Solution for Model Question Paper- HS200 Business Economics

Time: 3 *Hours* **Max. Marks: 100**

Part A

(Answer any 3 Questions out of 4 Questions. Each carries 10 Marks)

1. a. ***Discuss the scope of Business Economics***.

Solution :

The scope of business economics is so wide that it consists of almost all the problems and areas of the manager and the firm. The following aspects are said to generally fall under business economics.

a) ***Demand analysis and forecasting*** – A business firm is an economic organization which transform productive resources into goods to be sold in the market. A major part of business decision making depends on accurate estimates of demand. A demand forecast can serve as a guide to management for maintaining and strengthening market position and enlarging profits. Demands analysis helps identify the various factors influencing the product demand and thus provides guidelines for manipulating demand. Demand analysis and forecasting provides the essential basis for business planning and occupies a strategic place in managerial economic.

b) ***Cost and production analysis*** – A study of economic costs, combined with the data drawn from the firm's accounting records, can yield significant cost estimates which are useful for management decisions. An element of cost uncertainty exists because all the factors determining costs are not known and controllable. Discovering economic costs and the ability to measure them are the necessary steps for more effective profit planning, cost control and sound pricing practices. Production analysis frequently proceeds in physical terms while cost analysis proceeds in monetary terms. The main topics covered under cost and production analysis are *cost concepts* and *classification*, *cost-output relationships*, *economics* and *diseconomies of scale*, *production function* and *cost control*.

c) ***Pricing decisions, policies and practices*** – Pricing is an important area of business economic. In fact, price is the genesis of a firms revenue and as such its success largely depends on how correctly the pricing decisions are taken. The important aspects dealt with under pricing include price determination in various market forms, pricing method, etc.

d) ***Profit management*** – Business firms are generally organized for purpose of making profits and in the long run profits earned are taken as an important measure of the firm's success. If knowledge about the future were perfect, profit analysis would have been a very easy task. However, in a world of uncertainty, expectations are not always realized so that profit planning and measurement constitute a difficult area of business economic. The important aspects covered under this area are nature and measurement of profit, profit policies and technique of profit planning like break-even analysis.

e) ***Capital management*** – Among the various types business problems, the most complex and troublesome for the business manager are those relating to a firm's capital investments. Relatively large sums are involved and the problems are so complex that their solution requires considerable time and labour. Often the decision involving capital management is taken by the top management. Briefly capital management implies planning and control of capital expenditure. The main topics dealt with are cost of capital rate of return and selection of projects.

b. ***Is usefulness same as Utility? Justify your answer with examples.***

Solution:

Utility should not be equated with usefulness. The capability of a product to satisfy human want is referred as utility. Usefulness is associated with those goods and services which are useful and are related to the betterment of the human beings. The concept of utility is related to all those products which provide utility, irrespective of whether they are useful or harmful.

The product's usefulness is related to its ability to create wellbeing for the humans. The products which do not create such well being may not create usefulness. All those products which provide satisfaction to the consumer are considered to have utility. These may include even those products which are not useful but harmful. The examples in this situation may be the addictions like cigarette and alcohol. Products like groceries, medicines and so on could be said to have usefulness. It simply means that usefulness is rooted in the well being.

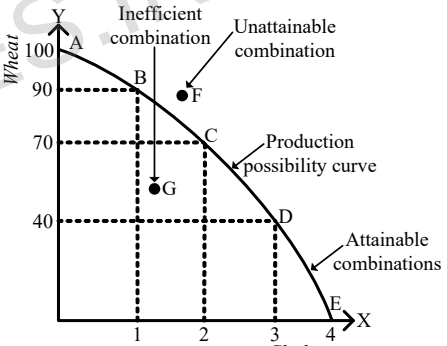
2. a. ***With the help of a suitable diagram explain Production Possibility Curve.***

Solution :

Production possibility schedule is that schedule which shows alternative production possibilities of two sets of goods with the given resources and technique of production. Production possibility curve is a graphic presentation of production possibility schedule, showing alternative production possibilities of two sets of goods with the given resources and technique of production. Let us suppose that an economy can produce two commodities, wheat and cloth. We suppose that the productive resources are being fully utilized and there is no change in technology. If all the resources of production are used for the production of wheat alone, then 100 *lakh tonnes* of wheat can be produced. On the contrary, if all the factors of production are used for the production of cloth alone, then 4000 *bales* (bundles) of cloth can be produced. If the economy produces both the goods, then within these limits, various combinations of two goods can be produced. The following table gives production possibility schedule.

Goods	***Production possibilities***				
	A	***B***	***C***	***D***	***E***
Wheat *(lakh tones)*	100	90	70	40	0
Cloth *(1000 bales)*	0	1	2	3	4

The above schedule shows that besides the extreme limits 'A' and 'E', there are many alternative possibilities of production of wheat and cloth. For instance, under 'B' combination, it is 90 *lakh tonnes* of wheat and 1000 *bales* of cloth; under 'C' combination it is 70 *lakh tonnes* of wheat and 2000 *bales* of cloth and so on. Representing these various production possibilities on a graph, we get production possibilities curve as shown in the figure. Point 'F' represents unattainable combination and point 'G' inside the curve represents inefficient use of resources. A production possibility curve illustrates three concepts.



Production possibility curve

a) ***Scarcity*** – Scarcity is illustrated by point 'F' which lies outside the production possibility curve. To reach point 'F', an increase in resources and/or an increase in efficiency of production are needed.

b) ***Choice*** – It is implied by the need to choose among the attainable points on the curve. For instance, we need to choose whether we are going to produce combination 'C' or combination 'D'.

c) ***Opportunity cost*** – Opportunity cost is the value of the next-best alternative that is given up or it is the cost of a missed opportunity. Opportunity cost is illustrated by the negative slope of the curve which indicates that more of one good can only be obtained by sacrificing the other good. In terms of the production possibility curve, the opportunity cost of increasing the production of cloth from 1000 to 2000 leads to the decrease in the production of wheat from 90 *lakh tonnes* to 70 *lakh tonnes*.

b. ***What do you understand by i. Veblen Effect ii. Griffen's Paradox***

The goods of status are named after *Thorstein Veblen* as *Veblen goods*. *Veblen goods* are prestigious goods. They promote social prestige of the holder. Diamonds and other precious stones are all status goods. Higher the price, more the demand for them.

Giffen good is necessarily an inferior good consumed mostly by poor consumers as essential commodities. Cheaper varieties of goods like low priced rice, low priced bread, potatoes, etc., are some examples of *giffen* goods.

Sir Robert Giffen of *England* observed that in the 19th century low-paid *British* workers were purchasing more bread when its price was rising. When the price of bread was falling, instead of buying more bread they were buying less. He was puzzled by this contradiction of buying more at rising prices and buying less when prices were falling. Bread and meat was the staple food (food that is eaten routinely) of low wage earners. When the price of bread increased, after purchasing bread they did not have surpluses money to buy meat. So the rise in price of bread compelled people to buy more bread and thus raised the demand for bread. When the price was falling, instead of buying more they tried to buy less of bread and use the savings for the purchase of meat. This behaviour is now called ***Giffen's paradox*** and such goods are termed *inferior* or ***Giffen goods***. So, *Giffen's* good is a special type of inferior goods where the increase in the price results into the increase in the quantity demanded. This happens because these goods are consumed by poor people who would like to buy more if the price increases. For example, in the case of a poor person who buys inferior quality vegetables, if the price of such vegetables increases then they prefers to buy more because they think that it would be of a better quality. Thus, in case of *Giffen* goods, there is direct relationship between price and quantity demanded.

3. ***a. If you are the Finance Minister, for which item, eg. Perfectly Elastic or Perfectly Inelastic item will you increase tax to ensure additional revenue. Why?***

Solution :

If the demand for a product is perfectly elastic, the rise in price level causes quantity demanded fall to zero. So the imposition of tax to elastic goods would lead to reduction in quantity demanded and hence reduction in the tax revenue. If demand is perfectly inelastic, consumers would buy the same quantity even after the imposition of the more tax. We have seen that the rise in taxes is usually for items such as alcohol, tobacco and petrol, all of which are relatively price inelastic.

4. ***Suppose the production function is $Y = 2K^{1/4}L^{3/4}$ and K = L = 1. How much output is produced? If we reduced L by 10%, how much would K need to be increased to produce the same output?***

Solution :

Given that, $Y = 2K^{1/4}L^{3/4}$ and $K = L = 1$

i.e., $Y = 2 \times K^{\frac{1}{4}} \times L^{\frac{3}{4}} = 2 \times 1^{\frac{1}{4}} \times 1^{\frac{3}{4}} = 2$

10% reduction in value of $L = 1 \times \frac{90}{100} = 0.9$

$\therefore$ To produce the same output of 2, change to be made on K is calculated as follows.

i.e., $2 = 2 \times K^{\frac{1}{4}} \times 0.9^{\frac{3}{4}}$

$\therefore K = 1.3717$

Part B

(Answer any 3 Questions out of 4 Questions. Each carries 10 Marks)

5. ***The owner of Old-fashioned Berry Pies is thinking of adding a new line of pies which require leasing new equipment for a monthly payment of $6000. Variable costs would be $2 per pie and retail price per pie is $7.***

a. How many pies must be sold in order to break even?
b. What would be the profit (or loss) if 1000 pies are made and sold out in a month?
c. How many pies must be sold to realize a profit of $4000?
d. If 2000 can be sold and a profit target is $5000, what price should be charged per pie?

Solution :

Given, $v = \$2.0, s = \$7, F = 6000$

a) *Break Even Point in units*, $Q = \frac{F}{(s\ -\ v)} = \frac{6000}{(7\ -\ 2)} = 1200$ *pies*

b) $(\text{No. of units sold} \times s) - [F + (v \times \text{No.of units sold})]$=Profit/Loss

i.e., Profit/Loss $= (1000 \times 7) - [6000 + (2 \times 1000)]$

$= -\$1000$ [i.e., loss]

c) $(\text{No. of units sold} \times s) - [F + (v \times \text{No.of units sold})]$=Profit/Loss

i.e., $(\text{No. of units sold} \times 7) - [6000 + (2 \times \text{No.of units sold})] = 4000$

$\therefore$ No. of units to be sold to get a profit of $4000 is 2000 pies.

d) $(\text{No. of units sold} \times s) - [F + (v \times \text{No.of units sold})]$=Profit/Loss

i.e., $(2000 \times s) - [6000 + (2 \times 2000)] = 5000$

The selling price of a pie to get a profit of $5000 by selling 2000 pies is $7.5.

b. ***Discuss Variable Proportion Production. How is it different from Fixed Proportion Production?***

Solution :

Production function is of two different forms viz., fixed proportion production function and variable proportion production function. These are explained as follows.

a) ***Fixed proportion production function*** – A fixed proportion production function is one in which the technology requires a fixed combination of inputs, say capital and labour, to produce a given level of output. There is only one way in which the factors may be combined to produce a given level of output efficiently. In this type of production, there is no possibility of substitution between the factors of production. The fixed proportion production function is characterized by constant returns to scale, i.e., a proportionate increase in inputs leads to a proportionate increase in outputs.

b) ***Variable proportions production function*** – The variable proportion production function is the most familiar production function. In this case, a given level of output can be produced by several alternative combinations of factors of production, say capital and labour. It is assumed that the factors can be combined in infinite number of ways, thus, one factor can be substituted for the other. For example, certain amount of wheat may be produced using more labour and less capital in *India* and more capital and less labour in *USA*.

6. ***Discuss the following.***
a. Features of Monopolistic Competition.
b. Oligopoly

Solution :

Monopolistic competition is a market structure characterized by the following.

a) ***Large number of buyers and sellers*** – In a monopolistic competition, there will be large number of firms but not as large as under perfect competition. This means each firm can control its price-output policy to some extent.

b) ***Product differentiation*** – The distinct feature of monopolistic competition is product differentiation. Though the number of firms is large but their products differ from one another, in colour, shape, brand, quality, durability, etc., these products are close substitutes. Product differentiation has many examples i.e. in case of soaps, we have several brands as *Lux*, *Pears*, *Palmolive*, etc., and in case of tea, *Lipton*, *Brooke Bond*, *Taj Mahal*, etc. *Because of product differentiation, each firm can decide its price policy independently*. So that each firm has a partial control over price of its product.

c) ***Freedom of entry and exit of firms*** – Firms are free to enter into, or exit from the industry. But new firms have no absolute freedom of entry into industry.
They may have to face several difficulties. Products of some firms may be legally patented. No rival firm can produce and sell a patented item like *Woodland shoes*.

d) ***Pricing decision*** – A firm under monopolistic competition is neither a price- taker nor a price-maker. However, by producing a unique product or establishing a particular reputation, each firm has partial control over the price.

e) ***More can be sold only at lower price*** – Under monopolistic competition, a firm can sell more of the product only by lowering the price. Accordingly, firm's *demand curve* is more elastic and the curve slopes downwards.

f) ***Lack of perfect knowledge*** – The buyers and sellers do not have perfect knowledge of the market. There are innumerable products each being a close substitute of the other. The buyers do not know about all these products, their qualities and prices.

The main features of an oligopoly market situation are as follows.

1. There are a large number of buyers.
2. There are only a few sellers.
3. There are entry and exit barriers.
4. The product may be homogeneous or heterogeneous, i.e., similar or differentiated.
5. The price-output decisions of one firm are highly dependent on those of others.

7. ***Explain how RBI controls inflation.***

Solution :

RBI controls inflation by the following methods.

a) ***Bank rate policy*** – To control inflation the central bank increases the bank rate. With this the cost of borrowing of commercial banks from RBI will increase so the commercial banks will charge higher rate of interest on loans. This discourages borrowings and thereby helps to reduce the money in circulation.

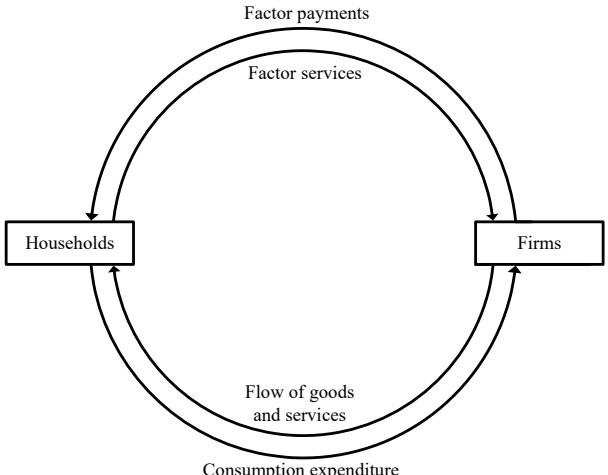
b) ***Open market operation*** – Open market operations consist of buying and selling of govt. securities by the RBI. During the period of inflation, RBI issues govt. securities to the commercial banks for which they have to pay to RBI resulting in limitation of funds and they cannot lend further.

c) ***Variable Reserve Ratio*** – The commercial banks have to keep certain percentage of their deposits with RBI in the form of cash reserve. During inflation, the central bank increases this cash reserve ratio reducing the lending capacity of the banks.

8. ***With the help of a diagram, explain two sector model for circular flow of money.***

Solution :

In a two sector economy, only two sectors are considered viz., ***households*** and ***firms***. There is no *government sector* and no *foreign sector*. There exists a flow of services from the households to the firms and a corresponding of factor incomes from the firms to the households. Firm produces goods and services with the help of factor services from households and pay rewards to household sectors for their factor services in the form of rent, wage, interest, etc. After this first round, firms have goods and services and household sectors have income which they want to spend for satisfying their wants.



Circular flow of income for two sector model

Household sector spends its earned money to buy goods and services from firm and thus, firm, in return gets money in this exchange. This two-way circulation (one clockwise and the other anti-clockwise) goes on moving and re-cycling of economic activities in both the sectors takes place.

Briefly, circular flow model shows that production during the year is converted into factor income (implying income of the owners of factors of production in terms of rent, interest, profit and wages) during the year, and factor income during the year is converted into expenditure (on goods and services) during the year. Thus, ***factor payments*** = ***income of households*** = ***consumption expenditure of households***.

Part C
(Answer any 4 Questions out of 6 Questions. Each carries 10 Marks)

9. ***Discuss the classification of investment analysis techniques and popular methods under each.***

Solution :

The investment analysis techniques include ***Payback period***, ***Average Rate of Return ARR***, ***Net Present Value*** (***NPV***), ***Internal Rate of Return*** (***IRR***) and ***Profitability Index***.

ARR (***Average Rate of Return***) method is also called the ***Return on Investment*** (***ROI***) since, the return is measured in accounting terms and concepts. It is a mere expression of the expected return as a percentage to investment. The average return on investment is defined as *the ratio of the net average annual income from the project to the initial investment*. The net income is defined as the different between the net cash inflows generated by the project and the cash outflows resulting from the initial investment. The net average annual income is defined as the income divided by the life of the project measured in years.

$$ARR = \frac{Average\ income}{Average\ investment}$$

The average profits after tax are determined by adding up the after-tax profits expected for each year of the project's life and dividing the result by the number of years. The average investment is determined by dividing the net investment by 2.

Payback period method determines the period of time required for the return on an investment to '*repay*' the sum of the original investment. *When all other things being equal, the better investment is the one with the shorter pay-back period.* There can be two situations, one, when the *net annual cash inflow is the same every year*, and two, when it is *uneven*. For even cash flows, the expression for calculating payback (***P***) is as below.

Then, $P = \frac{C}{R}$

; where,

P = Payback period in years,
C = Original capital investment and
R = Net returns per annum.

10. ***Initial outlay for each of the following projects is Rs. 15,000 & standard payback is 3 years. Evaluate the projects and rank them based on payback period.***

Year	*Project A*	*Project B*	*Project C*	*Project D*
1	5000	3500	2500	8000
2	5000	4000	2500	6000
3	5000	4500	2500	6000
4	5000	6000	2500	5000
5	5000	6000	2500	5000

Solution :

Cumulative cost for each project is computed and tabulated in the table below.

Year	Project A		Project B		Project C		Project D	
	Cost	Cum. cost	Cost	Cum. cost	Cost	Cum. cost	Cost	Cum. cost
1	5000	5000	3500	3500	2500	2500	8000	8000
2	5000	10000	4000	4000	2500	5000	6000	6000
3	5000	**15000**	4500	4500	2500	7500	6000	**6000**
4	5000	20000	6000	**6000**	2500	10000	5000	5000
5	5000	25000	6000	6000	2500	12500	5000	5000

For Project A,

The above table shows that for the Project A having constant cash flow, the payback period is,

$$P = \frac{C}{R} = \frac{15000}{5000} = 3 \text{ years}.$$

For Project B,

The above table shows that for the Project B having uneven cash flow, the payback period will emerge in the 4th year. The number of number of years immediately preceding the year of payback period, E = 3. By the end of 3rd year, *Rs*.12000 has been recovered. Hence, balance to be recovered, $B = Rs.15000 - Rs.12000 = Rs.3000$. Also, cash flow during the year 4 is, C = *Rs*.60000. Substituting the above values in the expression below, we get,

$$P = E + \frac{B}{C} = 3 + \frac{3000}{6000} = 3.5 \text{ years}.$$

For Project C,

The above table shows that for the Project C, the payback period is more than 5 years and hence it is not accepted.

For Project D,

The Project D with uneven cash flow, the payback period will emerge in the 3rd year. The number of number of years immediately proceeding the year of payback period, E = 2. By the end of 2nd year, *Rs*.14000 has been recovered. Hence, balance to be recovered, $B = Rs.15000 - Rs.14000 = Rs.1000$. Also, cash flow during the year 3 is, C = *Rs*.60000. Substituting the above values in the expression below, we get,

$$P = E + \frac{B}{C} = 2 + \frac{1000}{6000} = 2.166 \text{ years}.$$

So, based on the Payback period, the projects are ranked as follows.

1. Project D with Payback period of 2.166 *years*.
2. Project A with Payback period of 3 *years*,
3. Project B with Payback period of 3.5 *years* and
4. Project C with Payback period of more than 5 *years*.

11. ***Discuss the advantages and disadvantages of IRR over NPV.***

Solution :

Though both NPV and IRR are methods of discounted cash flow, yet they are different from each other due to the following points.

1. The net present value method takes the interest rate as a known factor while internal rate of return method takes it as an unknown factor.

2. The net present value method seeks to find out the amount that can be invested in a given project so that its anticipated earnings will exactly suffice to repay this amount with interest at the market rate. On the other hand, internal rate of return method seeks to find the maximum rate of interest at which the funds invested in the project could be repaid out the cash inflows arising out of that project.

3. Both the net present value method and internal rate of return method proceed on this presumption that cash inflows can be reinvested at the discounting rate in the new projects. However, reinvestment of funds at the cut-off rate is more possible than at the internal rate of return. Hence, net present value method is more reliable than the internal rate of return method for ranking two or more capital investment projects.

12. ***a. State the Accounting Equation and explain its terms***

Solution :

Accounting equation is expressed as below.

Assets = ***Liabilities*** + ***Owners equity*** (***capital***)

This means that assets, or the means used to operate the company, are balanced by a company's financial obligations, along with the equity investment brought into the company and its retained earnings.

Assets denote the resources acquired by the business from the funds available either by owners of the business or others. It includes all rights or properties which a business owns. Cash, investments, bills receivable, debtors, stock of raw materials, work in progress and finished goods, land, building, machinery, trademarks, patent rights, etc., are some examples of assets. ***Liabilities*** denote claims against the assets of a firm whether those of owners of the business or of the creditors that are to be satisfied by the disbursement or utilization of corporate resources.

b. Explain the usefulness of Balance Sheet.

Solution :

The preparation of balance sheet provides following advantages.

1. It throws light on the financial position of the business as characterized by its assets and liabilities.
2. It reflects the outcome of investing and financing decisions.
3. It provides relevant information to explain the liquidity position of the business. Liquidity, besides profitability, position, is a very important yardstick to evaluate the effectiveness and performance of the business.
4. It portrays the claim of owner(s) and others in the business.

13. ***Explain the terms***
a. Associative Forecasting
b. Delphi Technique

Solution :

Associative forecasting models (causal models) assume that the variable being forecasted (the dependent variable) is related to other variables (independent variables) in the environment. This approach tries to project demand based upon those associations. In its simplest form, linear regression is used to fit a line to the data. That line is then used to forecast the dependent variable for some selected value of the independent variable.

In *Delphi Technique* method, a panel of experts is asked to respond to a series of questionnaires. The responses are tabulated and opinions of the entire group are made known to each of the other panel members so that they may revise their previous forecast response. The process continues until some degree of consensus is achieved. Forecast can be made quickly and economically using this method.

14. ***Develop a trend equation for the following data and predict the sales in the 7th Week.***

Week	*Demand*
1	150
2	157
3	162
4	166
5	177

Solution :

Regression equation of '**y**' on '**x**', $y = a + bx$

Week	*Time deviation from 3 X*	*Y*	X^2	*XY*
1	-2	150	4	-300
2	-1	157	1	-157
3	0	162	0	0
4	1	166	1	166
5	2	177	4	354
	0	812	10	63
	$\Sigma x = 0$	$\Sigma y = 812$	$\Sigma x^2 = 10$	$\Sigma xy = 63$

$$a = \frac{\sum y}{N} = \frac{812}{5} = 162.4 \qquad \text{and} \qquad b = \frac{\sum xy}{\sum x^2} = \frac{63}{10} = 6.3$$

Hence regression equation takes the form, $y = 162.4 + 6.3x$. With the help of this equation we can project the trend values for the 6th and 7th week.

$y_6 = 162.4 + 6.3(3) = 181$ units.

$y_7 = 162.4 + 6.3(4) = 187.6$ units.

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