Questions for Engineering Economics (Module -I)

1Q. What is engineering Economics?

Ans: Engineering Economics is the discipline, which involves with the application of economic principles to the engineering problems in order to take economic decisions towards minimising costs and maximisng benefits to mankind or the business organization.

In simple, Engineering Economics is the systematic study and evaluation of the economic merits of proposed solutions to engineering problems/projects. It deals with methods, which enable on e to make economic decisions towards minimising cost and miximing benefits.

2Q. Differentiate between micro and macro economics with examples.

Ans: Micro Economics is that branch of economics in which economic problems are studied at individual level. In microeconomics we study the behaviour of consumer, firms, industries and markets etc. on the other hand, Macro economics is that branch of economics which studies the economy as a whole and its aggregates such as National income, the level of employment.

3Q. Why does an economic problem arise? Write two characteristics of resources. Or Define Scarcity.

Ans: An economic problem arises due to scarcity of resources having alternative uses in relation to unlimited wants. Resources are scare (limited) and they have alternative uses. Scarcity refers to a situation in which demand for a factor is

4Q. What do you mean by Externalities?

Ans: Externalities are common in virtually every area of economic activity. They are defined as third party (or spill-over) effects arising from the production and/or consumption of goods and services for which no appropriate compensation is paid. Consumers can create externalities when they purchase and consumer goods and services.

- Pollution from cars and motorbikes
- Negative externalities created by smoking and alcohol abuse
- Negative externalities arising from crime etc

5Q. What is the 'diamond-water' paradox?

Ans: The paradox of value addresses why absolute necessities such as water are valued (priced) so cheaply, while diamonds are highly valued and command outrageous prices. In simple words, Getting enough water to sustain life typically has a low price, while a piece of diamond jewelry has a high price. Why does an economy put a much lower value on something vital to sustaining life compared to something that simply looks shiny and sparkles? This is the *diamond-water paradox* (also known as paradox of value), and it was first presented by the economist Adam Smith in the 1700s.

6Q. What is Giffen paradox?

Ans: Some special varieties of inferior goods are termed as Giffen goods. In case of such goods, the income effect is negative and it is stronger than positive substitution effect. Examples of such goods are coarse grain like jowar, bajra, coarse cloth and vegetable like potato come under this category. Sir Robert Giffen studied that people continue to buy more of inferior goods even at high prices due to lack of substitute products. This is also known as Giffen paradox.

7Q. Differentiate *between Snob effect and Bandwagon effect.*

Ans: The satisfaction of aristocratic desire to preserve exclusiveness for unique goods-such goods are purchased only by few highly rich people for snob appeal. For instance, very costly diamonds, rare paintings. These goods are called "*veblen goods*" after the name of an American economist Thorsten Veblen.

Bandwagon effect is a very normal occurrence which happens on a regular basis whereby a consumer follows or imitate the behaviour and consumption pattern of neighbours, relatives and friends. If a certain type of product is being used by a group then peer pressure encourages members of a group to demand a specific product because it is widely used in the group.

8Q. Differentiate between change in quantity demand and change in demand.

Ans: In economic analysis, '*changes in quantity demanded* 'and' *changes in demand'* altogether have different meanings. The changes in quantity demanded relates to the law of demand and it has reference to 'extension ' or 'contraction' of demand, but the changes in demand is related to 'increase' or 'decrease' in demand.

Changes in quantity demanded take place only in response to the own price of the commodity, while changes in demand take place due to changes in non-price factors such as income, taste & preference, price of related goods etc.

9Q. What is law of demand? State the limitations/ exceptions of law of demand.

Ans: The law of demand states an inverse relationship between the price of a commodity and its quantity demanded, if other things remaining constant (Ceteris Paribus), i.e., at higher price, less quantity is demanded and at lower price, larger quantity is demanded.

Exception /Limitation to the law of demand

- Giffen goods
- Articles of Distinction/Snob appeal
- Consumers psychological bias or illusion or ignorance
- life saving essential goods and also in times of extraordinary circumstances like inflation, deflation, war and other natural calamities.
- Bandwagon effect:
- Change in fashion:

10Q. What is elasticity of demand? State the factors/ determinants of elasticity of demand.

Ans: Elasticity of Demand can be define as "the degree of responsiveness of quantity demand of a product to its change in price, other things remaining constant." The concept of elasticity of demand is generally associated with the name of Alfred Marshal.

In other words, it can be define as "the Proportionate (percentage) change in quantity demand of a product to its proportionate (percentage) change in price, other things remaining constant."

Determinants/ Factors Affecting the Elasticity Of Demand

- Nature of the Commodity
- Availability of substitutes
- Several uses of Commodity
- Range of prices
- Proportion of Income Spent etc.

11Q. Differentiate among income, price and cross of elasticity of demand.

Ans : *Price Elasticity of Demand* can be define as "the degree of responsiveness of quantity demand of a product to its change in price, other things remaining constant." It is measured as percentage change in quantity demanded divided by the percentage change in price.

Income Elasticity of Demand can be define as "the degree of responsiveness of quantity demand of a product to its change in income of the consumer, other things remaining constant." It means the ratio ofpercentage change in quantity demanded due to percentage change in income of consumers.

Cross Elasticity of Demand can be define as "the degree of responsiveness of quantity demand of a product X to its change in price of Product Y, other things remaining constant."

12Q. What do you mean by Law of Supply? State the exception of law of supply.

Ans: The law of supply describes the relationship between the price of a commodity and the quantity offered by producers for sale. The law of supply is a hypothesis, which claims that at higher prices the willingness of sellers to make a product available for sale is more while other things being equal. When the price of a product is high, more producers are interested in producing the products. On the contrary, if the price of a product is low, producers are less interested in producing the product and hence the offer for sale is low.

Exceptions to the Law of Supply

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- Exceptions of a fall in price

- Sellers who are in need of cash
- When leaving the industry
- Agricultural output
- Backward sloping supply curve of labor

13Q. What do you mean by returns to scale? What are its types?

Ans: The law of returns to scale describes the relationship between outputs and scale of inputs in the long-run when all the inputs are increased in the same proportion. "Returns to scale refer to the relationship between changes in output and proportionate changes in all factors of production.

Increasing Returns to Scale:

Returns to scale increase because the increase in total output is more than proportional to the increase in all inputs.

Constant Returns to Scale:

Returns to scale become constant as the increase in total output is in exact proportion to the increase in inputs.

Diminishing Returns to Scale:

Returns to scale diminish because the increase in output is less than proportional to the increase in inputs.

14Q. Define a production function.

Ans: Production function shows a technical relationship between factor inputs (rawmaterials) and outputs (final product) by a firm.

It ca be expressed as:-

Q= f(N,L,K,O)

N= natural land

L= labour

K= capital

O= organisation

15Q. What is perfect competition? State the features of perfect competition.

Ans: Perfect competition is a market structure characterized by a complete absence of rivalry among the individual firms."

A perfectly competitive market is one in which the number of buyers and sellers is very large, all engaged in buying and selling a homogeneous product without any artificial restrictions and possessing perfect knowledge of market at a time.

Feature of perfect competition

- Large number of buyers and sellers
- Homogenous products
- Free entry and exit by all the firms
- Perfect knowledge
- Perfect Mobility of Factors
- No Government Intervention
- No Transport Cost
- Uniform price

Perfect competition Vrs Pure competition

A market structure is said to be pure competition when it possesses the first three features (Large number of buyers and sellers, Homogenous products & Free entry and exit by all the firms). Otherwise it is called perfect competition.

16Q. Differentiate between complementary goods and substitutes goods.

A *complementary good* is a good whose use is related to the use of an associated or paired good. A pair of goods consumed together. As the price of one goes up, the demand for both goods will fall. For example, the demand for one good (printers) generates demand for the other (ink cartridges).

Substitute goods are the opposite of complementary goods. A pair of goods which are considered by consumers to be alternatives to each other. As the price of one goes up, the demand for the other rises. A good or service that may be used in place of another. Tea and coffee are the example.

17Q. Define the terms: Utility, Value, Price and Cost.

Ans: Utility refers to the want satisfying capacity of a product/service.

Value refers to the worth of a product for which an individual ascribes it.

Price is the combination of the manufacturing cost, taxes and profit charged of a product expressed in terms of money terms.

Cost refers to the resources scarified for acquiring a product or service

Module-II

1Q. What do you mean by Time value of money?

Ans. The change in the value of money with change in time is called time value of money. Money has different values at different points of times of time, what is called time value of money. Thus today rupee is costlier than that of tomorrow.

2Q. What is co-termination?

Ans. When two projects terminate at the same period of time or made to do so then it is called co-termination.

3Q. What IRR?

Ans. IRR stands for Internal Rate of Return. The interest rate at which the PW of any cash flow becomes zero is IRR.

4Q. What is salvage value?

Ans. Salvage value of terminal cash flow refers to the end inflows of a project due to the scraping or disposing the assets whose useful economic life come to an end. The amount of money obtained after selling these assets at the end of the project are termed as salvage value or terminal cash flow..

5Q. What is a Perpetual Asset?

Ans. The asset which can work for infinite years and has no expiry period is called a perpetual asset.

6Q. What do you mean Payback Period?

Ans. It is the time period required to get back the first cost or the initial investment.

7Q. What is capitalized worth?

Ans. It is the present worth of a perpetual asset.

8Q. What is depletion?

Ans. Depletion is an accounting concept which is similar to depreciation but it is mostly used in extraction industries to refer to the gradual exhaustion of natural resource deposits such as coal mines, oil fields, etc.

9Q. What do you mean by amortization?

Ans. Amortisation is the gradual reduction of the value of intangible assets over a number of years from the profits of the project or the business in which it is used or felt required. This is a form of depreciation of fixed assets.

10Q. What is compounding

Ans. The process of calculating the interest on the principle amount plus interest accrued for the previous periods, is called compounding

11Q. What is time value equivalence?

Ans. The method of calculating the equivalent future or past value of the known present/future value is called time value equivalence.

12Q. What are the causes of depreciation?

Ans. Causes of Depreciation are : (1) Physical Deterioration (a) Wear and Tear: the fixed asset naturally wears out from the use of it, thus the value of the fixed asset decreases each year. (b) Rust, rot and decay: The metals of the fixed asset, e.g. motor vehicles will rust away over the years, thus results in decrease in value. (2) Obsolescence : which means out-of-date. For instance, typewriter is replaced by computer due to advanced technology. The value of typewriter thus decreases since it is obsolete. (3) Inadequacy: This is when an asset is no longer used because of the changes in the size of the firm. For instance, a mini school-bus is no longer suitable for our school since there are many students taking the school-bus to school, a large school-bus is therefore replace the mini-bus. (4) Depletion : some assets are of a wasting character, due to the extraction of raw materials from them, e.g. mines, oils or quarries.

13Q. What is nominal interest rate?

Ans. The rate of interest where the interest is compounded for multiple times in the same year is called nominal interest rate.

14Q. What is EAW?

The analysis of cash flows of any project or some alternatives available for a project, by converting the various forms of flows into annual equivalent cash flows for decision-making is called EAW(Equivalent Annual Worth).

15q. What is MARR?

Ans. The overall cost of capital or cut-off rate or industry average or any rate at which cash flows are discounting to calculate the present worth of the project is called MARR.MARR stands for Minimum Acceptable Rate of Return.

16Q. Reasons for calculation of Deprecation.

Ans: To know correct profit position of the business.

To evaluate the financial viability and soundness of a business.

To make provision for replacement of an asset.

To assess the tax liability of an organization.

To distribute dividends among the shareholders.

17Q. What are advantages and disadvantages of diminishing balance method of depreciation?

Ans: Adv: i) It is simple to understand and easy to calculate.

ii) A mathematically relation can be employed to arrive at the appropriate percentatage of deprecation.

Dis:i) It is not easy to fix percentage(k) accurately.

ii) A standard percentage(k) for all conditions may produce misleading results.

Module-III

1Q. What do you mean by Cost?

Ans Cost the amount of expenditure (actual or notional) incurred on or attributable to a given thing.

2Q. What is a cost centre?

Ans. A cost centre is "a location, person, or item of equipment (or group of these) for which costs may be ascertained and used for the purpose of control. Thus a cost centre refers to a section of the business to which costs can be charged. Responsibility can be fixed for achievement cost control. The cost centres are primarily classified as production cost centres and service cost centres.

3Q. What do you mean by a cost unit?

Ans. A cost unit is a "unit of product, or service or time in relation to which cost may be ascertained or expressed. Thus a "tone" of sugar and a meter of cloth are cost units. In

simple cost unit is unit of measurement of cost. Broadly cost units may be: units of production and units of service.

4Q. Explain elements of cost.

Ans. Costs can be classified from different points of view. When costs are classified on the basis of their nature they are called as elements of cost. Elements of costs are Material cost, Labour cost and Other expenses. These components of cost or elements of cost are the basis for preparation of cost sheet for the purpose of cost control.

5Q. Chargeable expenses.

Ans. When costs are classified on the basis of nature, they are material cost, labour cost and other expenses. These components are further classified into direct and indirect for easy accounting and for controlling. When other expenses are classified as direct and indirect, the direct portion of other expenses are called as Chargeable expenses, which form a part of Prime cost, while preparing cost sheet.

6Q. What is Prime cost?

Ans. The direct portion of total cost of a product or service is called as prime cost. While preparing the statement of cost i.e., cost sheet the starting point is prime cost. Prime cost consists of Direct material cost, Direct labour cost and Direct other expenses. It is variable in nature as vary with the volume of production or output.

7Q. Explain product cost and period cost.

Ans. Product cost and period cost are covered under cost classification on variability. Product costs are all those cost which relate to the quantity of production or service whereas period cost relate to the period under review. Thus product costs vary with the quantum of output whereas period costs are fixed irrespective of quantity of output.

8Q. What do you mean by Sunk costs?

Ans. A sunk cost is an expenditure made in past that can not be changed and over which management no longer has control. These costs are not relevant for decision making about future. Sunk costs are always results of decisions taken in the past.

9Q. What is a cost sheet?

Ans. The statement of cost according to element-wise is known as cost sheet. A cost sheet is a schedule or document prepared for the presentation of cost details, element-wise in respect of the total cost and cost per unit. Cost sheet has no prescribed format and

no time period. Its form and contents vary from firm to firm. It is prepared for different periods as required like weekly, monthly, quarterly or yearly.

10Q. BEP—explain.

Ans. BEP means break-even-point. It is a point on sales line in our Break-even analysis. It is that point very the total revenue is equal to the total cost incurred to earn that revenue. That means it is a point where there is no profit or loss. In reality BEP is a point where losses cease to occur while profits have not yet begun.

11Q.Explain P/V ratio.

Ans. P/V ratio also known as C/S ratio is a ratio of profit to volume or contribution to sales. Here profit means the contribution made by an amount of sales toward fixed costs first then for profits. It is base factor for all calculations made in break-even analysis.

12Q. Margin of safety.

Ans. MoS or Margin of Safety is the cousin available to a firm to resist any fluctuations in the sales volume. It is excess of actual sales over and above the break-even sales It indicates to what extent the sale volume can be reduced without any loss in case of unfavourable situations.

13Q. RBI.

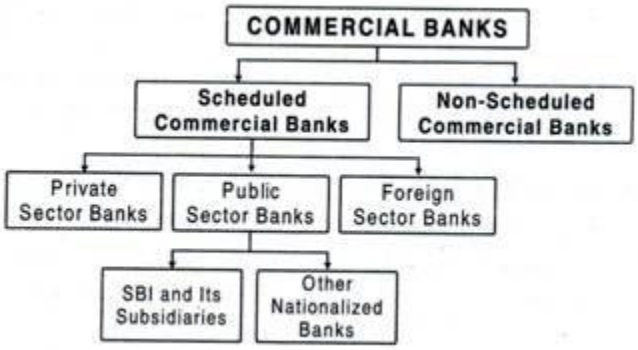
Ans. RBI stands for Reserve Bank of India, which is central bank of our country. It is the leader of the commercial banks of the country, which controls the Monetary Policy of the Indian Rupee. It commenced its operations on 1 April 1935 during the British Rule in accordance with the provisions of the Reserve Bank of India Act, 1934. The RBI plays an important part in the Development Strategy of the Government of India.RBI controls the credit created by commercial bank with the help of bank rate, SLR and CRR.

14Q. Describe Indian financial system.

Ans A financial system or financial sector functions as an intermediary facilitates the flow of funds from the areas of surplus to areas of deficit. A financial system is a composition of various institutions, markets, regulations and laws, practices, money managers, analysts, transactions and claims and liabilities .Thus it consist of four segments, these are financial institutions, financial markets, financial instruments and financial services.

15Q. Explain commercial banking system.

Ans. The functions of commercial banks explain their importance in the economic development of a country. The commercial banks can be broadly classified under two heads:



16Q. Explain opportunity cost.

Ans. The opportunity cost is the cost of an alternative that must be forgone in order to pursue a certain action. Put another way, the benefits you could have received by taking an alternative action.

17Q. Certificate of Deposits (CDs):

Ans:Certificate of Deposit is a tradable market instrument and issued in dematerialized form or a promissory note, for funds deposited at a bank or other eligible financial organizations for a specific period of time.

18. Relevant cost vrs irrelevant cost

Ans: Relevant costs are costs that are affected by a managerial decision in a particular business situation. In other words these are the costs which shall be incurred in one managerial alternative and avoided in another. As the name suggests they are 'relevant' for managerial analysis and should be considered in all calculations made for the purpose. Irrelevant costs are costs that are not affected by the ultimate decision. In other words, these are the costs which shall be incurred in the all managerial alternatives being considered. Since they are the same in all alternatives, they become irrelevant and need not be considered in calculations made for managerial analysis.

Additional Questions

1. what are the most important aspect of decision sciences that are used in engineering economics? ?(2014)

Ans: The elements of cash flows of money, time and interest rates, uncertainty , risk and ambiguity are the defining aspects of any engineering economic decisions.

2. *what basic problem s every economy has to face and solve? ?(2014)*

Ans: An economic problem arises due to scarcity of resources having alternative uses in relation to unlimited wants. In every economy; economic organizations, irrespective of their type, have to face and solve three problems of economics. These three problems are as follows,

- Problem 1 → what commodities are produced & in what quantities.
- Problem 2 → how goods are produced.
- Problem 3 → for whom goods are produced.

3. On what the quantity that a consumer plans to buy depend ? ?(2014)

Ans: The quantity that a consumer plans to buy depends on price of the product, price of available of substitute goods, income of the consumer and future expectation of price change.

4. When an economy is growing at high rate resulting in employment and increase in individual's income, which type of goods are likely to face reduction in demand ?(2014)

Ans: When an economy is growing at high rate resulting in employment and increase in individual's income, inferior goods are likely to face reduction in demand.

5. *Explain the concepts of externalities.*

Ans: Externalities are common in virtually every area of economic activity. They are defined as third party (or spill-over) effects arising from the production and/or consumption of goods and services for which no appropriate compensation is paid. Consumers can create externalities when they purchase and consumer goods and services.

- Pollution from cars and motorbikes
- Negative externalities created by smoking and alcohol abuse
- Negative externalities arising from crime etc

6. *What is planned economy?*

Planned economy is economy where all the decisions relating to production and investment, prices and incomes are decided by the government and therefore citizens of the country do not have a choice, they have to do what government decides for them. In a

planned economy, the factors of production are owned and managed by the government. Thus the Government decides what to produce, how much to produce and for whom to produce.

7. What is the Scope of engineering economics?

Ans: Engineering Economics is the discipline, which involves with the application of economic principles to the engineering problems in order to take economic decisions towards minimising costs and maximisng benefits to mankind or the business organization.

The scope of engineering economics is too broad. The topics which are covered under this heading are: elementary economic analysis, micro economics, macro economics, cash flow techniques, interest rate and its calculations, economic feasibility of engineering under-takings, time value of money, depreciation analysis, replacement analysis, economic life, evaluation of public-private projects, investment decisions, make or buy decisions, basis for comparing engineering alternatives, rate of return like pay-back period analysis, sensitivity analysis etc in one hand and financial evaluation, supply & demand analysis, social cost estimation, demand forecasting, inventory control, price and output determination under different market situations, etc on the other hand.

8. Define production function.

Ans: The act of production involves the transformation of inputs into output. The production function is purely a technology relationship which expresses the relation between output of a good and the different combinations of inputs used in its production.. The production function is written mathematically as

Q = F (L, K, N), where L, K, N are the amounts of land, capital and labour respectively, and Q is the amount of output.

9. What is engineering design process?

Ans: The engineering design process is a series of steps that engineering teams use to guide them as they solve problems. The design process is cyclical, meaning that engineers repeat the steps as many times as needed, making improvements along the way. Many times the solution involves designing a product (like a machine or computer code) that meets certain criteria and/or accomplishes a certain task.

10. Explain the difference between joint demand and composite demand.

Ans: Joint Demand When two or more goods are demanded to satisfy the same want, it is called Joint Demand. A good example of joint demand would be a demand for sugar, coffee powder and milk to produce coffee. Another example could be a razor and razor blades.

Demand for a good that has multiple different uses. An example of composite demand is the demand for water, which can be put to uses such as cooking, cleaning, drinking, etc.

11. Explain with examples when the general law of demand is not applicable.

Ans: The law of demand does not apply in every case and situation. The circumstances when the law of demand becomes ineffective are known as exceptions of the law. The exception relates to certain prestige goods such as, diamonds, gold, antique paintings, etc. Goods related to fashion do not follow the law of demand i.e any particular type of dress is in fashion. The law does not operate in case of necessities of life due to their constant use. For example, commodities like rice, wheat, salt, medicines, etc. are purchased even if their prices increase.

12. During bumper crop production, it is often seen the farmers suffer a lot. Why does it happen?

Ans: During bumper crop production, it is often seen the farmers suffer a lot because of variety of adverse circumstances such as weather, lack of storage etc. The grain markets do not have adequate facilities for off-loading, storage and proper procurement. The farmers are forced to sell the produce at a loss as supply becomes more than demandof the product.

13. *The individual demand function is given by Qx= 30 -3Px. the price of commodity (Px) in rupees is given as 7,6,5,4,3,2,1. Find out the individual demand.*

Ans: Given:

The individual demand function is given by Qx= 30 -3Px

So that, the demand schedule is:

Price	Quantity(Qx)= 30 -3Px
7	9
6	12
5	15

4	18
3	21
2	24
1	27

14. Which institution is regarded as the lender of last resort? Why? Explain.

Ans: Reserve bank of India is regarded as the lender of last resort, because, it is the source for commercial banks in our country, in order to raise the funds when they are unable elsewhere. In India Reserve bank of India is the leader of the commercial banks and it fulfills the requirements of commercial banks and regulates the banking system in India.

15. Explain the concept of bill discounting and re-discounting.

Ans: Discounted bill: An accepted draft or bill of exchange sold for early payment to a bank or credit institution at less than face value after the bank deducts fees and applicable interest charges. The bank or credit institution then collects full value on the draft or bill of exchange when payment comes due.

Rediscount is the act of discounting a short-term negotiable debt instrument for a second time. Banks may rediscount these short-term debt securities to assist the movement of a market that has a high demand for loans. When there is low liquidity in the market, banks can generate cash by rediscounting short-term securities.

Rediscount is a way of providing financing to a bank or other financial institution. Especially in the 19th century and early 20th century banks made loans to their customers by "discounting" the customer's note. The note is a paper document, in a specified form, where the borrower promises to repay a certain amount at a specified date.

16. Which institution plays roles in money market and capital market? Explain these roles in brief.

Ans: Ans: Reserve bank of India plays roles in both money market and capital market. The role of RBI in strengthening the money market by way of certain measures like:

- Deregulation of Interest Rates
- Reforms In Call And Term Money Market
- Introducing New Money Market Instruments like 182 days Treasury bills, 364 days Treasury bills, CD3 and CPs

- Refinance by RBI like Export credit refinance and general refinance.
- Money Market Mutual Funds were introduced in 1992
- The Discount and Finance House of India was set up on 25th April 1988
- The Clearing Corporation of India Limited (CCIL) was registered in 2001 under the Companies Act, 1956 with the State Bank of India as Chief Promoter.
- Regulation of NBFCs in 1997

RBI plays a vital role in the regulation of capital market along with other regulater of the capital market like SEBI. Indian Capital Markets are regulated and monitored by the Ministry of Finance, The Securities and Exchange Board of India and The Reserve Bank of India.

17. Spillover Benefits vrs Spillover costs

Examples of spillover benefits:

- A flood control dam that benefits some people who have not paid for it
- A contribution to public television benefits some who watch it but have not contributed themselves
- A new scientific discovery that treats a common disease
- More educated people become better workers and better citizens who benefit those around them

Spillover cost," also known as "negative externality," is a term used to describe some loss or damage that a market transaction causes a third party. The third party ends up paying for the transaction in some way, even though it was neither the buyer nor the seller and had no part in the original decision.

18. *India has been adopting Mixed Economy since long. Explain the reasons*.

Ans: After Independence, our country had an upheaval task of running the nation on its own. India adopted a mix of Socialism and Capitalism for itself. Though Private sector did exist, there wasn't much freedom for it to operate. India has adopted mixed economy as its economic system to bring about a socialistic pattern of society. In a mixed economy, private and public sectors go side by side. The government directs economic activity in some socially important areas of the economy, the rest being left to the price mechanism to operate. The reasons for adopting mixed economy are due to socialistic pattern of society, Coexistence of Public and Private Sectors, Planned Development.

19. *There could be negative returns in production analysis. List out four such causes contributing to negative returns.*

Ans:

1. Limitation of Fixed Factor:

The negative returns to a factor apply because some factors of production are of fixed nature, which cannot be increased with increase in variable factor in the short run.

2. Poor Coordination between Variable and Fixed Factor:

When variable factor becomes too excessive in relation to fixed factor, then they obstruct each other. It leads to poor coordination between variable and fixed factor. As a result, total output falls instead of rising and marginal product becomes negative.

3. Decrease in Efficiency of Variable Factor:

With continuous increase in variable factor, the advantages of specialization and division of labour start diminishing. It results in inefficiencies of variable factor, which is another reason for the negative returns to eventually set in.

20. . After a careful statistical analysis, Tasty Burgers of Mumbai concluded that the demand function for its burgers is:

Q =500 -3P+2Pi+0.1Y,where Q : Quantity demanded of its burgers, P :Price of its burgers ,Pi: Price of burgers of jumbo burgers (the closest rival of Tasty Burgers),Y: Disposable income of consumers of Mumbai.

In the year 2011 , P =Rs. 10/-; Pi= Rs20/- ;Y =6000

(a) What is the price elasticity for the burgers of Tasty Burgers ? 3

(b) What is the income elasticity for burgers of Testy Burgers ? 3

(c) *What is the cross elasticity of demand between the burgers of Testy Burgers and Jumbo Burgers ?*

Ans:

Given:

Demad function is: *Q =500 -3P+2Pi+0.1Y*

P =Rs. 10/-; Pi= Rs20/- ;Y =6000

So that Q = 1110

(a) the price elasticity for the burgers of Tasty Burgers(Ep) $= \frac{\partial Q}{\partial p} * \frac{P}{Q}$

*i.e -3 *10/1110 = -3/111*

(b) *the income elasticity for burgers of Testy Burgers(Ey)* $= \frac{\partial Q}{\partial Y} * \frac{Y}{Q}$

i.e 0.1* 6000/1110 = 0.1* 600/111=60/111

(c) *the cross elasticity of demand between the burgers of Testy Burgers and Jumbo Burgers(Exy)* = $= \frac{\partial Q}{\partial Pi} * \frac{Pi}{Q}$ i.e 2* 20/1110 = 4/111

21. The following demand function for readymade trousers is estimated as follows:

Q=2000+15Y-5.5 P

Where Y is income in thousands of rupees, Q is the quantity demanded in units and P is the price per unit.

(a) When P =Rs. 150 and Y =Rs. 15000 determine the price elasticity of demand and income elasticity of demand.

(b) Assess how sale of trousers would change during a period of rising incomes.

Ans:

Given:

Demad function is: Q =2000 +15Y – 5.5P

P =Rs. 150/-;;Y =15000

So that Q = 226175

(b) The price elasticity of demand(Ep) $= \frac{\partial Q}{\partial p} * \frac{P}{Q}$

i.e -5.5 *150/226175 = 0.00364<1(Relatively inelastic demand)

The income elasticity of demand(Ey) $= \frac{\partial Q}{\partial Y} * \frac{Y}{Q}$

i.e 15* 15000/226175 = 0.9948<1 (Relatively inelastic demand)

(b) Increasing in income induces the consumer to buy more of the same commodity or to buy superior product instead of old one . It is called income effect. So the sale of trousers would increase in one hand and preferences of purchase superior product will take place on the other during a period of rising incomes.