6. "Managerial Economics is the discipline which deals with application of theory to business management" - Elucidate.
7. Define Managerial Economics and discuss its relationship with other disciplines.
8. Explain the various roles of Managerial Economist.
9. Explain the responsibilities of Managerial Economist.
10. Write note on : 'Limitations of Managerial Economics.
11. Write note on fallacies in Managerial Economics.
12. How does Managerial Economics differ from other Economics ? Explain this issue with support of nature and characteristics of Managerial Economics.

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Unit - 2

Fundamental Concepts

Outline of the Unit

1. The Incremental Concept	4. Equi-Marginal Concept
2. The concept of Time Perspective	5. Risk and Uncertainty
3. The Concept of Opportunity Cost	6. Discounting Concept
	➤ Objective Study
	➤ Self Study

1. The Incremental Concept

In Managerial Economics, on the basis of project, the concept of incremental principle becomes useful whether the order for production of a particular goods should be accepted or not. This principle is also called the principle of **excess** or **surplus** also. There are two foundations of this principle.

(1) The increase in income and (2) the increase in cost. Usually, while accepting a project it must be seen that total cost must not exceed the total income. The entrepreneur must consider the total cost and the total income of firm rather than total cost and income of the project while accepting or refusing a project. Very often in the initial period of production, due to accident reason or due to recession, the unit is not full utilized but if growth income is more than growth cost, the project should be accepted and profit can be earned in the final analysis. In these circumstances, there is project-wise loss but there is profit in the final analysis. Thus, if the manager takes favourable decision of accepting the project, the firm can earn profit.

(1) In this decision, if there is more increase in income than total cost, it becomes profitable e.g. The total cost increases by ₹ 1 lakh but if the income is ₹ 1.25 lakh, the project is profitable.

(2) If the decrease of cost is more than income decrease, it becomes profitable e.g. Income decreases by ₹ 50,000 but the cost decreases by ₹ 60,000, the total profit of ₹ 10,000 can be gained.

(3) Due to this decision if certain costs decrease more than other costs, total cost may decreases more and profit may increase.

(4) If total income increases and total cost decreases, it becomes profitable.

(5) If due to this decision, certain income decreases but other income increase more. In final analysis, it would be profitable.

In short, the manager has to make choice among many options and this principle of increment becomes helpful to him in dividing making.

"Any decision according incremental principle can be called appropriate when income increases more than cost or cost decreases more than income."

Example : This principle can be explained with the help of following example. Suppose a company produces 'X' but it has unutilized production capacity. Machinery labour, building etc. are under-utilized.

The company gets an order which can fetch it ₹ 25,000 but the costs are as follows:

(1) Labour Cost	₹ 10,000
(2) Cost of Availing Resources	₹ 8,000
(3) Constant cost (100% of the cost)	₹ 10,000
(4) Administrative and Sales cost (25% of labour and availing resources)	₹ 4,500
	₹ 32,500

At first sight, the project looks loss-making because it incurs the loss of ₹ 7,500 but the firm has unutilized and therefore, the labour cost will be ₹ 4,000 as permanent workers will be utilized. Constant cost will also be ₹ 4,000 as the machinery has remained unutilized. Administrative and sales cost do not increase at all.

Thus, the cost of the order will be as follows :

(1) Labour cost	₹ 4,000
(2) Resources	₹ 8,000
(3) Constant cost	₹ 4,000
(4) Administrative and Sales cost	₹ 0,000
	₹ 16,000

In these circumstances, the total costs goes up to ₹ 16,000 but total income goes up to ₹ 25,000. There is increase of ₹ 9,000 in profit of the firm. Thus, instead of the loss

of ₹ 7,500, there is profit of ₹ 9,000. If the order is not accepted, there is a loss of ₹ 9,000. Thus, prima facie loss becomes profit.

This does not mean that the firm should keep their prices according to incremental principle. This principle becomes useful in short term and unutilized production capacity but in long-term the total cost must be considered.

➢ **Practical implementation of incremental principle :** A survey has been made regarding to what extent, this concept is used by the managers. There has been mixed reaction. In big corporation, this principle is used more. However, while considering long term effects, this principle is not accepted. Once if the order is accepted at lower rates, at perfect production capacity, if the production cost increases, the decision of increasing price becomes difficult. Thus, it is difficult to deduce a universal rule accepted by all.

➢ **Incremental principle and the marginal concept :** In managerial economics, there is close relationship between incremental principle and the marginal concept. In principle of increment, the total cost and total income increase are considered while in marginal concept, marginal cost and marginal income of a unit is taken into account. Due to changes in unitwise income and cost, the changes in total income and cost can be known.

The marginal concept is necessary to explain the curved relationships in production sector. Incremental principle can be used to explain changes in linear relationship. When there are two techniques making production at the same rate, it is not easy to choose one of these techniques with the help of marginal principle. Then the incremental principle becomes useful.

Conclusion : In managerial economics, concepts of marginal and incremental principle are very near but presentation of both principles is different due to their features. Incremental principle is guiding for to accept the order of production and which method is used for production. It is mostly used in big industrial and business corporation.

2. The concept of Time Perspective

1. **Introduction :** Managerial decisions are always taken in the context of time. Such decisions are of **two types** : (1) Short-term decisions (2) Long-term decisions. However, in practice, it is difficult to draw demarcation line between the two.

2. **Short-term decisions : The meaning of short-term decisions :** Usually, without changing fixed factors and if only variable factors are changed and the production is either increased or decreased, such decisions are called Short-term decisions. In other words, if some factors of production remain fixed and if some change, such decisions can be turned as short-term decision.

Example : If a firm takes decision to change the raw-material or number of labourers without changing the proportion of land or machinery to increase production, such a decision is called short-term decision.

Short-term decisions are connected with profit. Such decisions may or may not be profitable in the long-run.

3. **Long-term decisions : The meaning of long-term decision :** The decisions regarding production or sale that involve change in all factors are called long-term decisions. In other words, both types of factors, fixed and variables should be changed to increases or decrease production. Such decisions are called long-term decision.

Example : If a manager thinks of establishing a new plant to increase production or buy new machinery, this decision can be called long term decision because here both along with change in labour and raw-material, variable factors hire plant, machinery etc. have to be increased.

Generally, the decisions related to the selection of place, the choice of things, fixed investment, permanent workers etc. are taken in the context of long-term. Long-term decisions affect the productivity of workers and profitability of business.

In short-term, the policy of price reduction can be useful but in the long-run to get market and to sustain it, the option of enhancing quality or increasing selling cost becomes more useful e.g. If the producer uses inferior quality raw material and try to get more profit by selling his goods at low cost instead of using good material by maintaining quality of his product, in the long-term, he will be loser. In fact, he can earn more profit by maintaining the quality and his reputation will be sustained in the market and he will be able maintain his goodwill in the market for a longer period. Generally, the effect of price reduction is short-lived. While long-term effect can be created on customers by maintaining quality of product or increasing selling cost. Therefore, in long-term decisions selling cost, product differentiation, improvement of quality etc. are more profitable steps.

Business decisions are taken in the context of long-term taking in to consideration the effects of the short-term. Decisions regarding production, size of the plant availability of raw material, choice of place etc. are should be taken in the context of long-term. However, short-term demand and requirement should also be considered.

In short, while taking long term decisions, short term demand and estimates of possible demand in futures in the long-term should be considered. In this way, fixed cost of short-term because minimum in the long-term and the firm can maintain maximum profit. While taking decisions probable effects of short-term and long-term should be taken into consideration because in the long-term, all costs became variable. In the beginning decisions should be taken keeping short-term in mind but

the decision like size of the unit or the choice of the place should be taken keeping long-term into consideration.

Short-term decisions can be taken keeping incremental cost in mind while long term decision are taken keeping total cost in mind.

4. **Short and Long-Term Decisions :** In short term, decisions are not always profitable in the long run. It may harm the firm in the long-run e.g. Suppose a firm has unutilized production capacity and the producer is ready to pay ₹ 5 for a product. Its cost per unit is ₹ 4.50. If it accepts order for 1,000 units, it may earn total income of (1000 × 5) ₹ 5,000. While the cost was (1,000 × 4.50) ₹ 4,500. Thus, short term profit is ₹ 500 but effects that such decisions cause should be taken into account :

(1) Firm accepts order and increases production but unutilized production capacity is utilized, constant cost increases and in the long term constant cost for machines, building etc. becomes inconstant and the prices do not remain affordable.

(2) If the firm's reduction of price affects the customers permanently, it may cause adverse effect and in the long run the market is lost. If the customers believe that prices have been reduced at the cost of quality, the firm may lose the market.

If the company sells certain thing at ₹ 4.50 for new customers and ₹ 5.00 for the old customers, the old customers will insist on ₹ 4.50 and the production will not remain profitable. If the customers think that prices have been reduced by lowering the quality of a product, then also the market will be lost by the producer.

In short, while taking decisions, the manager should consider both long-term and short-term effects on income and cost. If the time perspective is not considered, the decisions would adversely affect the firm. In short term but they can be beneficial in the long term sometimes. For example, when T.V.A. Tennessee Valley Authority was founded, it reduced the power price rate very much. In short, the consumption of electricity increased but per unit price was lowered and therefore, the firm suffered loss for the short period. But in the long run additional houses were covered under electrification without additional expenses of wiring and other equipments, the consumption of electricity increased remarkably and in the long term the decision turned out to be profitable.

The managerial economist should keep balance between short-term and long-term decisions. Hans, Mate and Paul have given the example of the printing press in this context. The company knew that as there was unutilized productivity in the company, incremental cost was lower than total cost but it did not frame its policy based on incremental cost. It framed its policy on the basis of total cost only because the management knew that if incremental cost is lower than total cost in the long-run, it would be more unprofitable than in the short run. They believed that together customers who will not get benefit of the price reduction will be adversely affected and the prestige of the company will be jeopardised because the customers will think that the company exploits them when demand is favourable and it bargains by reducing price when demand is not favourable.

3. The Concept of Opportunity Cost

1. **Introduction :** The scope of managerial economics is for achieving the determined objectives, to take the decision for distributing the available limited and alternative resources and for future planning. At the time of decision making process, the firm decides which option is best on the basis of time and situation. Out of available different options, some concepts are used to understand the principles of managerial economics, so they are known as of managerial economics. Out of such main concepts, the opportunity cost concept is highly accepted. In management, the opportunity cost concept is very useful in future planning.

2. **Opportunity Cost Concept of Managerial Economics :** The concept of opportunity cost occupies an important place in managerial economics. "Unborn is the cost of born". "Opportunity cost is the cost of next best alternative sacrificed." For example, if the firm wants to produce more of goods X, then it will produce less of goods Y. According to **Handerson,** "*Opportunity cost of any goods means the decrease in supply of one goods because of production of other goods.*"

When a manager accepts any one decision from many options, then he has to sacrifice all other options. So, he has to foregone the expected return for other options which is opportunity cost of this decision.

A manager has to choose the best option, out of available different options in managerial economics. So, it is very essential to know about the opportunity cost while investing in goods, goods price or agents of production. For example, one entrepreneur (manager) wants to invest ₹ 1 crore, then first of all he inquires from production of which commodities how much income is about to be received. Assume that the budgeted amount received from chemical industry is ₹ 2 crores, from pharma industry is ₹ 2.5 crores and from computer sector is ₹ 3 crores, then the entrepreneur invests in computer. Due to this, he has to sacrifice the next best alternative of pharma industry. So he has to foregone the income of ₹ 2.5 crore. The opportunity cost of computer sector is ₹ 2.5 crore in this situation.

Other Examples : (1) When an entrepreneur invests capital in his business, then he can't invest in other company from which he can get dividend income nor he invests in financial institution from which he can get interest income. So, he has to foregone both of them. That's why the opportunity cost of this capital is the income of interest or dividend.

(2) When an entrepreneur gives his service in his business, then he can't give his service in another sector, so he has to sacrifice the income which he can earn from another sector. Thus, the opportunity cost of service of an entrepreneur is the income of wages lost.

(3) When more than one goods are produced with the help of one machine, then by producing the goods which gives highest income, the production of other goods can be sacrificed which is the opportunity cost of the good product.

3. **Explicit and Implicit Cost :** To clarify the concept of opportunity cost, it is necessary to explain the explicit and implicit costs. Usually, the expenses which are paid in reality, those which are recorded in accounts are exploit cost e.g. The costs paid for raw material, fuel rent, interest, wages etc. are explicit costs. While implicit costs are those which are not paid by the firm in reality and they are not recording account books. e.g. Interest on own capital invested by the entrepreneur, the amount of wages available to entrepreneurs as a labourer / worker, the rent of his own building etc. are explicit costs. They are also called implied costs.

In opportunity cost, both explicit and implicit costs are included. Any entrepreneur has to consider opportunity cost rather than money paid in reality at the time of taking business decisions. Some writers include only implicit costs in opportunity but it is proper to do so. In opportunity cost both types of costs should be included.

4. **The Importance of Opportunity Cost :**

(1) **Under the difference between account profit and economic profit :** The concept of opportunity cost helps in understanding the difference between account profit and economic profit. Account profit is shown through the difference between actual costs paid in business and the income from the business. While the difference between opportunity cost (actual cost + implicit cost) and the income from the business shows economic profit. Entrepreneurs should take his decisions not on accounting profit but economic profit.

(2) **In the process of decision making :** The concept of opportunity cost is useful in deciding which factors should be used in what proportion at the time different processes of management e.g. if the entrepreneur knows the opportunity cost of a labourer, he will decide the right wages for the labourers. If he pays less than the opportunity cost of the labourers, he can not get the supply of labourers. In the same way, if he knows the opportunity cost of capital borrowed, he knows what interest should be paid on them. The concept of opportunity cost becomes useful in deciding whether any commodity should be purchased from the local market or from distant places. In short, the concept of opportunity cost becomes useful in deciding whether any commodity should be purchased from the local market or from distant places. In short, the concept of opportunity cost helps the management to make maximum use of factors at minimum cost.

(3) **To explain the incremental concept :** To explain the incremental concept, the logic of opportunity cost becomes helpful. While adopting a new project according to the incremental concept, it is important to know whether the plant operates with its optimum capacity or with unused productive capacity. If the firm makes production with optimum capacity, both constant and variable expenses have to be incurred. But if the firm makes production with unused capacity. Production becomes possible with only increase in variable cost. Therefore, even if the income is less, production will be profitable. Here, only the cost of variable factors become the opportunity cost.

(4) To explain the principle of discounting : To explain the principle of discounting, the logic of opportunity cost becomes useful. Thus, principle explains why discount is to be deducted. When a person invests in one fields he has for go alternative income. Therefore, payment of discount is inevitable.

5. **Others :** In this modern era, very entrepreneur continuously thinks about the opportunity cost to sustain and to become master in market. For this, they uses the concepts of linear programming, allocation models, replacement models etc. when an entrepreneur produces more than one unit, he should think about what to produce, how much to produce etc. and should know the opportunity cost e.g. one company wants to produce scooter and motor bike, then the opportunity cost of scooter is equal to sacrifice of income of bike and vice-versa. In this situation, which production is beneficial can be known with the help of opportunity cost.

It is necessary to know opportunity cost while taking decision whether hydropower or steampower should be used to produce electricity. The expenditure of producing electricity with steam can be known easily while it is difficult to know the cost of hydropower. Once the dam is built, its cost is called dead cost. However, the cost of use of water of the dam is considered Opportunity cost. The water once used can not used again. In short, the internality of necessity of electricity and the opportunity cost of both method should be considered to take decisions.

6. **The limitations of the concepts of Opportunity Cost :**

(a) The concept of opportunity can not be explained in reference to the factor of production with a single use.

(b) An entrepreneur takes decision based on other factors like the working condition, the stability of employment etc. rather than only opportunity cost e.g. if a worker gets more wage in other professions but his job is uncertain there, he will prefer to continue in the same job at lower wages. In the same way, whether the company should buy a computer or get the job work done outside, the decision is taken considering other factors instead of opportunity cost only. Even if getting job work done outside is cheaper, the business secrets can better be preserved in personal computers.

4. Equi-Marginal Concept

1. **Introduction :** This concept is very helpful to an entrepreneur (manager) for the implementation of the process of decision making and process of future planning. It guides an entrepreneur for taking the decision about what to produce, how much to produce, how to distribute the factors of production. e.g. the number of labourer remains same and the use of labour is for the production of these goods. i.e. A.B.C. In this situation, if more units of labour are used in production of one unit, then it is possible only by decreasing the production of another goods.

This principle helps an entrepreneur to how and how much to produce with the help of available resources.

The principle is useful to know how much quantity of production should be made and how the different factors of production are to be distributed. Especially, when a firm produces more than one thing, he has decide which product to be produced and in how much quantity. This equi-marginal principle is useful to make decisions regarding them.

2. **Principle of Equi-Marginal Production :**

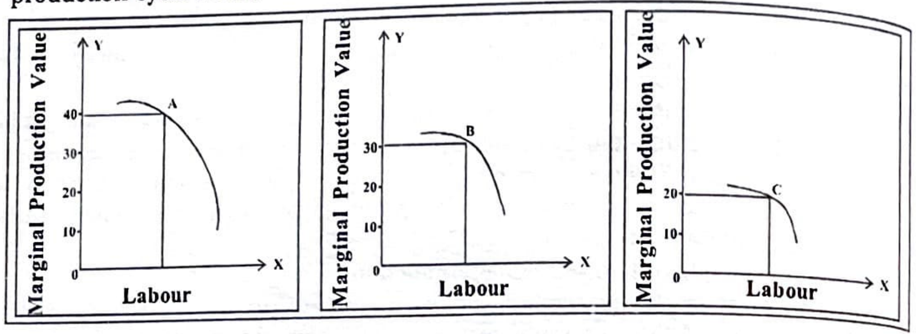
According to this principle at different levels of production when marginal production value of different products is equal, this method of production is the most profitable.

Suppose if in any business, the number of labourers is static, the firm produces A, B and C commodities with the help of the labourers. In such circumstances, how many labourers should be employed, this decision has to be taken by finding out marginal value of production per commodity by a labourer. The labourers who are employed in producing goods with less marginal production value should be transferred to the goods with more marginal production value. This will give more profit in the long run e.g. If the marginal production value of commodity A is ₹ 50 and that of B is ₹ 40. If the entrepreneur employs the labourer from B to A there will be profit of ₹ 10 and as a result, the production of A will increase in the long run and final analysis, the law of decreasing production will apply and labourer's marginal production value will increase.

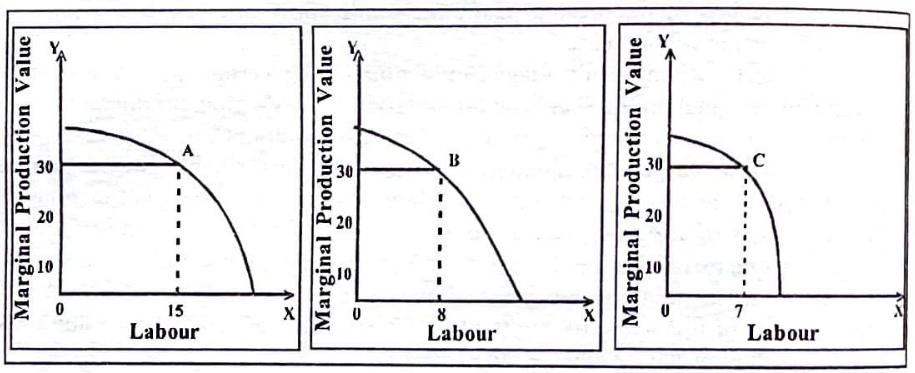
In short, maximum advantage can be obtained by certain allocation of labour as value of marginal production of labour of product A = Marginal production value of labour of product B = Marginal production value of product C.

3. **How marginal production value can be known ? :** To know the marginal production value of a labourer, it is necessary to know the marginal income and marginal cost of the labourer. Suppose in the production of commodity A by employing one extra labourer, 100 units production increases and if the unitwise price of A is ₹ 2, the marginal income of the labourer in production of A will be ₹ 200. If the variable cost of this extra 100 units of A is ₹ 150, the net production value of the labourer will be ₹ 200 – ₹ 150 = ₹ 50.

In this principle, meaning of marginal production means to calculate the net increment value. In this analysis at the time of calculation of production value of inputs, diminishing marginal law is taken into consideration. It means that by keeping other inputs of production fixed, by increasing proportion of labour, marginal productivity is decreasing gradually. Due to different technological condition in each section, this law is applicable at different level. So, in context of each activity marginal production cycle would be different.



In above figure, 10 units of labour are engaged in three product A, B and C. Where in A marginal production value of 10 th labourer is ₹ 40. In B product, marginal production value of 10th labourer is ₹ 20. In these circumstances, if labourer of product C should be transferred to product A's production, it means that by decreasing production of C and increasing the production of A, it will be more beneficial. But here diminishing return law is application more labourers are engaged in production of A product, its marginal productivity decreases. On other hand, less labourers are engaged in C product, marginal productivity increases. So by this method, keeping proportion of labour as equal to marginal productivity of labourer who engaged is production of three product, maximum advantage can be obtained.



In above figure, equal marginal production value is done where production value ₹ 30 at 15th labour in product A, production value ₹ 30 at 8th labourer in product B and production value ₹ 30 at 7th labourer in product C. By taking decision of this type of production, maximum profit can be obtained. But when law of fixed return is applied, then parallel line is obtained instead of negative slope line of marginal production value. In these circumstances, firm has to used high marginal production inputs in product.

4. Discounting Marginal Production Value : While comparing income availed from sale of production of different things, discounting marginal productivity value should be considered e.g. if the rate of interest is 5%, the present value of ₹ 100 after one year can be considered 95.24.

5. Importance of this Principle :

(1) Useful in allocation of resources : This principle is useful for the producer in deciding which resource should be allocated and in what proportion. Suppose where Marginal Revenue and Marginal cost ratio are equal, allocation of resources gives the maximum profit. In equation, it can be said as a firm produces three produce A, B and C

and $\frac{MR_A}{MC_A} = \frac{MR_B}{MC_B} = \frac{MR_C}{MC_C}$ where,

$$\frac{\text{Marginal Revenue of Product A}}{\text{Marginal Cost of Product A}} = \frac{\text{Marginal Revenue of Product B}}{\text{Marginal Cost of Product B}} = \frac{\text{Marginal Revenue of Product C}}{\text{Marginal Cost of Product C}}$$

In this manner, maximum profit can be made by making such changes.

Suppose $\frac{MR_A}{MC_A} > \frac{MR_B}{MC_B}$ and if they are removed from the production of B to A the firm will have benefit.

(2) For allocation of the factors of production : The equi-marginal utility principle guides the managers regarding the proportion of labour, capital, land etc. To determine it, marginal revenue productivity and the ratio of marginal cost of factors have to be compared. When the ratio of both becomes equal, various factors of production must be employed.

Suppose, there are three factors of production viz. A B C and if the MRP. (Marginal Revenue Product) and marginal cost ratio is given. Distribution must be made in such a way that the ratio of all the three factors is equal. In the form of equation, it can be presented in the following manner.

$$\frac{MRP_A}{MC_A} = \frac{MRP_B}{MC_B} = \frac{MRP_C}{MC_C}$$

Suppose A is Capital, B is Labour in these circumstance, $\frac{MRP_A}{MC_A} > \frac{MRP_B}{MC_B}$ and therefore, the producer must use capital more and less labour.

Thus, equi-marginal utility principle becomes useful in distribution of factors or resources in optimum way, choice of method of production etc. with the help of this principle ,factors of production can be used in optimum way.

(3) Equi-marginal utility principle is useful in framing budget also. The limited resources of the country must be employed when marginal revenue product is maximum. Thus, their maximum efficient use can be made.

(4) It is useful in allocating expenditure on research also. The work that gives maximum return must be undertaken for research.

(5) It becomes useful in the allocation of budget among various departments of the university.

5. Risk and Uncertainty

1. **Introduction :** Managerial decisions are actions of today which bear fruits in future which is unforeseen. Future is uncertain and involves risk. The uncertainty is due to unpredictable changes in the business cycle, structure of the economy and government policies.

This means that the management must assume the risk of making decisions for their firm in uncertain and unknown economic conditions in the future. Firms may be uncertain about production, market prices, strategies of rivals, etc. Under uncertainty the consequences of an action are not known immediately for certain.

Economic theory generally assumes that the firm has perfect knowledge of its costs and demand relationships and of its environment. Uncertainty is not allowed to affect the decisions. Uncertainty arises because producers simply cannot foresee the dynamic changes in the economy and hence, cost and revenue data of their firms with reasonable accuracy.

2. **Meaning and Definition of Risk :** In economics, "risk" refers to the uncertainty regarding the future outcomes of an economic decision or event. It involves the possibility that actual results may differ from expected results, which can affect investments, economic policies, business ventures, and individual financial decisions.

According to **Knight,** risk is measurable uncertainty. He stated, "*Risk means in some cases a quantity susceptible of measurement, while at other times it is something distinctly not of this character.*"

John Maynard Keynes discussed risk in terms of the unpredictability of future events and its impact on investment decisions.

Milton Friedman defined risk in terms of the variability of possible outcomes and the individual's preferences and attitudes towards these outcomes.

Harry Markowitz stated, "*Risk as measured by the variance (or standard deviation) of the return on a portfolio.*"

Peter Bernstein described risk as "*a measure of uncertainty about the future payoffs to an investment, measured over a specific period and relative to some benchmark.*"

3. **Types of Risk :**

(1) **Systematic Risk :** Also known as market risk, it affects the entire market or economy. Examples include interest rate changes, inflation, and economic recessions. It cannot be eliminated through diversification.

(2) **Unsystematic Risk :** Also known as specific or idiosyncratic risk, it affects a particular company or industry. Examples include management decisions, product recalls, and competitive actions. It can be mitigated through diversification

4. **Meaning and Definition of Uncertainty :** In economics, "uncertainty" refers to situations where the future outcomes of economic variables or events are unpredictable and cannot be quantified with probabilities. This concept differs from "risk," where the probabilities of different outcomes are known or can be estimated.

According to **Knight,**" Uncertainty involves situations where these probabilities are not known and cannot be measured."

John Maynard Keynes argued that , "*Uncertainty pertains to situations where future events are unknown and not even the likelihood of various outcomes can be determined.*"

George Shackle argued that , "*uncertainty is the lack of foreknowledge about the potential surprises that could affect outcomes.*"

5. **Types of Uncertainties in Business :** There uncertainties are as follows :

(1) **Uncertainties regarding the supply of factors :** When an entrepreneur invests in business or plant, he has to face the uncertainties regarding the availability of factors of production, raw-material etc. If he starts a plant with the assumption that he will get all required factors of production and raw-material but if he fails to get them, he has to face losses. e.g. If an entrepreneur starts a plant thinking that he will get required supply of electricity but if it is not available as required, he will have to face losses.

(2) **Invention/discovery of a new substitute :** If a raw new substitute for the product produced by the entrepreneur is invented or discovered, he has to face loss. e.g. An entrepreneur has invested a large amount of capital in cement plant but if a

substitute for cement is invented or discovered, demand for cement goes down and he faces losses. The insurance company does not cover such damages.

(3) **Uncertainty of prices :** Prices of products change according to time and circumstances. The entrepreneur has to face uncertainties regarding price. No insurance company insures against changes in price.

(4) **Uncertainty in market :** Markets are not stable. They often change. If an entrepreneur has invested huge amount of capital but if number of producers increases or there are restrictions on market, entrepreneur has to suffer losses. e.g. If there are many mills for polyster cloth, in future the demand for cloth would decline or each producer will get limited share of market. In modern time, the entrepreneur has to face the uncertainty regarding selling in the market. As markets are uncertain, the insurance company does not cover such risks.

(5) **Government policies :** Government policies affect prices and production. e.g. If an entrepreneur starts scooter plant considering the present demand but if the government liberalises the policy and if there are many producers of scooters, the market will be limited and risky. If in a certain product, there is supernormal profit due to monopoly but if the government naturalises this business or restricts prices, the entrepreneur may suffer losses. The entrepreneur has to face uncertainties regarding government policies. Naturalisation of industries may create problems for entrepreneurs. Such policies create uncertainties that insurance companies do not cover through insurance.

(6) **International trade :** In international trade, when business is affected. e.g. If there are restrictions on import, there might be scarcity of goods within the country and higher prices are charges. When import ban is lifted, the prices go down and the risks take place in business. e.g. in modern time, TV and car imports have been levied with heavy duties and the producers can earn higher profits but when these duties are reduced, the producers may suffer losses.

(7) **Other factors :** In modern age, habits, fashions, incomes and number of population change resulting in certain risks for entrepreneurs. Such risks can not be calculated and therefore, insurance companies do not cover such risks. The entrepreneurs have to bear such risks. Profit is the reward for such uncertainties. It is an incentive for taking risks of this kind.

According to **Prof. Knight,** "The business in which there is more uncertainties, the supply remains limited and entrepreneurs get supernormal profit. If there is no uncertainty, the entrepreneur gets only normal profit, not pure profit." It is not easy to live among uncertainties. To face uncertainties one must have spirit of enterprise, courage etc. And this brings about profit for the entrepreneurs.

According to **Prof. Knight to face uncertainty is a kind of factors like land, capital, labour etc. To face uncertainties is not a happy experience. The reward for such unhappy experience is profit. Prof. Knight in his book** 'Risk, Uncertainty and Profit, has presented this theory of uncertainty. It has become acceptable like other principles.

6. **Different ways to manage the Risk and Uncertainty :** There are following four ways to manage the risk and uncertainty.

(1) Insurance (Business risks are transferred through Insurance Policies)

(2) Hedging is a mechanism whereby the expected loss is to be offset by an expected profit from another contract.

(3) Diversification is a method of managing the risk where the risk is spread to various investments and thus the risk is minimized to each investment.

(4) Adjusting risk is the mechanism whereby the provision is made to offset the expected loss.

7. **Decision Under Uncertainty :**

(1) **The maximax rule :** Deals with selecting the best possible outcome for each decision and choosing the decision with the maximum payoff for all the best outcomes.

(2) **The Maximin rule :** Deals with selecting a worst outcome for each investment decision and choosing the decision with the maximum worst payoff.

(3) **The Minimax rule :** Deals with determining the worst potential regret associated with each, decision, then choosing the decision with the minimum worst potential regret.

6. Discounting Concept

[Note : In new syllabus, this concept is mentioned. Here we have given for knowledge purpose only)

A person likes more present than future because present is certain while future is uncertain. Generally, when a person is given two options as an offer like Rs. 100 in present and ₹ 100 after 1 year, then a person accepts present offer of ₹ 100 due to two reasons.

(1) It is uncertain when a person receives ₹ 100 after a year, and (2) When a person puts ₹ 100 @ 8% rate of interest, then it will be ₹ 108 after a year. So, a person likes present ₹ 100. In other words, the value of present ₹ 100 is more than ₹ 100 of future. In this situation, the question arises, what is the value of present ₹ 100 for the future ₹ 100 ? When we invest, then we should know about the present value of future rupee. For this the discounting principle is very helpful. While any decision for investment is taken by an entrepreneur, affecting the future cost and income, then the discount is cut from that cost and income (revenue) considering the present value.

This principle is implemented while giving simple lending. For example one promissory note of ₹ 1,000 is matured after 1 year. While lending this assume that 8% rate of discount is cut so after cutting ₹ 80, only 920 is given in present.

This principle is helpful to an entrepreneur for getting knowledge of future expected income from his present investment. This analysis is important to know the future value of present income. This guides the entrepreneur for taking the decision of capital investment. The value of present rupee is more than future rupee because the future is uncertain. So, an entrepreneur should have knowledge how much discount he should cut to make the present value equal to future price. To explain the value of discount, the following example can be given. When one person is offered to get ₹ 100 in present or ₹ 100 after 1 year, then he chooses present ₹ 100 because this ₹ 100 will be given ₹ 105 after 1 year @ 5% interest. It means that discount should cut to find out the present value of ₹ 100 after 1 year. If rate of interest is 5%, then ₹ 100 should be discounted @ 5%. This can be shown with the help of a following formula.

105 ₹ 100

∴ 100 ₹ (?)

$$\frac{100 \times 100}{105} = ₹\ 95.23$$

The value of future ₹ 100 is ₹ 95.23. In other words 95.23 × 1.05 = 99.999

$$\text{Formula : Present Value of Capital} = \frac{\text{Value after 1 year (VI)}}{1 + \text{rate of interest (r)}}$$

Example : Assume that rate of interest is 5%, then present value of ₹ 100 after 1 year.

Suppose, the rate of interest is 5%, the value of ₹ 100 after one year at present would be –

$$V_0 = \frac{V}{1+r} = \frac{100}{1+0.05} = \frac{100}{1.05} = ₹\ 95.24$$

To find out the present value of money in the context more than one year, the following equation should be used.

Here, V0	=	Present value
V1	=	The value of capital at the end of one year.
V2	=	The value of capital at the end of second year
V3	=	The value of capital at the end of third year
Vn	=	The value of the capital in final year
Vn	=	Discount rate (interest rate)

In the above example, suppose if we want to find out the value of ₹ 100 after 2 years.

The answer would be that the present value of ₹ 100 after two years would be ₹ 90.70

➢ **Importance :**

(1) This principle becomes useful to the manager to take decisions regarding investment. If the investment discount return is more than the interest from other sources, the entrepreneur might invest in an enterprise.

(2) This principle is useful to know-how much difference in profit or loss takes place by slight change in the rate of interest by 1% or 2%.

(3) This principle becomes useful in present investment and in future planning.

(4) It is useful in preparing budget about the capital.

(5) In day to day, business, this principle of discount is useful e.g. if on the promissory note of one year the rate of interest is 6%, the present value would be ₹ 940 (₹ 1,000 – ₹ 60).

Objective Study

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

(1) In Managerial Economics, what is another name for the incremental principle?
(A) Marginal Principle (B) Principle of Excess or Surplus
(C) Principle of Diminishing Returns (D) Cost-Benefit Analysis

(2) According to the incremental principle, when should a project be accepted ?
(A) When the total cost exceeds the total income.
(B) When the total income and total cost are equal.
(C) When the total income exceeds the total cost.
(D) When the total income is less than the total cost.

(3) The incremental principle is particularly useful in ________.
(A) Long-term planning
(B) Conditions of full production capacity
(C) Short-term decisions with unutilized production capacity
(D) Situations where costs always exceed revenues

(4) Which principle is closely related to the incremental principle in managerial economics ?
(A) Principle of Opportunity Cost (B) Principle of Diminishing Returns
(C) Marginal Concept (D) Equimarginal Principle

(5) In which types of organizations is the incremental principle mostly used ?
(A) Small startups (B) Non-profit organizations
(C) Big industrial and business corporations
(D) Government agencies

(6) What is the primary focus of managerial economics ?

(A) Achieving personal goals
(B) Achieving the determined objectives of the firm
(C) Maximizing the production of one good
(D) Minimizing labor costs

(7) What is the concept of opportunity cost in managerial economics ?
(A) The cost of all available alternatives
(B) The cost of the next best alternative sacrificed
(C) The total cost of production
(D) The profit gained from an investment

(8) According to the concept of opportunity cost, if a firm decides to produce more of goods X, what happens to goods Y ?
(A) The production of good Y remains unchanged
(B) The production of good Y decreases
(C) The production of good Y increases
(D) The production of good Y is irrelevant

(9) Which of the following is an example of explicit cost ?
(A) Interest on own capital
(B) Rent of the entrepreneur's own building
(C) Wages paid to employees
(D) The entrepreneur's potential earnings as a worker

(10) Which of the following best describes implicit costs ?
(A) Costs recorded in account books
(B) Costs paid in reality
(C) Costs not paid by the firm in reality and not recorded in account books
(D) Costs associated with purchasing raw materials

(11) How does the concept of opportunity cost help in decision-making ?
(A) By ignoring implicit costs
(B) By focusing solely on accounting profits
(C) By helping management make maximum use of factors at minimum cost
(D) By excluding all variable costs

(12) What is the difference between accounting profit and economic profit ?
(A) Accounting profit includes both explicit and implicit costs, while economic profit does not
(B) Economic profit includes both explicit and implicit costs, while accounting profit does not
(C) There is no difference between accounting profit and economic profit
(D) Accounting profit considers opportunity cost, while economic profit does not

(13) How does the opportunity cost concept relate to the principle of discounting ?
(A) It explains why additional costs are added
(B) It justifies why discounts are deducted
(C) It suggests ignoring alternative income
(D) It implies that only explicit costs should be considered

(14) Which of the following is not a limitation of the concept of opportunity cost ?
(A) It cannot be explained in reference to the factor of production with a single use
(B) Entrepreneurs only consider opportunity cost when making decisions
(C) Decision-making may also involve factors like job stability and working conditions
(D) Sometimes business secrets can influence decisions over purely cost-based considerations

(15) Which of the following describes short-term decisions ?
(A) Decisions involving changes in all factors of production.
(B) Decisions made without changing fixed factors, only variable factors.
(C) Decisions related to long-term profitability and strategic planning.
(D) Decisions involving permanent changes to plant and machinery.

(16) An example of a short-term decision is _______.
(A) Establishing a new plant.
(B) Buying new machinery.
(C) Changing the raw-material or number of labourers.
(D) Selecting a new location for the business.

(17) Long-term decisions typically involve _______.
(A) Changes only in variable factors.
(B) No changes to fixed factors.
(C) Changes in both fixed and variable factors.
(D) Minor adjustments to existing processes.

(18) Which of the following statements is true about the impact of long-term decisions ?
(A) They are focused solely on immediate profit.
(B) They do not consider the quality of products.
(C) They generally aim to enhance market reputation and goodwill.
(D) They disregard short-term market conditions.

(19) In the context of managerial economics, short-term decisions are primarily concerned with _______.
(A) Incremental cost.
(B) Total cost.
(C) Capital investment.
(D) Long-term profitability.

(20) Which example illustrates a situation where a short-term decision may not be beneficial in the long run ?
(A) Increasing production by hiring temporary labor.
(B) Reducing prices to utilize unutilized production capacity.
(C) Implementing new technology to enhance production efficiency.
(D) Investing in a new marketing strategy to increase brand awareness.

(21) The primary focus of long-term decisions is on ________.
(A) Immediate cost savings. (B) Short-term profit margins.
(C) Sustaining market reputation and achieving long-term profitability.
(D) Temporary market trends.

(22) Why should managers consider both short-term and long-term effects when making decisions ?
(A) To maximize short-term profits without regard to the future.
(B) To ensure that immediate actions do not harm long-term goals.
(C) To focus solely on reducing incremental costs.
(D) To avoid any changes in production processes.

(23) What is the potential risk of a firm reducing its product price to utilize unutilized production capacity ?
(A) Increasing fixed costs permanently.
(B) Losing market share in the long term due to perceived quality reduction.
(C) Gaining immediate profitability without any negative effects.
(D) Maintaining consistent quality and customer satisfaction.

(24) The Equi-Marginal Principle is particularly useful for ________.
(A) Decision making and future planning
(B) Understanding the past production
(C) Predicting market trends
(D) Setting prices for goods

(25) According to the Equi-Marginal Principle, what should be equal for maximum advantage ?
(A) Total production value of all products
(B) Marginal production cost of each product
(C) Marginal production value of labour across all products
(D) Number of laborers employed in each product

(26) To determine the marginal production value of a labourer, one needs to know ________.
(A) Marginal income and marginal cost
(B) Total income and total cost
(C) Average production value and average cost
(D) Production capacity and labor cost

(27) The Equi-Marginal Principle considers the law of diminishing marginal returns. This means ________.
(A) Increasing labor indefinitely will keep increasing production
(B) Keeping other inputs constant, increasing labour will decrease marginal productivity gradually
(C) Production remains constant regardless of the number of laborers
(D) Total production cost decreases as more labor is employed

(28) Why is the marginal production cycle different in each section ?
(A) Due to the same technological conditions
(B) Because marginal productivity increases uniformly
(C) Because of varying technological conditions in each section
(D) Since all laborers work at the same efficiency level

(29) In which scenario is the Equi-Marginal Principle most applicable ?
(A) When a firm produces only one product
(B) When a firm employs varying numbers of laborers frequently
(C) When a firm produces multiple products and must decide labor allocation
(D) When the marginal cost of production is unknown

(30) The concept of discounting marginal production value involves ________.
(A) Comparing the current income with future income without adjustment
(B) Adjusting future income to its present value using a discount rate
(C) Comparing marginal costs of production directly
(D) Ignoring the time value of money

(31) According to the Equi-Marginal Principle, maximum profit is achieved when ________.
(A) Marginal cost of all products is minimized
(B) Marginal revenue and marginal cost ratios of all products are equal
(C) Total production is maximized
(D) The number of laborers is maximized

(32) In the context of resource allocation, the Equi-Marginal Principle states that resources should be allocated such that ________.
(A) Marginal Revenue Product (MRP) is maximized
(B) Marginal Cost (MC) is minimized
(C) The ratio of MRP to MC is equal across all factors
(D) Total revenue is equally distributed

(33) The Equi-Marginal Principle is useful in budgeting because it helps in ________.
(A) Allocating resources to maximize revenue
(B) Minimizing costs across all departments
(C) Employing all available resources
(D) Ensuring equal distribution of budget across all departments

(34) Which of the following best describes the application of the Equi-Marginal Principle in research expenditure ?
(A) Distributing funds equally to all research projects
(B) Allocating funds to the projects with the maximum marginal return
(C) Reducing research expenditure to save costs
(D) Funding only new research projects

(35) What is required to determine the optimal proportion of labour and capital according to the Equi-Marginal Principle ?
(A) Total production cost
(B) Marginal revenue productivity and marginal cost of both labour and capital
(C) Total revenue generated by labor and capital
(D) Average production value of labor and capital

(36) Which principle guides managers regarding the optimal proportion of labour, capital, and land in production ?
(A) Law of Diminishing Returns (B) Equi-Marginal Utility Principle
(C) Principle of Comparative Advantage (D) Marginal Cost Principle

(37) What does economic theory generally assume about a firm's knowledge in decision-making ?
(A) Firms have partial knowledge of costs and demand relationships
(B) Firms have perfect knowledge of costs and demand relationships
(C) Firms rely on government policies to make decisions
(D) Firms do not need to consider uncertainty in decision-making

(38) According to Knight, how is "risk" defined ?
(A) Uncertainty that cannot be measured
(B) Variability of possible outcomes
(C) Measurable uncertainty
(D) Unpredictability of future events

(39) Which type of risk affects the entire market or economy and cannot be eliminated through diversification ?
(A) Systematic risk (B) Unsystematic risk
(C) Operational risk (D) Financial risk

(40) What is an example of unsystematic risk ?
(A) Interest rate changes (B) Economic recessions
(C) Management decisions (D) Inflation

(41) How did John Maynard Keynes describe uncertainty?
(A) As measurable uncertainty
(B) As situations where future events are unknown and the likelihood of outcomes cannot be determined
(C) As the variability of possible outcomes
(D) As the lack of foreknowledge about potential surprises

(42) Which method of managing risk involves spreading risk across various investments ?
(A) Insurance (B) Hedging
(C) Diversification (D) Adjusting risk

(43) What does the Maximin rule involve in decision-making under uncertainty ?
(A) Selecting the decision with the maximum payoff for all best outcomes
(B) Choosing the decision with the maximum worst payoff
(C) Choosing the decision with the minimum worst potential regret
(D) Selecting the decision with the maximum potential profit

(44) Which economist defined risk in terms of the variance of the return on a portfolio ?
(A) John Maynard Keynes (B) Milton Friedman
(C) Harry Markowitz (D) Peter Bernstein

(45) What is the focus of the Minimax rule in decision-making under uncertainty ?
(A) Selecting the decision with the maximum potential payoff
(B) Choosing the decision with the minimum worst potential regret
(C) Choosing the decision with the maximum worst payoff
(D) Selecting the decision with the highest potential loss

Answers

(1) B	(2) C	(3) C	(4) C	(5) C	(6) B	(7) B	(8) B	(9) C
(10) C	(11) C	(12) B	(13) B	(14) B	(15) B	(16) C	(17) C	(18) C
(19) A	(20) B	(21) C	(22) B	(23) B	(24) A	(25) C	(26) A	(27) B
(28) C	(29) C	(30) B	(31) B	(32) C	(33) A	(34) B	(35) B	(36) B
(37) B	(38) C	(39) A	(40) C	(41) B	(42) C	(43) B	(44) C	(45) B

Self Study

1. Write a notes on :
   (1) The Incremental Concept.
   (2) The Concept of Opportunity Cost.
2. Write notes on : Equi-marginal economics
3. Write short notes : The Concept of Time Perspective
4. Discuss the incremental principle of managerial economics.
5. Discuss the tools used for economic analysis in managerial economics.
6. Explain Various techniques of analysis in Managerial Economics.

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