UNIVERSITY PAPER SOLUTIONS

OCTOBER - 2016

Duration : 3 Hours **Total Marks :** 100

N.B. (1) **All** questions are **compulsory.**
(2) **All** questions have internal **choice.**
(3) Draw **neat diagrams** wherever necessary.
(4) Use of simple calculators is permitted.
(5) **Figures** to the **right** indicate **full** marks.

1. (A) Define the following concepts : (Any Ten) 10

(i) Equation
(ii) Average revenue
(iii) Equilibrium price
(iv) Cross elasticity of demand
(v) Income elasticity of demand
(vi) Demand forecasting
(vii) Isoquant
(viii) Constant returns to scale
(ix) Diseconomics of scale
(x) Total cost
(xi) Implicit cost
(xii) Break-even point

1. (B) Select the best answer from the given options and rewrite the statement : (Any Ten) 10

(i) Which of the following shows the relationship between the price of a good and the amount of the good that consumers want at that price ?
(a) Supply curve (b) Demand curve
(c) Supply schedule (d) Production posibilities frontier

(ii) The market clearing price is also called the
(a) Current price (b) Prevailing price
(c) Equilibrium price (d) None of the above

(iii) What is the cause of the rightward shift of the demand curve for cars?
(a) An increase in income (b) An increase in population size
(c) Lower prices of petrol (d) All of the above

(iv) A percentage change in quantity demanded divided by a percentage change in price is called
(a) Income elasticity of demand
(b) Price elasticity of demand
(c) Price elasticity of supply
(d) Elasticity of substitution

(v) On the lower segment of a downward sloping straight line demand curve price elasticity of demand is
(a) > 1 (b) < 1
(c) = 1 (d) none of the above

(vi) Expert opinion is a
(a) Survey method (b) Statistical method
(c) Both (a) and (b) (d) None of the above

(vii) If there is zero substitutability between capital and labour the isoquant is
(a) a straight line (b) 'L' shaped
(c) Concave to the origin (d) None of the above

(viii) The total amount of output produced is called
(a) Total supply (b) Total product
(c) Both (a) and (b) (d) None of the above

(ix) Using five units of labour a firm can produce 2500 units of a good. Using six units of labour the firm can produce 3000 units of the good. The marginal product of the sixth unit of labour is
(a) 100 units (b) 1500 units
(c) 2000 units (d) 500 units

(x) The rent of a factory is an example of

(a) Variable cost (b) Fixed cost

(c) Both (a) and (b) (d) Neither (a) nor (b)

(xi) Which of the following curves is used for planning ?

(a) SAC (b) SMC

(c) LAC (d) LMC

(xii) The break-even point is influenced by

(a) Price (b) Average variable cost

(c) Fixed cost (d) All of the above

2. Attempt A and B OR C and D :

(A) What is business economics ? Discuss its scope. 8

(B) Given the following data : 7

Q	1	2	3	4	5
O	10	9	8	7	6

(i) Calculate TR, AR and MR.

(ii) Explain the relationship between TR and MR, MR and AR.

OR

(C) Using diagrams explain changes in equilibrium due to : 8

(i) increase in demand

(ii) increase in supply

(D) (i) Given the following data for supply and demand for pizzas : 7

Price (₹) per pizza	Quantity Demanded (Pizzas per week)	Quantity Supplied (Pizzas per week)
8	0	40
6	10	30
4	20	20
2	30	10
0	40	0

Identify the :

(a) equilibrium price

(b) equilibrium quantity demanded and supplied

(ii) If $Q_{DX} = 65,000 - 10,000\ P_x$ describes demand for sports shoes. Complete the following table for P_x = 6, 5, 4, 3. Show your working.

(iii) What are the determinants of demand other than the price of the good itself ?

3. Attempt A and B OR C and D.

(A) Explain the nature of demand curves of firms in perfect competition and oligopoly markets.

(B) When the price of season cricket passes is ₹ 400 per pass, the quantity demanded is 10,000 passes. When the price is reduced to ₹ 380 per pass the quantity demanded is 12,000 passes.

(i) Calculate price elasticity of demand.

(ii) According to your answer in (i) what is the degree of price elasticity ?

(iii) Explain the significance of price elasticity of demand.

OR

(C) What are the various types of demand forecasts ? 8

(D) (i) What are the steps in demand forecasting ? 7

(ii) Given the following demand function $Q_{DX} = 60 - 0.7\ P_x$. If future price is ₹ 20, what would be your forecast of quantity demanded?

4. Attempt A and B OR C and D.

(A) (i) Distinguish between fixed proportions and variable proportions production functions. 8

(ii) Explain why :

(a) isoquants are convex to the origin

(b) isoquants cannot interest

(B) Using isoquants and the expansion path explain the law of returns to scale. 7

OR

(C) Discuss external economies and diseconomies of scale. 8

(D) Using a diagram explain the law of variable proportions. 7

5. Attempt A and B OR C and D.

(A) Draw diagrams to illustrate : 8

(i) TFC, TVC and TC

(ii) AFC

(iii) AVC, AC, MC

(iv) The relationship between AC and MC

(B) Given the following data : 7

Q	0	1	2	3	4	5	6	7
TC	40	52	59	64	70	78	89	103

Calculate TFC, TVC, MC, AFC, AVC and AC.

OR

(C) Construct the LAC curve using SAC curves. 8

(D) If price = ₹ 7, AVC = ₹ 5 and TFC = ₹ 40,000 7

(i) What is the break-even quantity ?

(ii) What happens to the break-even quantity when price increases to ₹ 9, AVC and TFC remaining the same ?

(iii) What happens to the break-even quantity when AVC increases to ₹ 6, price and TFC remaining the same ?

6. Attempt A and B OR Write short notes on any four :

(A) Discuss internal economies and diseconomies of scale. 10

(B) Explain break-even analysis with the help of diagrams. 10

OR

Write short notes on any four of the following : 20

(i) Functions and variables

(ii) Relationship between price elasticity and total revenue

(iii) Consumer survey method of demand forecasting

(iv) Economies of scope

(v) Learning curve

(vi) Limitations of break-even analysis

SOLUTION - OCTOBER 2016

Answer - 1 (A) :

(i) **Equation :** An equation specifies the **relationship between the dependent and independent variables.** For example $Q_x = -bP_x$, where Q_x is quantity demand of X and P_x is price per unit of X and -b is a constant that specifies the relationship between Q_x and P_x.

(ii) **Average revenue:** Average revenue is the **revenue earned per unit of output sold.** AR = Total revenue/ Output sold

(iii) **Equilibrium price:** Equilibrium price is the price at which the **demand for a commodity is equal to its supply** and there is no shortage and no surplus.

(iv) **Cross elasticity of demand:** Cross elasticity of demand measures the **percentage or proportionate change in the quantity demanded of a commodity due to a percentage or proportionate change in the price of a substitute or complementary commodity.** E_c = Percentage change in the quantity demanded of X/Percentage change if the price of Y.

(v) **Income elasticity of demand: Income elasticity of demand measures the percentage or proportionate change in the quantity demanded of a commodity due to a percentage or proportionate change in the consumer's income.** E_y = Percentage change in the quantity demanded of X/Percentage change in income.

(vi) **Demand forecasting:** Demand forecasting is process of **estimating the future demand** for a product.

(vii) **Isoquant:** An isoquant is curve representing all those combinations of factors of production that produce the **same quantity of output.**

(viii) **Constant returns to scale:** If the **output changes in the same proportion as the change in input,** returns to scale is said to be constant. It can be expressed as $\Delta I/I = \Delta Q/Q$.

(ix) **Diseconomies of scale:** Diseconomies of scale are the **cost disadvantages** that a firm experiences when is size grows larger than the optimum size, resulting in rising average and marginal costs. Diseconomies can be internal and external.

(x) **Total cost:** Total cost is the **sum of money spent to produce a certain quantity of a commodity.** It has a direct functional relationship with output. TC = f(Q).

(xi) **Implicit cost**: Implicit cost is the **cost of using factors of production which the entrepreneur owns and employs** in the firm. For example, interest on capital invested by the entrepreneur.

(xii) **Break-even point**: Break-even point of a firm indicates the volume of output at which the **firms total cost equals its total revenue.**

Answer - 1 (B) :

(i) - (b), (ii) - (c), (iii) - (d), (iv) - (b), (v) - (b), (vi) - (a), (vii) - (b), (viii) - (b), (ix) - (d), (x) - (b), (xi) - (c), (xii) - (d)

Answer - 2 (A) : *Refer Chapter - 1 : Section 1.2 (Scope of business economics)*

Answer - 2 (B) :

(i)

Q	O	TR = Q × O	AR = TR/Q	MR = $TR_n - TR_{n-1}$
1	10	10	10	— —
2	9	18	9	8
3	8	24	8	6
4	7	28	7	4
5	6	30	6	2

(ii) Relationship between TR and MR

(a) $MR = TR_n - TR_{n-1}$

(b) When As TR increase at a diminishing rate, MR declines

Relationship between MR and AR

(a) Since MR is less than AR, AR declines

(b) As the data is liner, the decline in MR is twice as much as the decline in AR

OR

Answer - 2 (C) :

(i) Increase in demand : *Refer Chapter - 2 : Fig. 2.6 (b)*

(ii) Increase in supply : *Refer Chapter - 2 : Fig. 2.7 (b)*

Answer - 2 (D) :

(i) (a) ₹ 4

(b) 20 Pizzas

(ii) P_x = ₹ 6

Q_{DX} = 65000 – 10000 (6) = 65000 – 60000 = **₹ 5000**

P_x = ₹ 5

Q_{DX} = 65000 – 10000 (5) = 65000 – 50000 = **₹ 15000**

P_x = ₹ 4

Q_{DX} = 65000 – 10000 (4) = 65000 – 40000 = **₹ 25000**

P_x = ₹ 3

Q_{DX} = 65000 – 10000 (3) = 65000 – 30000 = **₹ 35000**

(iii) *Refer Chapter - 3 : Section 3.3.*

Answer - 3 (A) : *Refer Chapter - 3 : Section 3.6 - Points 1 and 4.*

Answer - 3 (B) :

(i) *(Note: since it is not specified, one can use either the point method or the arc method)*

Using the point method :

P_1 = ₹ 400 ; Q_1 = 10000

P_2 = ₹ 380 ; Q_2 = 12000

Ep $= \Delta Q/\Delta P \times P_1/Q_1$

$= -2000/20 \times 400/380$

$= -4$ (for all practical purposes, the negative sign in ignored)

OR

Using the arc method :

P_1 = ₹ 400 ; Q_1 = 10000

P_2 = ₹ 380 ; Q_2 = 12000

Ep $= \Delta Q/\Delta P \times P_1 + P_2/Q_1 + Q_2$

$= -2000/20 \times 780/22000 = -3.545$

(xi) **Implicit cost**: Implicit cost is the **cost of using factors of production which the entrepreneur owns and employs** in the firm. For example, interest on capital invested by the entrepreneur.

(xii) **Break-even point**: Break-even point of a firm indicates the volume of output at which the **firms total cost equals its total revenue.**

Answer - 1 (B) :

(i) - (b), (ii) - (c), (iii) - (d), (iv) - (b), (v) - (b), (vi) - (a), (vii) - (b), (viii) - (b), (ix) - (d), (x) - (b), (xi) - (c), (xii) - (d)

Answer - 2 (A) : *Refer Chapter - 1 : Section 1.2 (Scope of business economics)*

Answer - 2 (B) :

(i)

Q	O	TR = Q × O	AR = TR/Q	MR = $TR_n - TR_{n-1}$
1	10	10	10	– –
2	9	18	9	8
3	8	24	8	6
4	7	28	7	4
5	6	30	6	2

(ii) Relationship between TR and MR

(a) $MR = TR_n - TR_{n-1}$

(b) When As TR increase at a diminishing rate, MR declines

Relationship between MR and AR

(a) Since MR is less than AR, AR declines

(b) As the data is liner, the decline in MR is twice as much as the decline in AR

OR

Answer - 2 (C) :

(i) Increase in demand : *Refer Chapter - 2 : Fig. 2.6 (b)*

(ii) Increase in supply : *Refer Chapter - 2 : Fig. 2.7 (b)*

Answer - 2 (D) :

(i) (a) ₹ 4

(b) 20 Pizzas

(ii) P_x = ₹ 6

Q_{DX} = 65000 – 10000 (6) = 65000 – 60000 = **₹ 5000**

P_x = ₹ 5

Q_{DX} = 65000 – 10000 (5) = 65000 – 50000 = **₹ 15000**

P_x = ₹ 4

Q_{DX} = 65000 – 10000 (4) = 65000 – 40000 = **₹ 25000**

P_x = ₹ 3

Q_{DX} = 65000 – 10000 (3) = 65000 – 30000 = **₹ 35000**

(iii) *Refer Chapter - 3 : Section 3.3.*

Answer - 3 (A) : *Refer Chapter - 3 : Section 3.6 - Points 1 and 4.*

Answer - 3 (B) :

(i) *(Note: since it is not specified, one can use either the point method or the arc method)*

Using the point method :

P_1 = ₹ 400 ; Q_1 = 10000

P_2 = ₹ 380 ; Q_2 = 12000

Ep = $\Delta Q/\Delta P \times P_1/Q_1$

= - 2000/20 × 400/380

= - 4 (for all practical purposes, the negative sign in ignored)

OR

Using the arc method :

P_1 = ₹ 400 ; Q_1 = 10000

P_2 = ₹ 380 ; Q_2 = 12000

Ep = $\Delta Q/\Delta P \times P_1 + P_2/Q_1 + Q_2$

= -2000/20 × 780/22000 = **- 3.545**

(ii) According to my answer, the degree of elasticity is **greater than one or relatively elastic demand.**

(iii) *Refer Chapter - 4 : Section 4.6.*

OR

Answer - 3 (C) : *Refer Chapter - 5 : Section 5.3.*

Answer - 3 (D) :

(i) *Refer Chapter - 5 : Section 5.4.*

(ii) Future price = ₹ 20

Q_{DX} = 60 – 0.7 (20) = 60 - 14 = **46**

Answer - 4 (A) :

(i) A production function expresses the maximum amount of a commodity that a firm can produce from a given set of inputs during a period of time. The two types of production functions are; **fixed proportions** and **variable proportions.**

The following are some of the points of distinction between the two types:

Fixed Proportions Production Function	Variable Proportions Production Function
(a) A fixed combination of inputs is used to produce a given level of output.	(a) A given level of output can be produced with several alternative combinations of factors of production.
(b) There is no possibility of substitution between the factors of production.	(b) The factors of production are substitutable over a certain range, beyond which substitution is not possible.
(c) Represented by L-shaped or right angled iso-quants.	(c) Represented by downward sloping, continuous, smooth iso-quant curve that is convex to the origin.

(ii) (a) **Iso-quants are convex to the origin**

The numerical value of the slope of an iso-quant measures the **marginal rate of technical substitution between labour and capital ($MRTS_{LK}$).** It is the ratio of the marginal product of labour to the marginal product of capital.

$MRTS_{LK} = \Delta K/\Delta L = MP_L/MP_K$, where ΔK is change in capital and ΔL is change in labour.

For additional unit of labour, less and less of capital is given up so as to keep the level of output constant. Geometrically, this **diminishing rate of technical substitution** can be represented by a curve that is convex to the origin.

Refer Chapter 6: Fig. 6.7.

(ii) (b) **Iso-quants cannot intersect**

If two iso-quants intersect each other, there will be **a point common to both the iso-quants.** Each iso-quant represents a certain specific quantity of output. If point A lies on IQ_1 and point C lies on IQ_2, they will represent two different levels of output. However, if point B is common to both IQ_1 and IQ_2, then according to the law of transitivity, **as A = B and B = C, then A = C.** But as A and C are two different iso-quants, **this result is absurd.** Therefore, two iso-quants cannot intersect.

Answer - 4 (B) : *Refer Chapter - 7 : Section 7.3.*

OR

Answer - 4 (C) : *Refer Chapter - 8 : Section 8.3.*

Answer - 4 (D) : *Refer Chapter - 7 : Section 7.*

(Hint: Answer should have the following content: Statement of the law, assumptions, numerical table, diagram, brief explanation of the three stages with area of operation)

Answer - 5 (A) :

(i) *Refer Chapter - 9 : Fig. 9.1*

(ii) *Refer Chapter - 10 : Fig. 10.1*

(ii) *Refer Chapter - 10 : Fig. 10.1*

(iv) *Refer Chapter - 10 : Fig. 10.2*

Answer - 5 (B) :

Q	TC	TFC	TVC = TC - TFC	MC = TC_n - TC_{n-1}	AFC = TFC/Q	AVC = TVC/Q	AC = TC/Q
0	40	40	0	-	-	-	-
1	52	40	12	12	40	12	52
2	59	40	19	7	20	9.5	29.5
3	64	40	24	5	13.33	8	21.33
4	70	40	30	6	10	7.5	17.5
5	78	40	38	8	8	7.6	15.6
6	89	40	49	11	6.66	8.16	14.83
7	103	40	63	14	5.71	9	14.71

OR

Answer - 5 (C) : *Refer Chapter - 10 : Section 10.7.*

Answer - 5 (D) : *Refer Chapter - 7 : Section 7.*

(i) S = TFC/P-AVC, where S = break-even quantity

S = 40000/7-5 = 40000/2 = **20000 units**

(ii) S = 40000/9-5 = 40000/4 = **10000 units**

The break-even quantity reduces.

(iii) S = 40000/7-6 = 40000/1 = **40000 units**

The break-even quantity increases.

Answer - 6 (A) : *Refer Chapter - 8 : Section 8.2.*

Answer - 6 (B) : *Refer Chapter - 11 : Sections 11.1 and 11.2.*

OR

Answer - 6 :

(i) Functions and variables : *Refer Chapter - 1 : Section 1.4.*

(ii) Relationship between price elasticity and total revenue :
Refer Chapter - 4 : Section 4.7 B.

(iii) Consumer survey method of demand forecasting :
Refer Chapter - 5 : Section 5.5.

Consumer Survey Method:

Hint : Give brief explanation of the following:

(a) Complete Enumeration Method

(b) Sample Survey Method

(c) End-use method

(iv) Economies of scope : *Refer Chapter - 8 : Section 8.4.*

(v) Learning curve : *Refer Chapter - 10 : Section 10.9.*

(vi) Limitations of break-even analysis : *Refer Chapter - 11 : Section 11.4*

NOVEMBER - 2017

Duration : 3 Hours **Total Marks :** 100

1. (A) Select the best answer from the given options and rewrite the statement. (Any Ten) 10

(i) Opportunity cost is the
- (a) Price of a good or service
- (b) All out-of-pocket costs
- (c) Value of the best alternative sacrificed
- (d) Price that exceeds market price

(ii) If Kommoner's lowers the price of its pizzas,
- (a) Demand for Queen's pizza's increases
- (b) Demand for Kommoner's pizzas increases
- (c) Demand for Queen's pizzas decreases
- (d) Both (b) and (c)

(iii) The supply curve illustrates how
- (a) Quantity supplied increases as price decreases
- (b) Quantity supplied increases as price increases
- (c) Quantity supplied increases as technology improves
- (d) Quantity supplied increases as resource price decreases

(iv) Demand is relatively inelastic when
- (a) $E_d = 1$ (b) $E_d > 1$
- (c) $E_d > 1$ (d) $E_d = 0$

(v) When a 1% change in price leads to more than 1% change in quantity demanded, we say demand is
- (a) Relatively elastic (b) Relatively inelastic
- (c) Unit elastic (d) None of the above

(vi) Delphi method is a
- (a) Survey method (b) Statistical method
- (c) Both (a) and (b) (d) None of the above

(vii) For Ford Motor Company, all of the following are sources of economies of scale except
- (a) Mass production techniques used in the manufacturing of autos
- (b) Bureaucracy and red tape encountered as the firm becomes larger
- (c) Learning by doing which allows workers to become more productive
- (d) Additional specialisation made possible by large scale production

(viii) The negative slope of the isoquant is due to
- (a) Diminishing marginal rate of technical substitution
- (b) Zero marginal rate of technical substitution
- (c) Marginal rate of technical substitution is greater than one
- (d) None of the above

(ix) When a firm experiences economies of scale,
- (a) The long run average cost curve slopes downward
- (b) The long run average cost curve is vertical
- (c) The long run average cost curve slopes upward
- (d) The long run average cost curve is horizontal

(x) An economist would argue that accountants tend to
- (a) Understate costs and overstate profits
- (b) Understate costs and understate profits
- (c) Overstate costs and understate profits
- (d) Overstate costs and overstate profits

(xi) Sunk cost means
- (a) Cost that is recovered (b) Cost of foregone alternatives
- (c) Both (a) and (b) (d) Neither (a) nor (b)

(xii) Break-even point is reached when a firm
- (a) Earns zero profit (b) Covers fixed cost
- (c) Covers variable profit (d) All of the above

1. (B) Match the concept with its appropriate definition/explanation/ description : (Any Ten) 10

Concept	Definition/Explanation Description
(i) Opportunity Cost	(a) Cost of an additional batch
(ii) Graph	(b) Value of the best alternative sacrificed
(iii) Law of Supply	(c) Delphi method
(iv) Perfect Competition	(d) Price line
(v) Survey Method	(e) Initial cost of buying an asset
(vi) Promotional Elasticity of Demand	(f) Price and quantity supplied are positively related
(vii) Iso-cost line	(g) Impact of change in advertising expenditure on quantity demanded
(viii) Internal Diseconomies of Scale	(h) Benefits of joint production
(ix) Economies of Scope	(i) Cost-volume profit analysis
(x) Historical Cost	(j) Horizontal demand curve
(xi) Incremental Cost	(k) An increase in the scale of production of the firm results in rise in cost per unit
(xii) Break-even Analysis	(l) Diagrammatic representation of a function

2. Attempt A and B OR C and D :

(A) What is business economics ? Discuss the relationship between economic concepts and business decisions. 8

(B) Given the following data. Calculate TR, AR and MR. Explain the relationship between (a) TR and MR (b) AR and MR. 7

Q	1	2	3	4	5
P	100	90	80	70	60

OR

(C) The following table describes the market for floppy discs before pen drives were introduced. 8

Price (₹)	Quantity Demanded of Floppy Discs	Quantity Supplied of Floppy Discs
100	1500	700
200	1300	900
300	1100	1100
400	900	1300
500	700	1500

(i) Plot the demand and supply curves from the table given above.

(ii) What is the equilibrium price and equilibrium quantity ?

(iii) At the price of ₹ 200 what is the equilibrium quantity demanded and quantity supplied ?

(iv) When pen drives were introduced the demand for floppy discs decreased. Does the new demand curve shift to the left or right f the original demand curve ?

(D) Using diagrams explain the causes of changes in demand in terms of movement along and shifts in the demand curve.

3. Attempt A and B OR C and D.

(A) What are the determinants of demand ? 8

(B) Given the following data, calculate price elasticity of demand for wheat when price increases and when price decreases. State whether the demand for wheat is elastic or inelastic. 7

Price of Wheat	Market Demand for Wheat
15	5000
20	4500

OR

(C) What is demand forecasting ? Explain the various types of demand forecasting. 8

(D) Explain the least squares method of demand forecasting. 7

4. Attempt A and B OR C and D.

(A) What are isoquants ? Explain the properties of isoquants. 8

(B) Explain the law of variable proportions. 7

OR

(C) Explain the least cost combination as producer's equilibrium. 8

(D) Explain external economies and diseconomies of scale. 7

5. Attempt A and B OR C and D.

(A) Distinguish between short run and long run costs. 8

(B) Given TFC as 55 and the following data, calculate TVC, MC, AFC, AVC and AC. 7

Q	1	2	3	4	5
TC	75	90	110	135	170

OR

(C) Derive the LAC curve using the short run average cost curves of a firm. Why is it called a planning curve ? 8

(D) What is the learning curve ? Explain with a diagram. 7

6. Attempt A and B OR Write short notes on any four :

(A) Explain changes in equilibrium due to : 10

(a) Changes in demand and

(b) Changes in supply

(B) What is the break-even point ? Using diagrams explain how the break-even point changes when there are changes in price and variable cost. 10

OR

Write short notes on any four of the following : 20

(i) Functions and equations

(ii) Steps and demand forecasting

(iii) Types of isoquants

(iv) Internal economies of scale

(v) Fixed and variable cost

(vi) Limitations of break-even analysis

SOLUTIONS

Answer - 1 (A) :

(i) – (c), (ii) – (d), (iii) – (b), (iv) – (c), (v) – (a), (vi) – (a), (vii) – (b), (viii) – (a), (ix) – (a), (x) – (a), (xi) – (d), (xii) – (a)

Answer - 1 (B) :

(i) – (b), (ii) – (l), (iii) – (f), (iv) – (j), (v) – (c), (vi) – (g), (vii) – (d), (viii) – (k), (ix) – (h), (x) – (e), (xi) – (a), (xii) – (i)

Answer - 2 (A) :

Business economics is a field in economics that deals with issues such as business organisation, management, expansion and strategy. The primary focus of business economics is a business enterprise or the firm. It is the application of economic theories and laws in the decision making process of business enterprises.

(For relationship between economic concepts and business decisions : *Refer Chapter - 1 : Table 1.1*)

Answer - 2 (B) :

Q	O	TR = P × Q	AR = TR/Q	MR = $TR_n - TR_{n-1}$
1	100	100	100	100
2	90	180	90	80
3	80	240	80	60
4	70	280	70	40
5	60	300	60	20

(a) **Relationship between TR and MR :** MR measures the change in TR. As TR increases at a diminishing rate, MR declines with every increase in output sold.

(b) **Relationship between AR and MR :** Since the data given pertains to imperfect competition there is an inverse relationship between price and quantity sold. With every fall in price, AR declines.

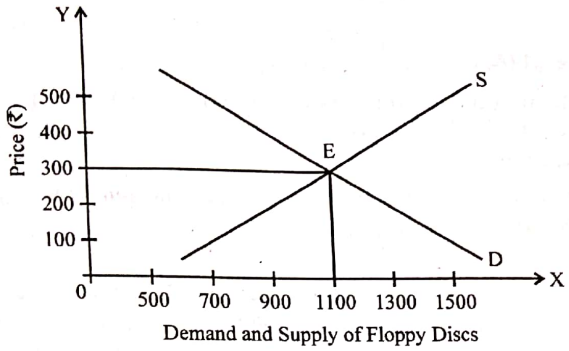
AR > MR

The decline in MR is twice as much as the decline in AR.

OR

Answer - 2 (C) :

(i)



Demand and Supply of Floppy Discs

(ii) Equilibrium price = ₹ **300**

Equilibrium quantity = **1100**

(iii) Quantity demanded at price ₹ 200 = **1300**

Quantity supplied at price ₹ 200= **900**

(iv) **New demand curve shifts to the left.**

Answer - 2 (D) :

Causes of Changes in Demand : *Refer Chapter - 2 : Section* 2.2

Answer - 3 (A) :

Determinants of Demand : *Refer Chapter - 3 : Section* 3.3

Answer - 3 (B) :

Price of Wheat	Market Demand for Wheat
15	5000
20	4500

(i) Price increases from 15 to 20

$E_p = \Delta Q/\Delta P \times P/Q$

$= 500/-5 \times 15/5000 = -0.3$

$E_p < 1$ (relatively inelastic demand)

(ii) Price decreases from 20 to 15

$E_p = \Delta Q/\Delta P \times P/Q$

$= -500/5 \times 20/4500$

$= -0.44$

$E_p < 1$ (relatively inelastic demand)

OR

Answer - 3 (C) :

Demand forecasting and types of demand forecasting : *Refer Chapter - 5 : Section 5.1 and 5.3*

Answer - 3 (D) :

Least squares method of demand forecasting : *Refer Chapter - 5 : Section 5.5 (Statistical Methods - Trend Method)*

Answer - 4 (A) :

An isoquant shows all those combinations of factors which produce the same level of output.

Properties of isoquants : *Refer Chapter - 6 : Section 6.3*

1. Slopes downwards from left to right
2. Are convex to the origin
3. Do not intersect each other
4. Cannot touch either axis

(Draw relevant diagrams)

Answer - 4 (B) :

Law of Variable Proportions : *Refer Chapter 7, Section* 7.2

OR

Answer - 4 (C) :

Least Cost Combination as producer's equilibrium : *Refer Chapter - 6 : Section 6.5*

Answer - 4 (D) :

External Economies and Diseconomies of Scale : *Refer Chapter - 8 : Section* 8.3

Answer - 5 (A) :

Distinctions between Short Run and Long Run Costs

Short Run Costs	Long Run Costs
1. Costs are incurred on fixed factors (fixed costs) and variable factors (variable costs).	1. All factors are variable and hence there is no distinction between fixed and variable costs.
2. Short run costs are measured as TFC, TVC, TC, AFC, AVC, AC and MC.	2. Long run costs are measured as LAC and LMC.
3. Short run average costs are U-shaped.	3. LAC is a disc-shaped curve.
4. The behaviour of short run costs is influenced by the Law of Variable Proportions	4. The behaviour of long run costs is influenced by the Laws of Returns to Scale
5. Diagram	5. Diagram

Answer - 5 (B) :

Q	TC	TFC (Given)	TVC = TC - TFC	MC = TC_n - TC_{n-1}	AFC = TFC/Q	AVC = TVC/Q	AC = TC/Q
1	75	55	20	20	55	20	75
2	90	55	35	15	27.5	17.5	45
3	110	55	55	20	18.33	18.33	36.67
4	135	55	80	25	13.75	20	33.75
5	170	55	115	35	11	23	34

OR

Answer - 5 (C) :

Derivation of LAC curve : *Refer Chapter - 10 : Section 10.7*

Answer - 5 (D) :

Learning curve: *Refer Chapter - 10 : Section 10.9*

Answer - 6 (A) :

Changes in market equilibrium : *Refer Chapter - 2 : Section 2.5*

Answer - 6 (B) :

The break-even point for a business firm shows the volume of sales at which the firm's total revenue equals total cost. It is the price at which the firm makes zero profits, with revenues just covering costs.

S = F/ P – V

Where S = break-even sales in units

F = fixed cost per period

P = price per unit

V = variable cost per unit

Variables influencing break-even point : *Refer Chapter - 11 : Section 11.2*
(i) Changes in price and (iii) Changes in variable cost per unit

(Draw relevant diagrams)

OR

Answer - 6 :

(i) **Functions and equations :** *Refer Chapter - 1 : Section 1.4 (2 and 3)*

(ii) **Steps of demand forecasting :** *Refer Chapter - 5 : Section 5.4*

(iii) **Types of isoquants :** *Refer Chapter - 6 : Section 6.3*

(iv) **Internal economies of scale :** *Refer Chapter - 8 : Section 8.2*

(v) **Fixed and variable cost :** *Refer Chapter - 9 : Section 9.2 F*

(vi) **Limitations of break-even analysis :** *Refer Chapter - 11 : Section 11.4*

NOVEMBER - 2018

Duration : 3 Hours **Total Marks : 100**

1. (A) Select the best answer from the given options and rewrite the statement. (Any Ten) **10**

(i) Incremental principle states that an investment decision is profitable if _____.

(a) revenue increases more than cost

(b) cost reduces more than revenue

(c) both (a) and (b)

(d) None of the above

(ii) The market supply schedule shows _____ relationship between price and quantity supplied.

(a) inverse (b) direct

(c) no (d) None of these

(iii) In case of normal goods, demand curve is _____.

(a) upward sloping (b) downward sloping

(c) vertical straight line (d) horizontal straight line

(iv) Kinked demand curve is observed in _____ market.

(a) Perfect competition (b) Monopoly

(c) Monopolistic Competition (d) Oligopoly

(v) If demand is price elastic, then _____.

(a) a rise in price will raise total revenue.

(b) a fall in price will raise total revenue.

(c) a fall in price will increase the quantity demanded.

(d) a rise in price won't have any effect on total revenues.

(vi) Which of the following is a limitation of consumer clinic method of demand forecasting?

(a) Abnormal consumer behaviour

(b) Expensive

(c) Neither (a) nor (b)

(d) Both (a) and (b)

(vii) Short run production function includes _____

(a) only fixed factors

(b) only variable factors

(c) both fixed and variable factors

(d) None of the above

(viii) The narrowing distance between successive isoquants denotes _____

(a) Increasing returns to scale

(b) Decreasing returns to scale

(c) Constant returns to scale

(d) None of the above

(ix) Which of the following is an example of Internal Economies of Scale?

(a) Labour Economies (b) Technical Economies

(c) Managerial Economies (d) All of the above

(x) In the short run, the slope of TC curve is the same as slope of _____

(a) AVC curve (b) TFC curve

(c) TVC curve (d) AFC curve

(xi) The difference between private and social cost is due to _____.

(a) opportunity cost (b) diminishing marginal utility

(c) externalities (d) accounting errors

(xii) _____ refers to an unavoidable cost which cannot be recovered.

(a) Opportunity cost (b) Sunk cost

(c) Real cost (d) Implicit cost

1. (B) Write whether the following statements are true or false. (Any Ten) **10**

(i) Demand is desire backed by willingness and ability to pay.

(ii) Opportunity costs can always be measured in terms of money.

(iii) Under monopoly market, when TR is increasing MR is negative.

(iv) When the demand is perfectly elastic, the demand curve will be a vertical straight line.

(v) Demand curve under monopoly is perfectly inelastic.

(vi) Long term forecasts are required for capital investments.

(vii) Technology is variable in long run production function.

(viii) MRTS is measured as $\Delta K/\Delta L$.

(ix) A firm experiences increasing returns of scale due to technological advancements.

(x) Implicit costs are measured as opportunity cost.

(xi) Learning curve expresses the decline in average cost due to better experience.

(xii) MC = AC when AC is minimum.

2. Attempt A and B OR C and D :

(A) Discuss the scope of study of Business Economics. **7**

(B) Given the following data calculate TR, AR, and MR. Also identify the market structure and state the relationship between TR, AR and MR. **8**

Output (Unit)	1	2	3	4	5	6	7
Price (₹)	10	10	10	10	10	10	10

OR

(C) Write an explanatory note on the use of marginal analysis in decision making in business. **7**

(D) The demand function for a commodity is given as $Q_d = 40 - 0.1P$ and its supply function is given as $Q_s = 20 + 0.2P$. Make a schedule of demand and supply at prices ₹ 100/-, ₹ 200/-, ₹ 300/- and ₹ 400/-. Find the equilibrium price and quantity. **8**

3. Attempt A and B OR C and D.

(A) State and explain the law of demand. Write the assumptions and exceptions to the law of demand. **7**

(B) Describe the nature of demand curve under perfect competition and monopolistic competition. **8**

OR

(C) What is demand forecasting? What is the significance of demand forecasting? **7**

(D) A movie theatre charged ₹ 100/- per ticket and sold 500 tickets per show. When the price of tickets was raised to ₹ 125/- the theatre was able to sell only 450 tickets. Estimate price elasticity of demand for movie tickets. Is it beneficial for the theatre to raise the price? Justify your answer. **8**

4. Attempt A and B OR C and D.

(A) Define isoquants. What are the properties of isoquants? **7**

(B) What is meant by diseconomies of scale? Discuss the various internal and external diseconomies of scale. **8**

OR

(C) What is meant by Economies of Scope? How is it different from Economies of Scale? **7**

(D) The following table shows total product of a firm due to increase in labour input used in combination with a fixed input of capital : **8**

Labour Input (Units)	0	1	2	3	4	5	6	7	8
Total Product (Units)	0	50	110	180	240	270	282	282	240

(i) Calculate average product and marginal product.

(ii) Name and mark the three stages of law of variable proportions in the table.

(iii) In which stage will a rational producer operate? Justify your answer.

5. Attempt A and B OR C and D.

(A) Explain the nature and relationship between AFC, AVC, ATC and MC curves of a firm. **7**

(B) Given TFC = ₹ 55/-, calculate TC, AFC, AVC and MC. **8**

Output (Units)	0	1	2	3	4	5	6
TVC (₹)	0	30	55	75	105	155	225

OR

(C) What is meant by break -even point? How is break-even point determined? **7**

(D) For a hypothetical firm, if price of product is ₹ 80/-, TFC is ₹ 5000/- and AVC is ₹ 30/-, then : **8**

(i) Calculate break-even output for this firm.

(ii) At the original TFC and AVC, how does break-even quantity change if price rises to ₹ 130/- ?

(iii) At the original price and TFC, what will be the break-even quantity if AVC rises to ₹ 60/- ?

(iv) At the original price and AVC, what will be the break-even quantity if TFC rises to ₹ 6,000/- ?

6. Attempt A and B OR Write short notes on any four :

(A) Define income elasticity of demand. Explain the degrees of income elasticity of demand using examples. **10**

(B) Derive the long run average cost curve and write its features. **10**

OR

Write short notes on any four of the following : **20**

(i) Functions and equations

(ii) Promotional elasticity of demand

(iii) Types of isoquants

(iv) Expansion path

(v) Accounting and economic cost

(vi) Applications of break-even analysis

SOLUTIONS

Answer - 1 (A) :

(i) - (c), (ii) - (b), (iii) - (b), (iv) - (d), (v) - (b), (vi) - (d), (vii) - (c), (viii) - (a), (ix) - (d), (x) - (c), (xi) - (c), (xii) - (b)

Answer - 1 (B) :

True : (i), (vi), (viii), (xi), (xii); False : (ii), (iii), (iv), (v), (vii), (ix), (x)

Answer - 2 (A) :

Business economics is the field of economics that deals with the study of business organizations, management, expansion and strategy. Its primary focus is a business enterprise.

Scope of Business Economics : *Refer Chapter - 1 : Section 1.2*

Answer - 2 (B) :

Output (Unit) (Q)	Price (₹) (P)	TR = P × Q	AR = TR / Q	MR = $TR_n - TR_{n-1}$
1	10	10	10	-
2	10	20	10	10
3	10	30	10	10
4	10	40	10	10
5	10	50	10	10
6	10	60	10	10
7	10	70	10	10

The market structure is perfect competition.

1. Under perfect competition, the price per unit remains constant at all levels of output due to features like homogenous output, free entry and exit of firms and existence of a large number of firms. Price = AR
2. Since price is constant, TR increases at the same rate as price.
3. As TR increases at the same rate, MR is constant and is equal to AR or price.

OR

Answer - 2 (C) : *Refer Chapter - 1 : Section 1.3 (B) and (C)*

Answer - 2 (D) :

Price (₹) (P)	$Q_d = 40 - 0.1P$
100	40 – 10 = 30
200	40 – 20 = 20
300	40 – 30 = 10
400	40 – 40 = 0

Price (₹) (P)	$Q_s = 20 + 0.2P$
100	20 + 10 = 40
200	20 + 20 = 60
300	20 + 30 = 80
400	20 = 40 = 100

Equilibrium Price :

$Q_d = Q_s$

$40 - 0.1P = 20 + 0.2P$

$40 - 20 = 0.2P + 0.1P$

$20 = 0.3P$

$P = 20/0.3 =$ **₹ 66.66**

Answer - 3 (A) : *Refer Chapter - 3 : Section 3.2*

Answer - 3 (B) : *Refer Chapter - 3 : Section 3.6*

OR

Answer - 3 (C) :

Demand forecasting is an estimation of demand for a product in the future.

Significance of Demand Forecasting : *Refer Chapter - 5 : Section 5.2*

Answer - 3 (D) :

Price Elasticity of Demand :

$E_P = \Delta Q / \Delta P \times P/Q$

$= 50/25 \times 100/500$

$= -0.4$

Demand is relative inelastic. It is beneficial to raise the price. In case of relatively inelastic demand, when price is raised total revenue increases.

TR at price ₹ 100

TR = 100 × 500 = **₹ 50,000**

TR at price ₹ 125

TR = 125 × 450 = **₹ 56,250**

The theatre owner makes additional TR of **₹ 6,250** when the price is raised.

Answer - 4 (A) :

An isoquant shows all the combinations of factors of production which produce the same level of output.

Properties of Isoquants : *Refer Chapter - 6 : Section 6.3*

Answer - 4 (B) :

When the size of a firm increases beyond the optimum size, diseconomies of scale occur. At the optimum size, all possible economies of scale are fully exploited. Beyond this size the firm experiences decreasing returns to scale and rising average cost.

Internal and external diseconomies of scale : *Refer Chapter - 8 : Section 8.2 and 8.3*

OR

Answer - 4 (C) : *Refer Chapter - 8 : Section 8.4*

Answer - 4 (D) :

Labour Units (L)	Total Product (TP)	Average Product (AP) = TP/L	Marginal Product (MP) = $TP_n - TP_{n-1}$
0	0	-	-
1	50	50.00	50
2	110	55.00	60
3	180	60.00	70
4	240	60.00	60
5	270	54.00	30
6	282	47.00	12
7	282	40.29	0
8	240	30.00	–42

In the above table :

Stage I : From labour unit 1 to 4 - total product increases at an increasing rate. Both AP and MP are rising. After a point AP declines but MP continues to rise. The stage ends where AP = MP and AP is maximum.

Stage II : From labour unit 5 to 7 - total product increases at a diminishing rate. Both AP and MP are rising. The stage ends where AP = MP and AP is maximum. Both AP and MP are falling but MP is positive as long as TP is increasing. The stage ends where TP is maximum and MP is zero.

Stage III : From labour unit 8 - TP falls and MP is negative.

A rational producer will operate in stage II where TP is rising, MP is rising and positive and AP is falling. The producer will not carry out production till the end of stage II since this point MP is zero. He would operate in stage II as long as MP is positive.

Answer - 5 (A) : *Refer Chapter - 10 : Section 10.3. Table 10.1 and Fig. 10.1*

Answer - 5 (B) :

Output (Q)	TFC	TVC	TC = TFC + TVC	AFC = TFC/Q	AVC = TVC/Q	MC = $TC_n - TC_{n-1}$
0	55	0	55	-	-	-
1	55	30	85	55.00	30.00	30
2	55	55	110	27.50	27.50	25
3	55	75	130	18.33	25.00	20
4	55	105	160	13.75	26.25	30
5	55	155	210	11.00	31.00	50
6	55	225	280	9.16	37.50	70

OR

Answer - 5 (C) : *Refer Chapter - 11 : Section 11.1*

Answer - 5 (D) :

S = Break even output;

F = Fixed cost;

P = Price;

V = Average variable cost

S = F/P – V

(i) S = 5000/80 – 30
= 5000/50
= 500 units

(ii) S = 5000/130 – 30
= 5000/100
= 50 units

(iii) S = 5000/80 – 60
= 5000/20
= 250 units

(iv) S = 6000/80 – 30
= 6000/50
= 120 units

Answer - 6 (A) : *Refer Chapter - 4 : Section 4.3*

Answer - 6 (B) : *Refer Chapter - 10 : Section 10.7*

OR

Answer - 6 :

(i) **Functions and equations :** *Refer Chapter - 1 : Section 1.4*

(ii) **Promotional elasticity of demand :** *Refer Chapter - 4 : Section 4.5*

(iii) **Types of isoquants :** *Refer Chapter - 6 : Section 6.3*

(iv) **Expansion path :** *Refer Chapter - 6 : Section 6.6*

(v) **Accounting and economic cost :** *Refer Chapter - 9 : section 9.2*

(vi) **Applications of break-even analysis :** *Refer Chapter - 11 : Section 11.3*