
    (i) Importance of Cross Elasticity of Demand.
    (ii) Importance of Income Elasticity of Demand.

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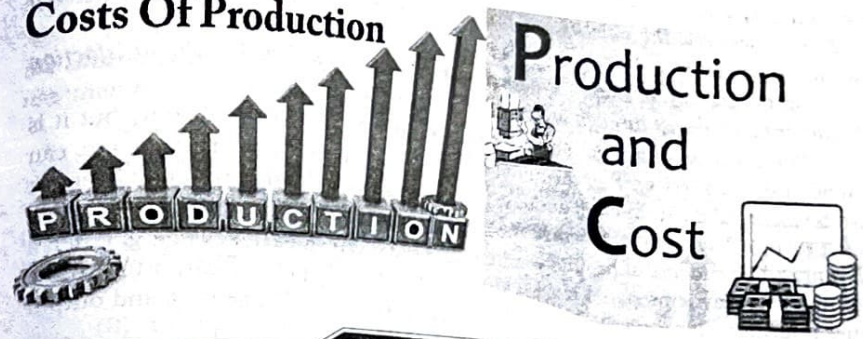
Unit - 4 The Costs of Production



Outline of the Unit

1. Production : Meaning and Characteristics
2. Accounting Costs and Economic Costs
3. Production Costs
4. Actual Cost and Opportunity Cost
5. Direct Cost and Indirect Cost
6. Private Cost and Social Cost
7. Explicit and Implicit Costs
8. Business Cost and Full Cost
9. Incremental Cost and Marginal Cost
10. Short Run and Long Run Cost Function (Curves)

➤ Objective Study
➤ Self Study

1. Production : Meaning and Characteristics

Introduction : In common words, the production reflects the creation of new things but in economics it refers to the activity of exchanges, which ultimately increase the utility. **e.g.** When a potter makes articles from the clay, he creates new things, which is defined as production activity. This process adds the utility in the raw-material and makes the final consumer product. The change in the place also increases the utility. The sand of the river when used for the construction purposes increases utility. Thus, any change in the form, location or time of the product, which increase the utility is defined as production.

However, it is also true that just adding utility to some raw-material is not production. If it is produced for the exchange purpose, then only it reflects the

production. If the activity is for generating income, then only it represents production. The goods must have the scarcity and the purpose of exchange with it.

2. Definition of Production : According to **Bates and Parkinson,** "*Production is the organised activity of transforming resources into finished products in the form of goods and services, the objective of production is to satisfy the demand for such transformed resources.*"

According to **J. R. Hicks,** "*Production is any activity directed to the satisfaction of other peoples' wants through exchange.*"

The process of production is not limited to the physical goods only but it is extended to the services. **E.g.** the activity of doctors, chartered accountant, etc. can also be included as production activity. The process of production is not an event. It is a process. The activity is continued till the product reaches to the ultimate consumer. The process of production increases the utility at each stage. **E.g.** When a pot from the clay is prepared it adds the utility and when pot is transported to the cities it further adds the utility. Thus, it is defined as production activity, and output in addition of utility.

3. Characteristics of Production :

(1) Production means not only increase in utility : The concept of production is not complete, only addition to utility is not output but if output is backed by the purchasing power it adds utility. If the output is not scarce, it does not have an exchange value. If the goods which possess, value in use must possess value in exchange, it is defined as production. The wealth, which possess its value in exchange is defined as production. Production is wealth creation. When the form of the product is changed, it adds utility and becomes valuable in use. If such a thing has a surplus, it is not defined as creation of wealth. In other words, if there is any change in the formation of the product that adds utility and possess use value, then it is called production. The goods must also possess the exchange value following which is defined as production.

(2) Production is not related to the physical goods only : It also relates to services. The services of teacher, nurses engineers and other non-physical services also possess the value in use. **e.g.** The services of nurse possess value in use. It is scarce and that is how it is also considered as production.

(3) There must be economic object for production : Production must be associated with an economic objective. When goods format is changed and utility is added to it, it becomes more useful for the final or ultimate customer. The non-economic activity should not be included here. If a teacher-teaches his/her own child it is noneconomic activity and thus can't be called production. If the teacher gives private tuition, his services are considered as production because there is an economic activity.

(4) Production leads to rise in welfare : It is argued that the legal official activity that increases production, which ultimately raises welfare is called production. The activity by pick-pockets or thieves is illegal and can't be defined as production. They get goods and their counterparts lose but it is not an economic activity. Thus, activity of the thief can't be considered as production activity.

4. Output is expansion of activity : "*The activity, which increases the utility in the commodity / services and if possess scarcity, an exchange value and also value in use, then that is called production.*"

The addition to utility is possible in three ways :

(A) Change in the form. (B) Change in the place. (C) Change in the time

(A) Change in the Form : When size, shape or colour of the product is changed it is known as production e.g. steel shape is changed and turned into machinery, bricks - shape is changed. Cotton is turned, into textile and then garment, which adds utility. This change in the form of in any way is defined as production.

(B) Change in the Place : When the goods are transferred from one place to the other place it adds utility. For example : Sand on the bank of a river is used for construction purpose. The artistic products are marketed all over country and outside the country. The wood in the jungle is less useful than in the town.

(C) Change in Time : When the product is useful at different or a proper time, then it becomes more useful. Formerly ice-cream was used in summer only. Soft-drinks were also used in summer. Now-a-days it is not the case. However, typical types of clothes / garments are useful in specific time only. Raincoat is not used in winter but in monsoon only. The satisfaction is low or zero during off season and it increases during the peak season.

In short, change in the form, place and time add utility and the process is defined as production.

5. Factors of Production : There are four factors of production, which together produce goods and services.

These factors are : (1) Land (2) Labour (3) Capital (4) Entrepreneur.

2. Accounting Costs and Economic Costs

1. Introduction : In economics, the concepts of accounting cost and economic cost are important. From the management point of view the concept of accounting cost is important and from the decision point of view regarding production, economic cost concept is important. Imputed cost are not included in accounting cost of company, so accounting cost does not reflect the real picture of economic efficiency of the company.

2. Meaning of Accounting Costs : "The actual outlays or expenses incurred in production that shows up a firm's accounting statement or records.

"An accounting cost is the actual expenditure incurred by the producer in the course of business. These expenses also have a written record."

"Accounting cost includes all payments to factors of production, like wages, rent, and materials, which are reported in the firm's financial accounts." – **Samuelson**

3. Meaning of Economic Costs : *"An economic cost is the combination of direct and indirect costs that are incurred by the firm to produce commodities."*

"Economic cost includes both the explicit, out-of-pocket expenses and the implicit costs, which are the opportunity costs of resources owned by the firm." – **Samuelson**

"Economic cost includes the actual expenses incurred as well as the income foregone from not using the resources in their next best alternative use." – **Marshall**

4. Explanation of Accounting Costs and Economic Costs : The concept of accounting cost is different from the concept of economic cost. Expenses which noted in the account books are included in accounting cost. Expenses are done by the company for productions are not included in accounting cost. It means that actual expense paid by the company are included in accounting cost. Imputed cost like use of resources of owner for production are not included in accounting book. Imputed cost like use of resources of owner for production are not included in accounting cost. In economic cost both imputed and accounting cost are included. E.g. Interest paid on capital taken outside for the production process are taken into calculation of accounting cost. When the owner invested his capital in the business then interest on his capital is not calculated. So this amount of interest is not shown in accounting cost. But in economic cost, how much amount of interest owner gets by investing his capital to other place will be calculated and shown in it, In short, in economic cost, accounting cost and imputed cost both are included.

Accounting cost is a narrow concept. It includes wages salaries, cost of raw material interest of capital borrowed, light, advertisement, insurance charges and all types of taxes etc. These costs are also known as explicit costs that an accountant records in the firm's books.

Economic cost is a broad concept. From the accountant point of view, the concept of accounting cost is important. From the economics point of view, the concept of economic cost is important.

5. Uses of Accounting Costs and Economic Costs :

(A) Uses of Accounting Cost : (1) It shows the expenditure incurred on production of the commodity which is considered for pricing strategy. (2) It also helps in calculating profits of the firm. (3) It helps in decision making process of the firm.

(B) Uses of Economic Cost : (1) It shows the expenditure incurred on production of the commodity which is considered for pricing strategy; (2) It also helps in calculating profits and in decision making of the firm. (3) It helps to ascertain opportunity costs which directly impact profitability of the firm.

6. Difference between Accounting costs and Economic costs :

Accounting costs	Economic costs
1. **Meaning :** An Accounting cost is the actual cost incurred.	An economic cost is the direct and indirect cost.
2. **Nature :** It is direct or explicit cost.	It is direct as well as indirect cost, i.e. explicit cost and implicit cost.
3. **Importance :** Useful for financial reporting and tax purposes.	Useful for managerial decision making purposes.
4. **Evaluation :** Accounting cost = Explicit cost	Economic cost = Explicit cost + Implicit cost
5. **Profit evaluation :** Accounting cost evaluation helps to find accounting profit. Accounting profit = Total revenue – Explicit cost	Economic cost evaluation helps to find economic profit. Economic profit = Total revenue – Total cost Where, Total cost = Explicit cost + Implicit cost

3. Production Costs

1. Introduction : It is essential for a business owner to know the cost of production. The process of figuring out the cost of production plays a vital role in building and managing a profitable business. When a business owner knows the cost involved in each step of production, the owner can optimise the processes involved in production, schedule delivery realistically, and plan other business activities to run the business much more efficiently.

2. What is Production Cost ? : The total price paid for the resources used to manufacture a product or create a service, such as raw materials, labour, and others, is called the production cost. The product/service created is to be sold to consumers. Production costs are the total expenses incurred by a business in producing a goods or service.

e.g. In the case of mining companies, the royalties owed are also treated as part of the production cost. Even the tax liabilities belong to this category.

Accountants from the business management side keep track of the production processes and the costs involved to price the goods and services properly so that they can achieve an appropriate margin.

3. Types of Production Costs : While the exact expenses depend on the business and industry, there are four main types of production costs.

[A] Fixed Cost

1. **Introduction :** The classification of fixed cost and variable cost in reference to only short term. All cost become variable cost in long term. Short term means where firms can not expand its volume. But production can be increase with the use of established production power. When in the unit of production's volume can be increased or decreased in long run.

In short, period, plant, machinery, etc. are fixed factors, but with increase or decrease in proportion of raw material, labours, electricity, etc. can be effect the production.

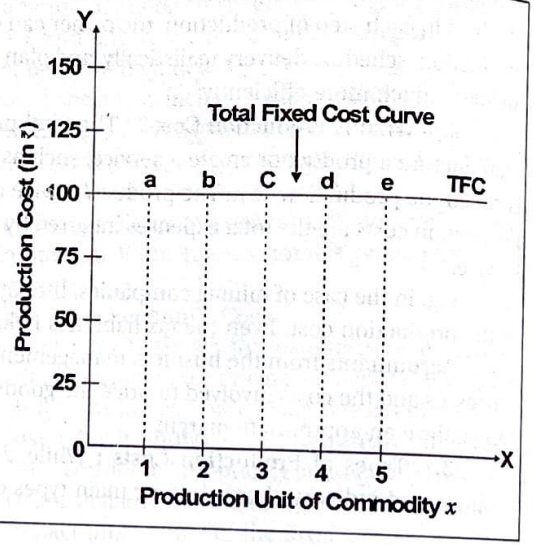
2. **Meaning of Fixed cost :** The cost which having no changes with production increase, decrease or remain steady in short term, that is fixed cost. The fixed costs have no relations with the unit of short term.

With the increase or decrease in production, there is no change in cost is known as fixed cost. **e.g.** Generally, in fixed cost the factory or buildings rent, wages of permanent labours, interest on capital, license fee, insurance, property tax, etc. costs are included.

For example : If 10 labourers employed as permanent staff in same factory and by any reason the factory closed for four months even though the wages to be paid to this labourers. That is fixed cost. Prof. **Marshall** introduced this cost as supplementary cost, because the proportion of production is not connected directly with fixed cost.

3. **Schedule and Figure :** We can see in the schedule, with the Production commodity of x the following fixed cost is occur.

Production (in Unit)	Fixed Cost (in ₹)
00	100
1	100
2	100
3	100
4	100
5	100



From the above schedule the production units from zero to 1,2,3,4,5 units even though the Total Fixed Cost (TFC) ₹ 100 is remain constant.

4. **Presentation Through Figure :** In the above figure we measure units of x commodity on OX line (horizontal) and on vertical line (OY line) production cost measured. According to schedule the production zero 1, 2, 3, 4, 5, units which *a, b, c, d, e* in the figure. At every point ₹ 100 remain constant. After joining all the points than we get Total Fixed Cost (TFC) curve which is parallel to the base (OX) line.

[B] Variable Cost

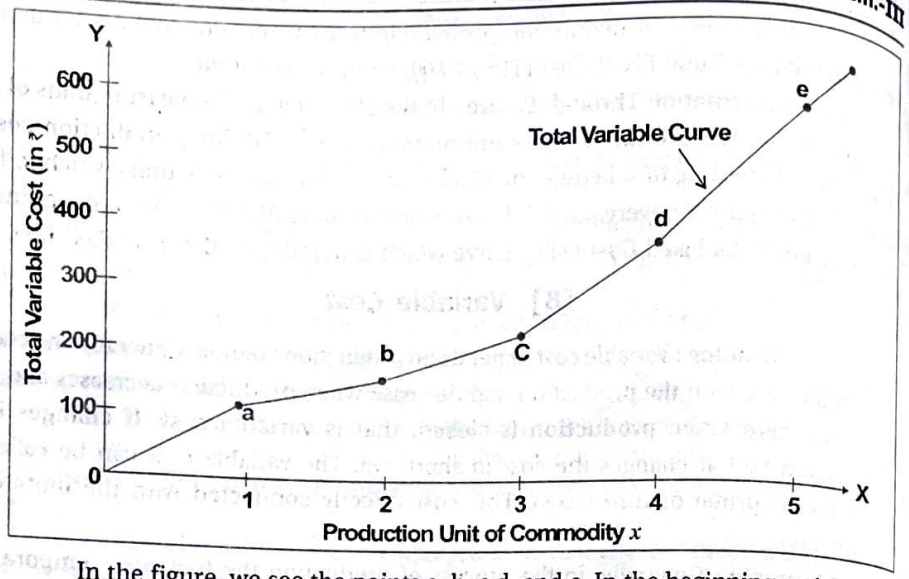
1. **Meaning :** Variable cost depends on production volume. Generally, the cost which increase with the production and decrease when production decreases and it becomes zero when production is closed, that is variable cost. If changes in production size, it changes the cost in short run. The variable cost can be called unstable or prime or direct cost. This cost directly connected with the units of production.

Example : Generally, in the process of production the fuel cost, temporary labours wages, raw material cost, transportation cost, Sale taxes, electricity etc., costs are variable cost. When production increased then this cost also increased and at one time if production closed then this cost also remain zero. **E.g.** If factory closed for some time by any reason, neither the labours of daily wages paid nor the cost of raw materials paid. The difference between variable cost and fixed cost is only for short term. The all costs becomes variable in long-run.

2. **Schedule and Figure :** The Total Variable Cost (TVC) for the production of x commodity in short run given below.

Production (in units)	Total Variable Cost (in ₹)
00	00
1	100
2	160
3	210
4	360
5	600

In the above schedule it can be shown that when production is closed then total variable cost also become zero, but where the production start to increase then total variable cost increases. At unit 1 it is ₹ 100, at unit 2 ₹ 160, at unit 3 ₹ 210, at unit 4 ₹ 360 and at unit 5 ₹ 600, that is total variable cost.



In the figure, we see the points a, b, c,d, and e. In the beginning variable cost increased at diminishing rate and after some stages its increased at increasing rate. In the beginning, cost decreased that means the law of diminishing cost and after optimum level it seems the law of increased cost, so this condition occur in our example; up to unit 3 at diminishing rate, and from unit 4 at increasing rate the variable cost increasing.

In the above figure the units of commodity *x* measured on OX line or horizontal line and the total variable cost measured on OY line or vertical line. According to schedule, when production is zero, 1, 2, 3, 4, 5 units, the total variable cost increasing according to *a,b,c,d,* and *e*. Total variable cost curve start from origin and then after in positive slope. Beginning at diminishing rate and after optimum level at increasing rate, the TVC curve shows. Total Variable Cost (TVC) curve start from origin because total variable cost is zero at zero production.

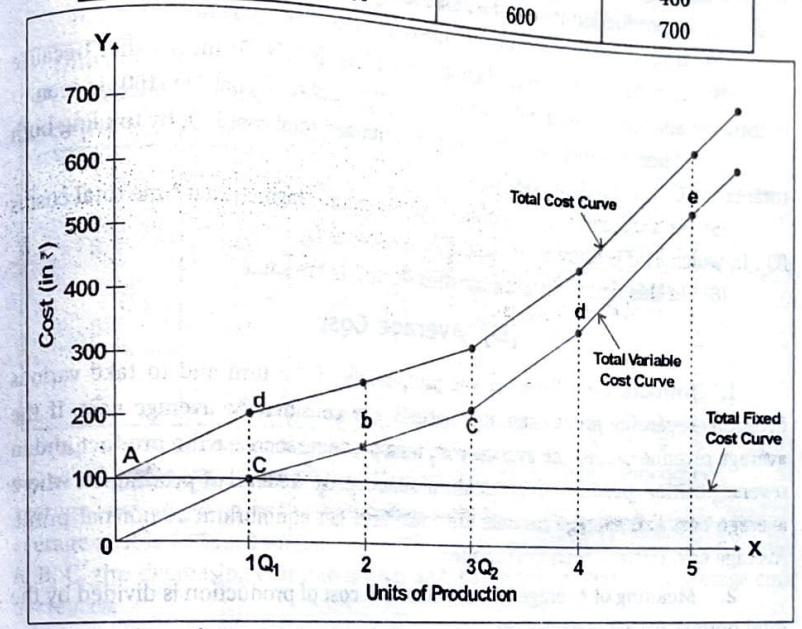
[C] Total Cost

1. **Meaning of Total Cost :** The total cost can be known by addition of total fixed cost and total variable cost. The proportion of production and total cost have straight relation. Where the production increase the total cost increasing. In short, sum of total fixed cost and total variable cost is equal to total cost. See it by following equation :

$\therefore$ TC = TFC + TVC

2. Schedule and Figure : While doing a production of *x* commodity, the total fixed cost and total variable cost is remain as the follow. The total cost schedule can be obtained by doing summation of TFC and TVC.

Production (Unit)	Total Fixed TFC (₹)	Total Variable TVC (₹)	Total Cost TFC + TVC (₹)
00	100	00	100
1	100	100	200
2	100	160	260
3	100	210	310
4	100	360	460
5	100	600	700



In above figure production units are given on OX horizontal axis and cost is shown on OY vertical axis. From the figure it can be shown that ₹ 100 is short term fixed cost. So we can see the total fixed cost curve is parallel to horizontal axis.

When in the short term the Total Variable Cost (TVC) increase due to increase in production. So the OP curve see with positive slope from the starting (origin) point. When the production is zero the TVC also zero and this curve is start from origin.

In figure, total cost curve shown by AO. 'Total cost increase with increase in production. So total cost curve also shown with positive slope.

In total cost, total fixed cost + total variable cost are included. And at zero production, total fixed cost is ₹ 100 and total cost also 100 ₹ So, total cost curve start with A point instead of origin point but from OY vertical axis and shown with positive slope.

The second main thing must be noted that for short time period. Fixed cost is not changed. So the changes occurred in total cost with production is same as total variable cost. So both the TVC and TC curve seen with positive slope and at some distance from the each other. Total cost curve seen upper side from total variable cost curve. And the distance between both curve is same.

Following conclusion are made from the above figure.

(1) If production is zero then total fixed cost is ₹ 100.

(2) If production is zero then total variable cost is ₹ 0 (zero).

(3) If production is zero then also total cost is ₹100. It means that because of total variable cost zero, total fixed cost AO (100) and total cost AO (100) is seen.

(4) When production is OQ_1, then we obtained total cost DQ_1 by totaling both total cost CQ_1 and total variable cost dc.

(5) At third unit of production we get optimum stage. At that time total cost is fQ_2. In which TFC is same as gQ_2 and TVC is same as fg.

(6) In this figure, distance between dc and fe are same.

[D] Average Cost

1. **Introduction :** To know the profitability of the firm and to take various decisions regarding production, it is necessary to consider the average cost. If the average revenue exceed the average cost, then producer increase the product and in reverse position, producer decrease the production. At the level of production where average cost and average revenue are equal firm get equilibrium at normal profit. Average cost curve is seen in U Shape.

2. **Meaning of Average Cost :** "When total cost of production is divided by the total output, we get average cost."

Average cost can be known by dividing the total of fixed cost and variable cost by total output units of production or average cost can be known by adding average

fixed cost and into average variable cost.

Equation : Average Total Cost (AVC) = $\frac{\text{Total Output Cost}}{\text{Units of Output}}$ ATC = $\frac{TC}{N}$

Example : Suppose the total cost of 'X' commodity is ₹ 100/- for five units.

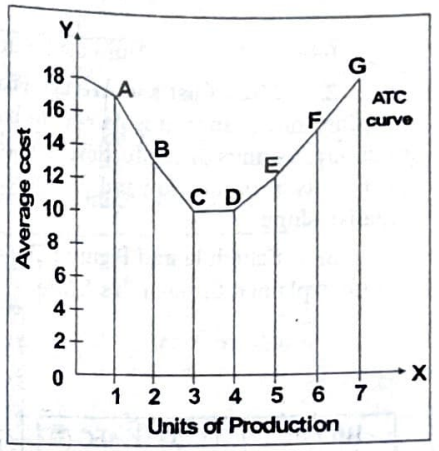
Average Cost = $\frac{100}{5}$ ₹20

3. **Characteristics :** ATC line is made of AFC + AVC line. Average cost line in the beginning shows decline because AVC is influenced by the law of increasing returns to scale but after optimum level, it shows the tendency of increasing because the law diminishing returns applies to it. Therefore, the average cost line is U- shaped.

In the graph given here, average cost decreases till OM but after optimum OM, if production is increased, average cost increases.

4. **Table and Figure of Average Cost :**

Units of Production (N)	Total Cost (TC)	Average Total Cost (ATC)
1	15	15
2	26	13
3	30	10
4	40	10
5	60	12
6	90	15
7	126	18



In above given figure, on OX axis units of production and on OY axis average cost are given. In the starting stage increasing product law is working and so average cost is ₹ 15 for 1 unit, for 2 units ₹ 13 and for 3 units ₹ 10 respectively. So, upto A, B, C, the decreasing cost rule is apply and thats why upto third unit average cost decreases.

At fourth unit it is ₹ 10. Upto C and D unit it applies fixed cost rule and thats why average cost curve is seen parallel.

After fourth unit, to increase the output, increasing cost rule is applied. So step by step, average cost would be increasing. In our figure, average cost of fourth unit is ₹ 10 which is ₹ 12 for fifth unit and ₹ 15 for sixth unit and ₹ 18 for seventh unit. So upto DEFG, average cost curve seen upper trend (increasing).

Total Average cost curve possesses different feature. From A to C point it was decrease, from C to D point it was fixed and from D point, to increase the production it was also increased. So Average cost curve seen in U Shape.

AFC (Average Fixed Cost) + AVC (Average Variable Cost) = ATC (Average Total Cost).

[I] Average Fixed Cost (AFC)

1. **Meaning of Average Fixed Cost (AFC) :** *By dividing the fixed cost by units of output, average fixed cost can be obtained.*

There is inverse relationship between proportion of output and average fixed cost. It means that when the proportion of output increase then the average fixed cost decrease and when the proportion of output decrease then the average fixed cost increase.

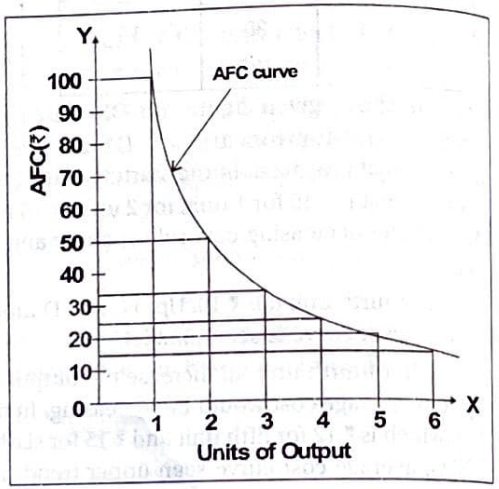
The following is the equation to find out AFC.

Equation : $AFC = \frac{TC}{\text{Units of output}}$

2. **Fixed Cost and Average Fixed Cost** In a short period of time, as fixed cost does not change, it is parallel to horizontal base. While AFC tends to decrease gradually. As units of production increase, fixed cost is distributed among more and more units of production and therefore, AFC continues to decrease. Its curve has a negative slope.

3. **Schedule and Figure :** The concept of fixed cost and average fixed cost can be explained through this figure.

Unit of Production	FC (₹)	AFC (₹)
1	100	100
2	100	50
3	100	33.3
4	100	25
5	100	20
6	100	16.6



It can be seen here in schedule and the figure that in short term fixed cost remains 100 throughout. It is parallel to the baseline. AFC has a tendency to decrease continuously because as production increased, FC is divided among more and more units of output. Therefore, AFC has a negative slope. It passes near the base line but never touches it, because it never becomes zero.

[II] Average Variable Cost

1. **Meaning of Average Variable Cost (AVC) :** "Average variable cost can be obtained by dividing the total variable cost by the units of output". This concept is useful in determining output quantity.

$$\text{Average Variable Cost (AVC)} = \frac{\text{Total Variable Cost (VC)}}{\text{Units of Output (N)}}$$

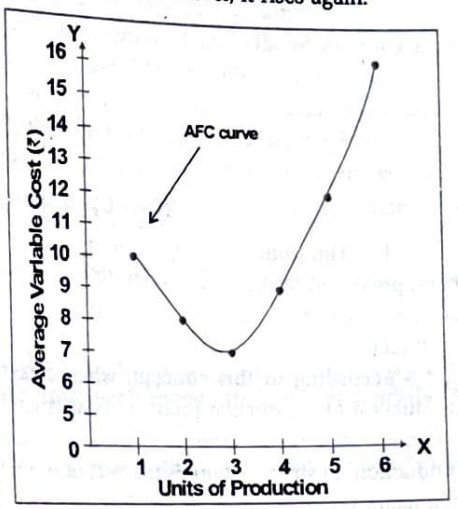
Suppose, the total variable cost of 10 units is ₹ 200

$$\text{Average Variable Cost} = \frac{200}{10} = ₹\ 20$$

2. **Schedule and Figure :** As production rises, variable cost also rises and if it is stopped, it becomes zero. Therefore, the total variable cost curve starts from origin and becomes one with a positive slope.

While average variable cost has a tendency to decrease in the beginning and then after optimum level, it begins to increase. Therefore, AVC has a tendency to decrease in the initial stage and after achieving optimum level, it rises again.

Units of Output	Total Variable Cost (In ₹)	Average Variable Cost (In ₹)
1	100	10
2	160	8
3	210	7
4	360	9
5	600	12
6	960	16



3. **Characteristics :** AVC decreases in the initial phase and then after attaining optimum level, it tends to rise because in the beginning the law of increasing return and after attaining optimum level, the law of decreasing return apply here.

4. Actual Cost and Opportunity Cost

(A) Actual cost

1. **Introduction :** In managerial economics, understanding the concepts of actual costs and opportunity costs is essential for effective decision-making and cost analysis. Both concepts are crucial in evaluating the true cost of resources used in production processes.

2. **Meaning of Actual Cost :** Actual costs refer to the direct expenses incurred by a business in the production of goods or services. The sum of all explicit and implicit costs associated with the production of goods or services. This includes direct monetary payments and the opportunity costs of using resources that could have been deployed elsewhere.

These costs are tangible and measurable and are typically recorded in financial statements. Actual costs include expenses such as labour wages, raw material costs, rent, utilities, depreciation, and other expenses directly associated with the production process. These costs are readily identifiable and represent the outflow of resources from the business.

3. **Importance of Actual Cost :**

(1) **Accurate Pricing :** By understanding actual costs, firms can set prices that cover all incurred expenses, ensuring profitability.

(2) **Profitability Analysis :** Actual cost provides a true measure of profitability by accounting for all costs, both explicit and implicit.

(3) **Resource Allocation :** It helps firms make informed decisions on resource allocation by considering the opportunity costs of their resources.

(4) **Financial Planning :** It aids in budgeting and financial planning by giving a comprehensive picture of all costs involved in production.

(B) Opportunity Cost

1. **The Concept of Opportunity Cost :** The concept of opportunity cost has been presented by Austrian economists. This concept is based on two assumptions : (1) Each factor of production has alternative uses. (2) There is full employment for each factor.

According to this concept, when a factor is employed in the process of production of a particular product, its alternative use has to be given up. Thus, the income of the factor forgone is the opportunity cost of the factor employed in production. In short, unborn is the cost of born. In other words, "the best alternative of a factor forgone is the opportunity cost of the factor." **Prof. Benham writes,** "*Every economic decision is the choice from various options. The production cost of any commodity is not the monetary cost or labour of the factors employed in it but it is the choice of one and letting go the other choice which is the opportunity cost of the former.*"

In the words of **Henderson,** "*Opportunity cost of a commodity means the reduction in supply of other useful commodity due to the production of that commodity.*"

According to **Meyers,** "*The cost of production of any commodity is equal to the value of the factors used in production of the commodity and its value can be known through the best alternative use of that factor.*"

Example : The concept of opportunity cost is found in all the stages of production. Suppose, cotton, tobacco or bajri can be grown on a piece of land. If cotton is grown, it procures the income of ₹ 4,000. If tobacco is grown, it obtains the income of ₹ 3,000 and if bajri is grown, it brings the income of ₹ 2,000. The entrepreneur will use it to produce cotton and forgo the best alternative of growing tobacco. Thus, the income of ₹ 3,000 that can be obtained by growing tobacco is the opportunity cost of the land. In the same way, opportunity cost of other factors of production can also be known. e.g. If an M.Com. gets ₹ 8,000 in a bank and if he gets ₹ 5,000 in a college, he will accept the job in a bank. The income he would have earned in college can be called the opportunity cost of his work in the bank.

In short, the concept of opportunity cost is not calculated directly with money but through other things and services : (1) If all economic decisions are taken rationally and (2) If all the factors of production are perfectly efficient and dynamic, in the long-run monetary cost and opportunity cost become equal. Suppose if a person with M.Com. degree gets ₹ 12,000 in a bank and ₹ 10,000 in a mill, he will to work in a bank. ₹ 10,000 can be called the opportunity cost but this difference arises for a short term only. In the long-term, the supply of workers will increase in bank and supply of workers will be scarce in mills. As a result, there will be reduction of wages in banks and increase in wages in mills. Ultimately, there will be tendency of equal monetary cost and opportunity cost

2. **Limitations of the Concept of Opportunity Cost :**

(1) **Useless for the factor with one use only :** This concept does not apply to the factors of production with single use. e.g. machine for ice. It is difficult to know the opportunity cost of such a thing.

(2) **Unrealistic assumption of perfect employment :** This concept depends on the assumption that there is perfect employment in the market. In reality, there is never perfect employment. If when unemployed factor is employed, no alternative income is to be dropped. Therefore, it is a great problem here what opportunity cost must be calculated.

(3) **Unrealist assumption of perfect competition :** This concept is based on perfect competition and perfect dynamism of factors of production. In fact, due to social, regional and technological reasons, perfect dynamism is impossible.

(4) **Indifference towards other factors :** When the owner of factors employs a factor of production, he considers not only opportunity cost but also the working condition, stability of employment etc.

3. **Importance of the Concept of Opportunity Cost :** The concept of opportunity cost is useful in determining relative values of the things. The prices of goods are determined on the basis of alternative uses of factors of production.

The concept of opportunity cost is useful to consumers, producers and the government. It is useful to the producer in determining where the factor of production must be employed. e.g. It is useful in taking the decision whether the farmer should sow cotton or tobacco in a piece of land. The government can decide on the basis of this concept whether it should use its limited budget on agriculture or industries.

To explain the modern concept of rent, the concept of opportunity cost has been used. The concept of hedging income is based on this concept. American economists have used this concept extensively to explain economic analysis freely.

4. **Difference between Actual Costs and Opportunity Costs :**

(1) **Nature :** Actual costs are explicit and measurable expenses incurred by the business in the production process. Opportunity costs, on the other hand, are implicit and represent the value of the forgone alternative.

(2) **Calculation :** Actual costs are calculated by summing up the expenses incurred for labour, raw materials, utilities, and other direct costs. They are recorded in financial statements and are readily quantifiable. On the other hand, opportunity costs are more subjective and require considering the foregone benefits of the next best alternative.

5. **Managerial Decision-Making :** Understanding actual costs and opportunity costs is crucial for managerial decision-making:

(1) **Cost Analysis :** Managers need to evaluate both actual costs and opportunity costs to gain a comprehensive understanding of the true cost of production. Analyzing actual costs helps in monitoring and controlling expenses, identifying areas for cost reduction, and improving efficiency. Incorporating opportunity costs allows managers to make better decisions by considering the trade-offs and alternative uses of resources.

(2) **Pricing Decisions :** Considering opportunity costs is vital in pricing decisions. Managers need to assess the opportunity cost of resources used in production to determine a suitable price that covers both actual costs and forgone opportunities. Neglecting opportunity costs may result in underpricing and missed profit opportunities.

(3) **Resource Allocation :** Managers need to consider both actual costs and opportunity costs when allocating resources. By evaluating the opportunity costs associated with different uses of resources, they can prioritize the most valuable opportunities and make optimal resource allocation decisions.

(4) **Investment Evaluation :** Opportunity costs play a crucial role in investment evaluation. When considering investment options, managers need to assess the potential returns of each option and compare them to the opportunity costs of the capital invested. This helps in selecting the investment option that provides the highest value relative to the forgone alternatives.

6. **Conclusion :** Actual costs and opportunity costs are important concepts in managerial economics. Actual costs represent the explicit expenses incurred in the production process, while opportunity costs reflect the value of the forgone alternative. Understanding both concepts is essential for cost analysis, pricing decisions, resource allocation, and investment evaluation. By considering actual costs and opportunity costs, managers can make informed decisions that enhance efficiency, profitability, and resource utilization.

5. Direct Cost and Indirect Cost

1. **Introduction :** In managerial economics, understanding the concepts of direct costs and indirect costs is crucial for accurate cost analysis and decision-making. Both types of costs provide insights into the expenses incurred by a business and help determine the true cost of production.

2. **Meaning of Direct Cost :** Direct costs, also known as cost of goods sold, are expenses that can be directly attributed to the production of goods or services.

Direct costs are expenses that can be directly attributed to a specific cost object, such as a product, project, department, or activity. These costs are easily traceable and measurable.

"Direct costs as those which vary with the level of output." – **Marshall**

"Direct costs as those that can be directly attributed to the production of a specific good or service, such as raw materials, labor, and energy." – **Pigou**

These costs vary in direct proportion to the level of production or the quantity of output. Direct costs can be easily traced and assigned to a specific product, process, or activity. Examples of direct costs include the cost of raw materials, direct labor wages, and other expenses specifically associated with the production process. These costs are directly and clearly linked to the production activity.

3. **Meaning of Indirect Cost :** Indirect costs, also known as overhead costs or fixed costs, are expenses that cannot be directly attributed to a specific product or activity.

"Indirect costs as those which do not vary with the level of output."–Marshall

"Indirect costs as costs that are not directly traceable to a specific product or service but are necessary for the overall production process to occur, such as rent, utilities, administrative salaries, etc." – Pigou

Indirect costs are expenses that cannot be directly traced to a specific cost object. These costs are incurred for the benefit of multiple cost objects and are often allocated using some method of distribution.

These costs do not vary with the level of production or the quantity of output in the short run. Indirect costs are incurred to support the overall operation of the business rather than the production of specific goods or services. Examples of indirect costs include rent, utilities, administrative expenses, salaries of management personnel, and depreciation of fixed assets. Indirect costs are necessary for the business to function, but they are not directly tied to individual production units.

4. Differences between Direct Costs and Indirect Costs : The main differences between direct costs and indirect costs can be summarized as follows:

(1) Traceability : Direct costs can be easily traced and assigned to specific products, processes, or activities. Indirect costs, on the other hand, cannot be directly allocated to specific units of production and require allocation methods based on predetermined criteria or cost drivers.

(2) Variability : Direct costs vary with the level of production or the quantity of output. They increase or decrease in direct proportion to changes in production. Indirect costs, however, remain relatively constant in the short run, regardless of changes in production levels.

(3) Assignability : Direct costs are directly assigned to the product or activity, allowing for accurate cost allocation and tracking. Indirect costs are allocated to different cost centers or departments based on predetermined allocation methods, which may introduce some level of estimation and allocation uncertainty.

(4) Impact on Decision-making : Direct costs are critical for making short-term production decisions, as they provide immediate cost information related to specific units of production. Indirect costs, on the other hand, play a significant role in long-term planning and decision-making, as they contribute to the overall cost structure and profitability of the business.

5. Significance in Managerial Economics : Understanding direct costs and indirect costs is crucial for managerial decision-making in several aspects:

(1) Cost Analysis : Managers need to consider both direct costs and indirect costs to conduct comprehensive cost analysis. This helps in accurately determining the total cost of production and evaluating the profitability of specific products, processes, or activities.

(2) Pricing Decisions : Direct costs are essential in determining appropriate pricing strategies to cover the direct expenses incurred in producing goods or services. Indirect costs, however, also need to be considered to ensure long-term sustainability and profitability.

(3) Cost Control : Direct costs provide a basis for monitoring and controlling expenses related to specific products or activities. Indirect costs require careful management and control, as they contribute to the overall cost structure of the business.

(4) Profitability Analysis : Understanding the relationship between direct costs and indirect costs is crucial for assessing the profitability of specific products, processes, or activities. By analyzing the contribution of direct costs and considering the impact of indirect costs, managers can identify the most profitable areas of the business and make informed decisions for resource allocation and investment.

6. Conclusion : Direct costs and indirect costs provide valuable insights into the cost structure of a business. Direct costs are directly attributable to specific products or activities, while indirect costs support the overall operation of the business. Understanding both types of costs is essential for accurate cost analysis, pricing decisions, cost control, and profitability analysis. By considering both direct costs and indirect costs, managers can make informed decisions and optimize the cost-efficiency and profitability of their operations.

6. Private Cost and Social Cost

1. Introduction : There are not certain other costs which arise due to functioning of the firm but are not normally marked in the business decisions nor does are such cost explicitly borne by the firms. The costs of this category are borne by the society.

2. Definition of Private Cost : The private cost is any cost that a person or firm pays in order to buy or produce goods and services. This includes the cost of labour, material, machinery and anything else that the person of firm pays for. The private cost does not take into account any negative effects or harm caused as a result of the production.

Private costs are those which are actually incurred or provided for by an individual or a firm on the purchase of goods and services from the market. For a firm, all the actual costs both explicit and implicit are private costs. Private costs are internalized costs that are incorporated in the firm's total cost of production.

3. Definition of Social Cost : Social cost is the total cost to society. It includes private costs plus any external costs. Social costs are the sum of private costs borne by the economic actor and the external costs imposed on others by an activity. External costs are costs that are imposed on others that are not compensated for.

Thus, the total cost generated by a firm's working may be divided into two categories:

(i) Those paid out or provided for by the firms, and

(ii) Those not paid or borne by the firms- it includes use of resource freely available plus the disutility created in the process of production.

The costs of the former category are known as private costs and of the latter category are known as external or social costs.

4. The example of Social Cost : Mitva Oil Refinery discharging its wastage in the Yamuna river causes water pollution; Mills and factories located in a city cause air pollution by emitting smoke.

Similarly, plying cars, buses, trucks, etc., cause both air and noise pollution. Such pollutions cause tremendous health hazards which involve health cost to the society as a whole. Such costs are termed external costs from the firm's point of view and social cost from society's point of view.

The relevance of the social costs lies in understanding the overall impact of firm's working on the society as a whole and in working out the social cost of private gains.

➢ **Social costs include :**

(a) The cost of resources for which the firm is not compelled to pay a price, i.e., atmosphere, rivers, lakes, and also for the use of public utility services like roadways, drainage system, etc., and

(b) The cost in the form of 'disutility' created through air, water and noise pollutions, etc. The costs of category.

The private and public expenditure, however, serve only as an indicator of 'public disutility', they do not give the exact measure of the public disutility or the social costs.

5. Difference between Private Cost and Social Cost :

	Private Cost	Social Cost
1.	Private cost only includes the cost incurred by a firm or an individual.	Social cost includes private costs as well as the other external costs.
2.	Private cost has nothing to do with society.	Social cost is all about society's loss or benefit.
3.	*Example* : Private costs of an airport are- Cost of constructing the airport and wages of the workers.	*Example* : Social costs of the airport are the private costs as well as noise and air pollution, risk of an accident, loss of landscape.

7. Explicit and Implicit Costs

1. Introduction : In economics the classification of production cost is done on different point of view. E.g. fixed cost, variable cost, marginal cost, average cost, monetary cost, real cost and opportunity cost. Same as the product cost can further classified into two parts : (i) explicit cost, (ii) implicit cost. These classification is connected with opportunity cost.

For economist these cost concepts are not limited to monetary payment only. Opportunity cost is the value of the bast foregone alternative. In some cases the opportunity cost involves a monetary payment or compensation. In other cases there is no compensation monetary or otherwise. This distinction gives rise to two types of opportunity cost. (i) Opportunity explicit cost and (ii) Opportunity implicit cost.

2. Explicit Cost : An explicit cost is a direct payment made to others in the course of running a business. In other words, the cost of paying for factors involved in buying or producing goods or services where the factors come from outside producers. Expenses that are contractual in nature and definite in amount e.g. rent, salaries, wages or utility bills. Explicit costs are easily recognizable for classification and recording.

"Explicit costs as the actual expenses incurred by a firm for the purchase of productive inputs like labor, materials, rent, and utilities." – **Marshall**

"Explicit costs similarly, emphasizing the monetary outlays made by a business to acquire resources for production." – **Adam Smith**

An explicit cost is characterized by a monetary payment or some other form of compensation to the person who initially foregoes the satisfaction. The person foregoing the satisfaction then, at the very worst, breaks even while the opportunity cost is transferred to the person making the payment. The person receiving the payment can purchase other satisfaction, while the person making payment foregoes satisfaction that could have been purchased with the money.

In short, a business expenses that is easily identified and accounted for. Explicit costs represent clear, obvious cash flows from a business that reduce its bottom line profitability.

3. Implicit Cost : Implicit costs are those costs which are not actually incurred and therefore also not recorded in the books of accounts. It is closely related to opportunity cost which implies that if a person chose a alternative he is foregoing the benefit he may he received by choosing the other alternative. In case of company implicit cost is the cost of capital which the owner may have earned if he or she had invested somewhere else or salary he could have received if he or she had worked elsewhere instead of working in the company. Implicit cost are also called economic costs, and there is no outlay of any cash from the company in case of implicit costs.

"Implici. costs as the opportunity costs of utilizing resources in a specific economic activity rather than in their next best alternative use." – **Milton Friedman**

"Implicit costs as the forgone benefits from the next best alternative use of resources." – **Samuelson**

The costs associated with an action's trade-off. It is related to explicit costs, which represent the actual costs of an activity, and represents a cost that is not recorded but instead implied. For example, an employee could take a vacation and travel. The explicit costs would include travel expenses, the cost of a hotel room, and costs related to entertainment. The implicit costs relate to the trade-offs, namely the wages that the employee could have earned if the vacation was not taken.

In economic an implicit cost also called an imputed cost, implied cost or notional cost is the opportunity cost equal to what a firm must give up in order to use factors which is neihter purchase nor hire.

Implicit cost, according to economists, happens when an individual foregoes an alternative action, without making the actual payment. It is basically a cost represented by a lost chance, say in the use of a company's resources, more often excluding cash. The costs are intangible as they are hardly accounted for e.g. one may decide to go to the movies instead of work and earn extra cash. The individual will incur explicit costs by buying say a soda and the movie's ticket.

The implicit costs in this case will be what he would have earned, if he had foregone the movie and work. Another illustration is a business owner who exerts so much pressure in the maintenance of the company, instead of working on expanding the actual business.

➡ **Implicit costs and economic profits :** Implicit costs, according to macroeconomics, are a component of an economic profit. The total revenues, less implicit and explicit costs equal economic profit. Note that accounting profit is as a result of total revenues less explicit costs, but because economic profit encompasses opportunity costs, it will either be equal or less than accounting profit. Explicit costs, added to implicit costs equals total costs, Note that implicit cost is a component of the total cost and not equal to it.

For instance, from a company or firm's point of view, an implicit cost is an opportunity cost of using its own resources. The implicit cost therefore is the amount of revenue which its own resources could generate in their best alternative use. The best alternative use characteristically signifies the opportunity cost. This is why, unlike an explicit cost which is not part of an economic cost, an implicit cost measures the revenue that can be generated, less the potential gain.

When calculating or measuring an implicit cost, in this case the opportunity cost, one looks at the best possible, but forgone opportunity or decision to create extra revenue. For instance, factory A has a total number of 30 employees and produces bicycles annually, which create total revenue of say ₹ 1,50,000. The same factory could have the same number of employees produce textiles, which could create total revenue of ₹ 4,00,000. Still on point, factory A could still use the same worktorce and materials to produce plastic toys, which could create total revenue of ₹ 1,00,000.

Therefore, the total implicit costs of factory A will be equal to ₹ 2,00,000. Because the best alternative option of the factory would have produced ₹ 4,00,000, therefore less the ₹ 1,50,000.

Note that when calculating implicit costs, one ignores the less profitable options available, such as the option of factory A to produce toys, which would generate ₹ 50,000 lower than its normal revenue.

➡ **Is Investment an implicit Cost :** According to the definition of implicit cost which means a cost standing in for a lost opportunity by using company's resources, excluding money, investment as an implicit cost is still debatable among pundits in the economic world. But rationally, according to opportunity cost, investments can be an example of implicit costs. This is because it is a firm or company investing its own money is something that could have been invested in something else. In other words, it is an opportunity cost incurred by a firm using their own money.

Implicit costs are the opportunity costs of resources the firm's owner makes available for production with no direct cash outlays.

Examples include the value of an entrepreneur's labour and the interest that could be earned were the owner's assets (including the values of stock in corporations) not tied up in the business, in entering the software business and creating. Windows, and subsequently Microsoft, Bill Gates dropped out of college and made a conscious decision to surrender what wages he could have made as a college graduate if his endeavor failed. Though it paid off for him, similar decisions are made on a daily basis by people all over the world and it doesn't always end favorably for everyone. Firms must all bear both implicit and explicit costs into consideration to make rational business decisions.

4. Difference between Explicit cost and Implicit cost :

(1) Explicit cost is contractual and direct payment in money terms. In implicit cost, contractual direct payment in money terms is not done.

(2) Explicit cost is posted in accounting books where as implicit cost is not posted in accounting books.

(3) Explicit costs include the exchange of money for a good or service. The implicit cost refers to the tangible costs for which no money is exchanged.

(4) The cost of paying for factors involved in buying or producing goods or services where the factors come from outside producer. The opposite, implicit cost represents payments for factors which a firm actually produces or owns itself.

(5) Explicit cost is the monetary payment mode by a firm for use of an input owned or controlled by others on other hand, implicit cost represent the value of foregone opportunities but do not involve an actual cash payment.

(6) Explicit cost is the cost that is solidly reported based on numbers and statistics Implicit cost is considered as the cost that has occurred on an enterprise but not initially reflected and reported as a direct expenditure.

8. Business Cost and Full Cost

1. **Business costs :** Business costs include all the expenditures incurred to carry out a business. The concept of business cost is similar to the explicit costs.

Business costs, also known as explicit costs, are the direct, out-of-pocket expenses that firms incur in the process of producing goods or services. These costs involve actual financial transactions and include:

(1) **Wages and Salaries :** Payments to employees.

(2) **Rent :** Payments for using property or equipment.

(3) **Materials and Supplies :** Costs of raw materials and supplies used in production.

(4) **Utilities :** Payments for electricity, water, and other utilities.

(5) **Interest on Loans :** Payments made to lenders for borrowed funds.

(6) **Taxes :** Payments to the government.

These costs are recorded in the firm's financial statements and are used to calculate the firm's profit by subtracting them from total revenue.

2. **Full costs :** The full costs include business costs, opportunity costs, and normal profit. Full costs of an organisation include cost of materials, labour and both variable and fixed manufacturing overheads that are required to produce a commodity.

Full cost, or economic cost, includes both explicit costs and implicit costs. Implicit costs represent the opportunity costs of using resources that the firm already owns. These costs are not directly paid out in money but reflect the potential earnings from the next best alternative use of those resources. Full cost includes:

(1) **Explicit Costs :** All the direct, out-of-pocket expenses listed above.

(2) **Implicit Costs :** The opportunity costs of using the firm's own resources, such as:

(3) **Owner's Time and Effort :** The salary the owner could have earned working elsewhere.

(4) **Capital :** The return the firm could have earned by investing its capital elsewhere.

(5) **Land and Buildings :** The rental income foregone by using the land or buildings for the current business instead of renting them out.

3. **Difference between business cost and full cost :**

Business Cost (Explicit Cost)	Full Cost (Economic Cost)
1. Involves actual cash outflows.	1. Includes both cash outflows and opportunity costs
2. Directly recorded in financial statements.	2. Not always directly recorded in financial statements.
3. Easier to measure and quantify.	3. More comprehensive measure of total cost.

4. **Importance in Decision-Making :** Understanding both business costs and full costs is crucial for firms when making decisions about production, pricing, and investment. While business costs help in day-to-day financial management and profitability analysis, full costs provide a broader perspective on the true cost of resource usage, aiding in long-term strategic planning.

e.g. a firm considering a new project should evaluate not only the explicit costs but also the implicit costs to determine the true economic profitability of the project. This comprehensive view ensures that resources are allocated efficiently and that the firm maximizes its economic profit, which is the difference between total revenue and total economic cost.

9. Incremental Cost and Marginal Cost

[A] Incremental Cost

1. **Meaning of Incremental Cost :** Incremental cost is the additional total cost that arises from increasing the level of production or activity by a certain amount, which might be more than one unit. This concept is broader and includes the analysis of changes in costs over a range of production levels or activities.

2. **Characteristics of incremental cost :** Following are the important characteristics of incremental cost.

(1) **Additional Cost Focus :** Incremental cost measures the change in total cost when production is increased by one unit. It only considers the variable costs that fluctuate with production levels, such as materials and labor, not fixed costs which remain constant regardless of production levels.

(2) **Short-Term Analysis :** Incremental cost is particularly useful for short-term decisions since it evaluates the cost of immediate changes in production levels.

(3) **Decision-Making Tool :** Businesses use incremental cost to decide whether to increase production. If the incremental cost of producing one more unit is less than the revenue generated from selling that unit, it makes sense to increase production.

(4) **Price Setting :** Understanding incremental costs helps businesses set prices. By knowing how costs increase with each additional unit, businesses can ensure prices are set high enough to cover these costs and achieve profitability.

(5) **Cost Control :** Monitoring incremental costs helps identify inefficiencies. If incremental costs rise unexpectedly, it may indicate problems in production processes or cost management that need addressing.

(6) **Economies of Scale :** Incremental cost often decreases as production increases due to economies of scale. When businesses produce more, they can spread fixed costs over more units and may benefit from bulk purchasing of materials.

(7) **Dynamic Nature :** Incremental costs can change with varying production levels. For example, producing the first few units may be costly, but as production scales up, the cost per additional unit may decrease, reflecting the business's growing efficiency.

(8) Non-Linear Behaviour : Incremental costs are not always constant. They can increase if production reaches capacity limits, requiring additional investment in new equipment or facilities.

3. Managerial Decision : It plays a key role in various managerial decisions, such as:

(1) Decision-Making for Projects : Incremental cost is used to evaluate the financial impact of business decisions, such as launching a new product, entering a new market, or expanding operations. This includes considering additional fixed and variable costs over a relevant range of output.

(2) Cost-Benefit Analysis : In scenarios where a firm must choose between different projects or strategies, incremental cost helps compare the total additional costs against the expected additional benefits (revenues).

(3) Short-Term vs Long-Term Decisions : Incremental cost can be used for both short-term operational decisions and long-term strategic planning. For instance, deciding whether to run an extra production shift might involve incremental cost analysis in the short term, while planning to build a new factory involves long-term incremental cost considerations.

(4) Budgeting and Financial Planning : Managers use incremental cost analysis for budgeting purposes, helping to forecast the financial implications of changes in production levels or business activities.

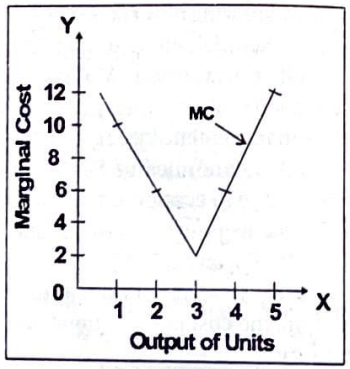
[B] Marginal cost

1. Meaning of Marginal Cost : Marginal cost means addition to the total cost caused by producing one more unit of output.

2. Marginal Cost : The change in the production cost due to change in the output is called marginal cost. This is also defined as an addition to the cost.

Schedule & Graph :

Output	TC	MC
1	10	10
2	16	6
3	18	2
4	24	6
5	36	12



3. Characteristics of Marginal Cost : The characteristics of Marginal cost can be stated as follows :

(1) Marginal cost means marginal variable cost : The production cost includes two types of cost. Fixed cost and variable cost. The cost which is fixed in the short period and which is independent to output is fixed cost. The cost which increases or decreases with the rise or fall in the output is called variable cost. The marginal cost is related with the variable cost. Thus marginal variable cost can be called as marginal cost (M.C.)

Suppose the cost of 10 unit is ₹ 10. This includes fixed cost (₹ 6) and variable cost (₹ 4) If the cost of production of 11 units is ₹ 15 then the marginal cost is ₹ 5 which was ₹ 4 in the earlier case. Thus the marginal variable cost is defined as marginal cost.

(2) Marginal cost can be increasing or decreasing : The change in the marginal cost depends upon the returns to scale. If increasing returns to scale are there, then the additional cost shows declining trend. If diminishing returns are there then the additional cost would be rising.

The marginal cost starts rising after optimum use of the advantages of increasing returns. When output rises at the faster rate than cost of production the marginal cost declines. In the reverse case when output rises at the slower rate than the cost of production, the marginal cost shows rising trend.

(3) Marginal cost can't be zero or negative : The change in the cost of production due to an additional output is marginal cost. It is true that when additional unit is produced it definitely involves additional cost. So the marginal cost cannot be zero or negative. Fixed cost can remain constant but in order to produce additional unit, raw material, labour, electricity etc. is required which can be available only by the additional cost. Thus the variable cost is directly and positively related to the output.

(4) Nature : In the normal circumstances the marginal cost shows declining trend in the beginning due to the advantages of returns to scale, but when constant return is available additional cost also will remain steady and then the cost starts rising under the diminishing returns. Under the constant returns AC and MC are parallel to OX axis.

4. Managerial Decision : It plays a key role in various managerial decisions, such as:

(1) Optimal Production Level : Firms use marginal cost to determine the optimal level of production. Production continues as long as the marginal cost of producing an additional unit is less than the marginal revenue gained from selling that unit.

(2) Pricing Strategies : Understanding marginal costs helps firms in setting prices. The firm will aim to price products in a way that covers the marginal cost and yields profit.

(3) Profit Maximization : A firm maximizes its profit when marginal cost equals marginal revenue. This condition helps in determining the best output level.

(4) Resource Allocation : Marginal cost analysis helps in the efficient allocation of resources by comparing the cost of additional resource usage to the benefit derived from it.

5. Difference between Incremental cost and Marginal cost :

(1) Scope : Marginal cost typically focuses on the cost of producing one additional unit, while incremental cost can refer to the cost of increasing production by multiple units or undertaking an entire new project.

(2) Application : Marginal cost is often used in operational decisions related to optimal output and pricing, whereas incremental cost is more frequently applied in strategic decision-making and evaluating the financial impact of significant changes or investments.

6. Conclusion : Both marginal cost and incremental cost are essential in managerial economics, aiding managers in making informed decisions that balance costs and revenues to achieve profitability and efficiency. While marginal cost provides insights into the cost of individual unit changes, incremental cost offers a broader view of the financial implications of larger changes in production or business activities.

10. Short Run and Long Run Cost Function (Curves)

1. Meaning of Cost Function : The concept of a cost function is central to economics and managerial decision-making. It represents the relationship between the cost of production and the level of output produced.

A cost function expresses the total cost of production as a function of the quantity of output produced.

2. Characteristics of Cost Functions :

(1) Shape : The shape of the cost function can provide insights into the production process. A typical cost function may initially show decreasing costs due to economies of scale and then increasing costs as diseconomies of scale set in.

(2) Economies of Scale : When increasing the production level leads to lower average costs, the firm is experiencing economies of scale.

(3) Diseconomies of Scale : When increasing production leads to higher average costs, typically due to inefficiencies, the firm is experiencing diseconomies of scale.

(4) Break-Even Analysis : The cost function helps in determining the break-even point, where total revenues equal total costs, indicating no profit or loss.

3. Importance in Managerial Economics :

(1) Pricing and Output Decisions : Understanding the cost function helps managers in setting prices and determining the optimal level of output.

(2) Profit Maximization : By analyzing the cost function, firms can identify the output level where the difference between total revenue and total cost is maximized.

(3) Cost Control : Monitoring cost functions allows firms to manage and control costs, identify inefficiencies, and make informed decisions on cost-saving measures.

(4) Investment Decisions : The cost function can guide decisions about scaling up production, investing in new technology, or entering new markets by evaluating how these decisions impact costs.

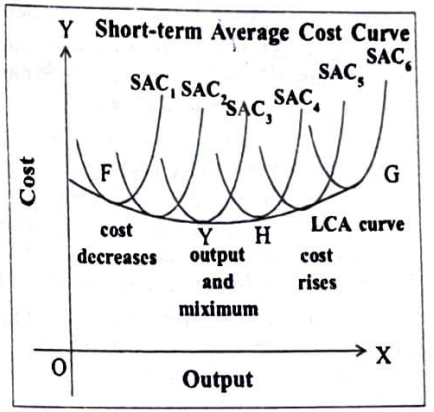
4. Short Run and Long Run Cost Curves :

According to Prof. Benham, the classification of cost into fixed and variable is valid for short period only. In the long run, all costs became variable. As the bank

agent determines the ratio of cash reserve on the basis of experience, the entrepreneur also makes changes in the scale of a unit as all costs in the long run are variable and determine the appropriate volume of the firm. Therefore, the long run average cost curve is more shallow than the short run average cost curve. e.g. wages paid to permanent labourers are fixed for a short period but if the demand of a particular commodity decreases, and if this decrease seems to be permanent to entrepreneur, the employer may terminate the services of the permanent labourer also. In such cases, other fixed costs may also turn into variable costs.

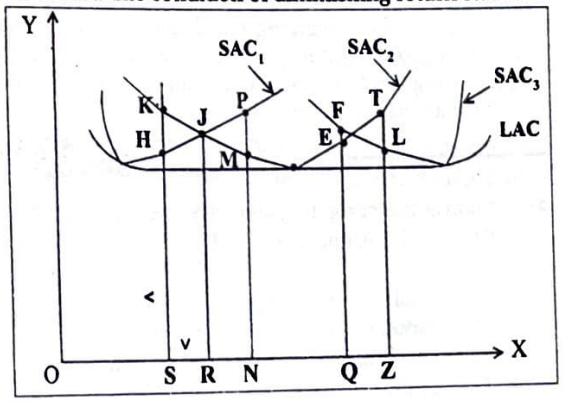
Suppose, the demand of a product produced by the entrepreneur is more than his target and if this increase seems to be permanent to him, he may use more sophisticated machinery and reduce average cost. In the figure given here, LAC is a long run average cost curve. From F to Y, it decreases, then from Y to H, it remains constant. At last in the third stage from H to G, it increases.

Causes : (A) In the first stage from F to Y as indivisible factors of production are used, increasing return takes place and LAC reduces as there is increasing return.



(B) In second stage, due to changes in plant optimum production takes place. Due to optimum level of output both marginal production and average production become maximum. As a result, from Y to H, LAC becomes constant and minimum. In this phase, as the economies of scale are maximum, LAC becomes constant.

(C) In the third stage, as various plants are changed, the firm becomes very large. Now diseconomies of scale start. The condition of diminishing return starts. As a result, LAC cost increases.



In the above mentioned figure, on OX output has been mentioned and on OY cost has been mentioned. SAC-1, SAC-2, SAC-3 indicate average cost at different levels of production. The intelligent entrepreneur will choose the plant with less cost. This figure shows at what production, the entrepreneur will chose the plant.

(1) At OS, which plant will he choose ? OS indicates the volume of production. At that production, he will choose the first plant. Why will he not choose the second plant ? Average cost of first plant in less than the AC of second plant. It SH < SK. (2) At or, which plant will he choose ? At OR the entrepreneur will be neutral between the first and second plant because AC of the first plant = AC of the second plant. At this juncture, AC is equal. However, it is more advisable to choose second plant than the first because at that volume of output, the AC of first plant is in the condition of increasing while the condition of second plant is in the condition of decreasing. (3) At ON, which plant will he choose ? He will choose second plant at ON, not the first because the AC of the second plant is less than that of the first plant. It is NM < NP. (4) At OQ, which plant will he choose ? At OQ, he will choose the second plant, not third because QE < QF. (5) At OZ, which plant will he choose ? He will choose the third plant, not second because ZL < ZT.

➤ **Conclusion :** (1) In the long run, all factors and technology change and they are changeable. The entrepreneur will try to change plants to decrease the average cost of production. He will try to minimise it (2) LAC is made with arrangement of different plants. That is why it is called planning curve. (3) Due to long term factors, LAC curve becomes shallow - shaped. (4) LAC curve is made of different plants and therefore, it is called envelope shaped.

➤ **In the Long Run all Costs are Variable :** In short run, the level of production goes up and so average variable cost increases in remarkable proportion. In the long run it increases very little. Big machines, administrative set up etc. are indivisible in the short run but in the long run, they are also divisible. Therefore, long run average curve is shallow and it has flat slope at the bottom. Long run cost curve is called, Envelope Curve, also because it contains all short run curves. Long run average cost curve is also called planning curve because in the long run, it is useful in taking decisions regarding production. The producer can understand the effects of increasing or decreasing the levels of production on cost of production from the trend of the long term average cost curve.s

Objective Study

➤ **Choose the correct option from the given options :**

(1) What is the primary focus of accounting costs from the management point of view ?
(A) Decision-making regarding production
(B) Economic efficiency
(C) Expenditure incurred in production
(D) Opportunity costs

(2) Which costs are not included in accounting costs but are included in economic costs ?
(A) Wages and salaries (B) Cost of raw materials
(C) Imputed costs (D) Insurance charges

(3) What type of costs do economic costs encompass ?
(A) Only explicit costs (B) Only implicit costs
(C) Both direct and indirect costs (D) Only tax-related costs

(4) Why are economic costs considered a broad concept ?
(A) They include only financial costs
(B) They include both explicit and implicit costs
(C) They are used only for tax purposes
(D) They focus solely on accounting profits

(5) Which cost concept is useful for managerial decision-making purposes ?
(A) Accounting cost (B) Economic cost
(C) Both accounting cost and economic cost
(D) Neither accounting cost nor economic cost

(6) What does accounting profit equal to ?
(A) Total revenue - explicit cost (B) Total revenue - implicit cost
(C) Total revenue - total cost (D) Total revenue + implicit cost

(7) Which costs are recorded in the firm's books by an accountant ?
(A) Explicit costs (B) Implicit costs
(C) Both explicit and implicit costs (D) Opportunity costs

(8) What does economic profit equal to ?
(A) Total revenue - explicit cost (B) Total revenue - implicit cost
(C) Total revenue - total cost (explicit + implicit costs)
(D) Total revenue + explicit cost

(9) Which cost is useful for financial reporting and tax purposes ?
(A) Economic cost (B) Accounting cost
(C) Opportunity cost (D) Implicit cost

(10) What type of costs help to ascertain opportunity costs impacting profitability ?
(A) Accounting costs (B) Economic costs
(C) Fixed costs (D) Variable costs

(11) Why is it essential for a business owner to know the cost of production ?
(A) To reduce employee salaries (B) To optimize production processes
(C) To increase the selling price of products
(D) To decrease raw material quality

(12) What is the definition of production cost ?
(A) The total revenue earned from selling a product
(B) The total price paid for resources used to manufacture a product or create a service
(C) The profit margin on each product
(D) The retail price of the product

(13) Which of the following is included in the production cost ?
(A) Employee bonuses (B) Office rental expenses
(C) Raw materials (D) Marketing expenses

(14) How do production costs impact business management ?
(A) They determine the advertising budget
(B) They help in pricing goods and services properly
(C) They influence employee training programs
(D) They dictate the company's investment strategies

(15) What additional expense is mentioned as part of production costs for mining companies ?
(A) Insurance premiums (B) Royalties owed
(C) Shipping costs (D) Administrative expenses

(16) What role do accountants play in managing production costs ?
(A) Setting the company's long-term goals
(B) Keeping track of production processes and costs involved
(C) Managing employee relations
(D) Designing marketing campaigns

(17) Which of the following best describes the purpose of understanding production costs in a business ?
(A) To enhance the quality of raw materials
(B) To ensure realistic delivery scheduling
(C) To increase taxation liabilities
(D) To expand the business internationally

(18) What do actual costs refer to in managerial economics ?
(A) The indirect expenses associated with the production of goods or services
(B) The direct expenses incurred by a business in the production of goods or services
(C) The total sales revenue generated by a business
(D) The expected future costs of production

(19) Which of the following is not typically included in actual costs ?
(A) Labour wages (B) Raw material costs
(C) Rent and utilities (D) Interest income from investments

(20) What is an opportunity cost ?
(A) The actual money spent on production
(B) The potential benefits foregone by choosing one alternative over another
(C) The total cost of all resources used in production
(D) The fixed costs of production

(21) Who presented the concept of opportunity cost ?
(A) Keynesian economists (B) Austrian economists
(C) Classical economists (D) Neoclassical economists

(22) Which statement best describes the relationship between actual costs and opportunity costs ?
(A) Actual costs are implicit, while opportunity costs are explicit.
(B) Actual costs are measurable and recorded, while opportunity costs are the value of the forgone alternative.
(C) Both actual costs and opportunity costs are always recorded in financial statements.
(D) Opportunity costs are the same as fixed costs.

(23) Why is understanding opportunity costs important for pricing decisions ?
(A) It helps managers set prices that cover fixed costs.
(B) It allows managers to ignore direct costs and focus on indirect costs.
(C) It ensures that prices reflect both actual costs and the value of forgone alternatives.
(D) It simplifies the decision-making process by focusing only on explicit costs.

(24) Which of the following is a limitation of the concept of opportunity cost ?
(A) It is useful for factors with multiple uses.
(B) It assumes perfect employment, which is unrealistic.
(C) It is based on the assumption of imperfect competition.
(D) It only considers monetary costs, ignoring other factors.

(25) How do actual costs aid in financial planning ?
(A) By ignoring implicit costs and focusing solely on explicit costs
(B) By providing a comprehensive picture of all costs involved in production
(C) By focusing only on the future expected costs
(D) By helping managers decide on the best alternative use of resources

(26) In the context of resource allocation, why should managers consider opportunity costs ?
(A) To reduce the actual costs incurred in production
(B) To evaluate the trade-offs and alternative uses of resources
(C) To focus on fixed costs and ignore variable costs
(D) To determine the direct expenses associated with production

(27) What role do opportunity costs play in investment evaluation ?
(A) They help managers ignore actual costs and focus on future costs.
(B) They allow managers to assess the potential returns compared to forgone alternatives.
(C) They ensure that all explicit costs are covered in the investment decision.
(D) They simplify the decision-making process by focusing only on direct costs.

(28) What is another term for direct costs ?
(A) Accounting costs (B) Overhead costs
(C) Variable costs (D) Sunk costs

(29) Which of the following is an example of an indirect cost ?
(A) Raw materials (B) Direct labor wages
(C) Utilities (D) Cost of packaging

(30) How do direct costs behave in relation to production levels ?
(A) They remain constant regardless of production levels.
(B) They vary in direct proportion to the level of production.
(C) They only change when production doubles.
(D) They decrease as production levels increase.

(31) Which of the following statements is true about indirect costs ?
(A) They are easily traceable to specific products.
(B) They fluctuate significantly with changes in production levels.
(C) They are allocated using predetermined criteria or cost drivers.
(D) They are not necessary for the business to function.

(32) Why is understanding the relationship between direct costs and indirect costs important for managerial decision-making ?
(A) It is only necessary for short-term production decisions.
(B) It helps in setting long-term pricing strategies but not in cost control.
(C) It aids in accurate cost analysis, pricing decisions, cost control, and profitability analysis.
(D) It is primarily useful for external financial reporting purposes.

(33) What is included in private costs ?
(A) External costs (B) Costs borne by society
(C) Costs paid by the firm, including labour, material, and machinery
(D) Disutility created through pollution

(34) Which of the following best defines social cost ?
(A) Costs paid by a firm for production
(B) Costs that include only private costs
(C) Total cost to society, including private and external costs
(D) Costs of labor and materials

(35) External costs are _____.
(A) Costs incurred by the firm internally
(B) Costs paid by consumers
(C) Costs imposed on others that are not compensated for
(D) Costs included in the firm's total production cost

(36) Which of the following is an example of a social cost ?
(A) The wages paid to workers at a factory
(B) The cost of raw materials purchased by a firm
(C) Air and noise pollution caused by vehicles
(D) The cost of machinery used in production

(37) The cost of resources for which a firm does not pay, such as atmosphere or rivers, falls under which category ?
(A) Private cost (B) Implicit cost (C) Explicit cost (D) Social cost

(38) Which of the following is not a component of social cost ?
(A) Cost of constructing infrastructure (B) Health hazards due to pollution
(C) Public disutility created by a firm's activities
(D) Internalized costs included in the firm's production cost

(39) Private costs are _____.
(A) Always borne by society
(B) Costs paid by the firm for production activities
(C) Costs related to public services used by the firm
(D Costs of pollution caused by the firm

(40) Which of the following distinguishes private cost from social cost ?
(A) Private cost includes external costs
(B) Social cost is irrelevant to society
(C) Social cost includes both private costs and external costs
(D) Private cost includes public disutility

(41) Which statement is true about private costs ?
(A) They are borne by society as a whole
(B) They include the disutility created by pollution
(C) They are costs internalized by the firm
(D) They include free resources like rivers and atmosphere

(42) An example of a private cost is _____.
(A) Health hazards caused by a factory's emissions
(B) Cost of roadways used by the firm's trucks
(C) The expense of purchasing raw materials
(D) Water pollution from industrial waste

(43) Which of the following best describes an explicit cost ?
(A) The opportunity cost of using one's own resources
(B) Costs that are not recorded in the books of accounts
(C) Direct payment made to others in the course of running a business
(D) The value of foregone alternative use of resources

(44) Implicit costs are often referred to as _____.
(A) Contractual costs (B) Definite costs
(C) Real costs (D) Economic costs

(45) Which of the following is an example of an implicit cost ?
(A) Salary paid to employees
(B) Rent paid for office space
(C) Interest that could have been earned on capital invested elsewhere
(D) Utility bills

(46) Which statement is true regarding implicit costs ?
(A) They are always recorded in the company's financial statements
(B) They represent actual cash outflows from the business
(C) They include costs such as rent and wages
(D) They are related to the opportunity cost of using the firm's own resources

(47) How do implicit costs affect economic profit ?
(A) They increase economic profit
(B) They have no effect on economic profit
(C) They decrease economic profit
(D) They are equal to accounting profit

(48) What distinguishes explicit costs from implicit costs in terms of accounting ?
(A) Explicit costs are not recorded in the books of accounts
(B) Implicit costs involve direct monetary payment
(C) Explicit costs are recorded in the books of accounts
(D) Implicit costs include payments for outside resources

(50) Which cost represents a monetary payment to the person who initially foregoes the satisfaction ?
(A) Implicit cost (B) Opportunity cost
(C) Explicit cost (D) Marginal cost

(51) What is the nature of costs that are easily identifiable and accounted for in a business ?
(A) Implicit costs (B) Economic costs (C) Real costs (D) Explicit costs

(52) An entrepreneur's forgone salary from not working elsewhere is an example of _____.
(A) Explicit cost (B) Fixed cost (C) Implicit cost (D) Variable cost

(53) Which of the following is not considered a business cost ?
(A) Wages and Salaries (B) Rent
(C) Opportunity cost of owner's time (D) Utilities

(54) What term is used to describe the direct, out-of-pocket expenses incurred by a firm in the process of producing goods or services ?
(A) Full costs (B) Implicit costs
(C) Business costs (D) Indirect costs

(55) Which of the following costs are included in the calculation of full costs but not in business costs ?
(A) Interest on loans (B) Taxes
(C) Implicit costs (D) Rent

(56) Which of the following is an example of an implicit cost ?
(A) Materials and supplies (B) Owner's time and effort
(C) Utilities (D) Wages and salaries

(57) How are business costs typically recorded ?
(A) Only in the owner's personal records
(B) In the firm's financial statements
(C) In a separate ledger for implicit costs
(D) Not recorded at all

(58) Full cost is also known as _____.
(A) Explicit cost (B) Variable cost
(C) Economic cost (D) Fixed cost

(59) Which statement is true regarding the difference between business cost and full cost ?
(A) Business cost includes opportunity costs while full cost does not.
(B) Full cost is always recorded directly in financial statements.
(C) Business cost is easier to measure and quantify compared to full cost.
(D) Full cost only includes explicit costs.

(60) Why is understanding full costs important for long-term strategic planning ?
(A) It helps in day-to-day financial management.
(B) It provides a comprehensive measure of the total cost of resource usage.
(C) It simplifies the financial statements.
(D) It only considers explicit costs.

(61) What is the economic profit of a firm ?
(A) Total revenue minus explicit costs
(B) Total revenue minus implicit costs
(C) Total revenue minus total economic cost
(D) Total revenue minus taxes

(62) For a firm evaluating a new project, which costs should be considered to determine the true economic profitability ?
(A) Only business costs (B) Only implicit costs
(C) Both business costs and implicit costs
(D) Neither business costs nor implicit costs

(63) The cost function represents the relationship between _____.
(A) The revenue generated and the level of output produced
(B) The cost of production and the level of output produced
(C) The profit earned and the level of output produced
(D) The price of goods and the level of output produced

(64) When a firm experiences decreasing costs due to an increase in production levels, it is known as _____.
(A) Diseconomies of scale (B) Economies of scope
(C) Economies of scale (D) Constant returns to scale

(65) If increasing production leads to higher average costs due to inefficiencies, the firm is experiencing _____.
(A) Constant returns to scale (B) Diseconomies of scale
(C) Economies of scale (D) Variable costs

(66) The point where total revenues equal total costs, indicating no profit or loss, is known as the _____.
(A) Marginal cost point (B) Profit maximization point
(C) Break-even point (D) Shutdown point

(67) Understanding the cost function is crucial for managers to make decisions about _____.
(A) Pricing and output levels (B) Employee training programs
(C) Marketing strategies (D) Supply chain logistics

(68) Analyzing the cost function helps firms in _____.
(A) Maximizing total costs (B) Minimizing revenue
(C) Identifying the output level where profit is maximized
(D) Increasing variable costs

(69) The cost function can guide investment decisions by evaluating _____.
(A) The potential impact on market share
(B) The impact on production costs
(C) The preferences of stakeholders
(D) The potential impact on corporate social responsibility

(70) When a cost function initially shows decreasing costs, it indicates _____.
(A) Diseconomies of scale (B) Increasing returns to labor
(C) Economies of scale (D) Constant returns to scale

(71) Which of the following is not a characteristic of cost functions ?
(A) Shape (B) Economies of scale
(C) Break-even analysis (D) Fixed costs only

(72) Which cost diminish but never becomes zero ?
(A) Fixed cost (B) Average Fixed cost
(C) Variable cost (D) Average Variable cost

(73) Total production cost ÷ Units of production = _____.
(A) Average Cost (B) Marginal Cost
(C) Average Fixed Cost (D) Average Variable Cost

(74) At the time of increasing marginal cost curve (after decreasing) when it intersect the average cost curve, then average cost curve is _____.
(A) Maximum (B) Zero (C) Minimum (D) Negative

(75) How is the shape of average cost curve ?
(A) Hockey stick (B) U (C) V (D) Square

(76) In which market, average revenue and marginal revenue are same ?
(A) Perfect competition (B) Monopoly
(C) Oligopoly (D) Monopolistic competition

(77) When proportion of production is zero, then which cost is positive ?
(A) Variable (B) Fixed (C) Average (D) Marginal

(78) How is the slope of fixed cost curve ?
(A) Negative (B) Positive
(C) Parallel to X- axis (D) Parallel to Y- axis

(79) Which economist introduced the opportunity cost concept?
(A) Classical (B) Austrian (C) Keynesian (D) American

(80) Daily wages of labours is the example of which cost ?
(A) Fixed cost (B) Total cost (C) Variable cost (D) Marginal cost

(81) How all costs become at long run ?
(A) Fixed (B) Short (C) Long (D) Variable cost

(82) Which type of cost curve is parallel to ox line (baseline) ?
(A) Variable cost (B) fixed cost
(C) Average variable cost (D) average fixed cost

(83) Which type of cost curve has hockey shaped ?
(A) Average cost (B) Variable cost (C) Marginal cost (D) Total cost

(84) The factory's building rent is which of cost ?
(A) Fixed (B) Variable (C) Marginal (D) Average

(85) At which level of production the average cost is minimum?
(A) MC < AC (B) MC > AC (C) MC = AC (D) AC = TC

(86) Which cost has no straight relation with units of production ?
(A) Fixed cost (B) Variable cost (C) Average cost (D) Marginal cost

(87) In Production which law applies at all stage of production, average cost and marginal cost are equal and parallel to the baseline ?
(A) Increasing (B) Decreasing (C) Constant (D) Unequal

(88) The best alternative of a factor forgone of production is called _____.
(A) Monetary (B) Opportunity (C) Real (D) Social

Answers

(1)	C	(2)	C	(3)	C	(4)	B	(5)	B	(6)	A	(7)	A	(8)	C	(9)	B
(10)	B	(11)	B	(12)	B	(13)	C	(14)	B	(15)	B	(16)	B	(17)	B	(18)	B
(19)	D	(20)	B	(21)	B	(22)	B	(23)	C	(24)	B	(25)	B	(26)	B	(27)	B
(28)	A	(29)	C	(30)	B	(31)	C	(32)	C	(33)	C	(34)	C	(35)	C	(36)	C
(37)	D	(38)	A	(39)	B	(40)	C	(41)	C	(42)	C	(43)	C	(44)	D	(45)	C
(46)	D	(47)	C	(48)	C	(50)	C	(51)	D	(52)	C	(53)	C	(54)	C	(55)	C
(56)	B	(57)	B	(58)	C	(59)	C	(60)	B	(61)	C	(62)	C	(63)	B	(64)	C
(65)	B	(66)	C	(67)	A	(68)	C	(69)	B	(70)	C	(71)	D	(72)	B	(73)	A
(74)	C	(75)	B	(76)	A	(77)	B	(78)	C	(79)	B	(80)	C	(81)	D	(82)	B
(83)	C	(84)	A	(85)	C	(86)	A	(87)	C	(88)	B						