

END TERM EXAMINATION

FIRST SEMESTER [BA(ECONOMICS)] JANUARY 2024

Paper Code: BAECO-101

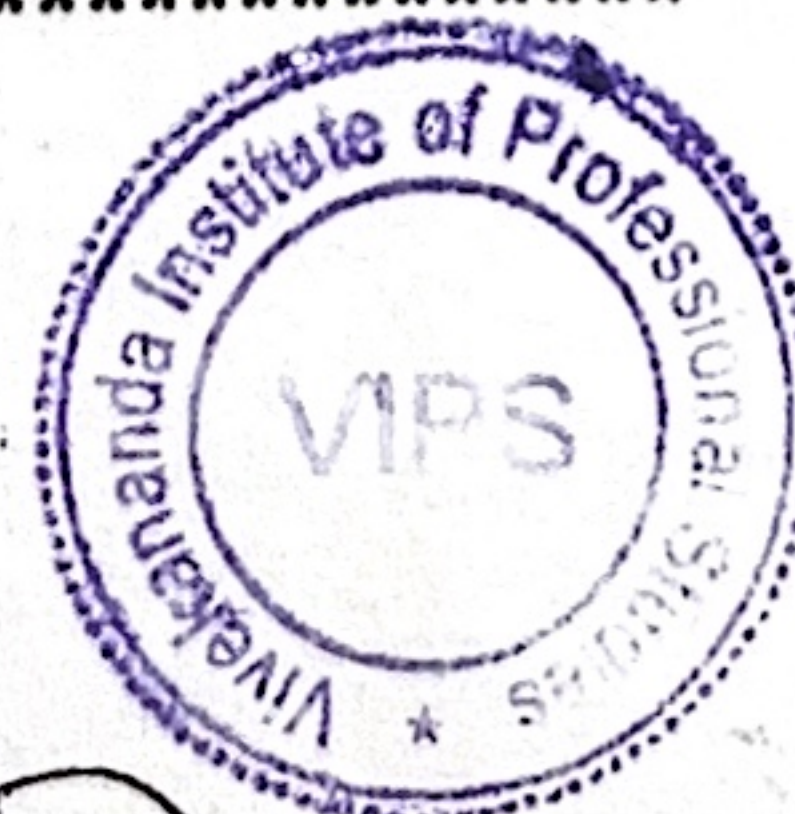
Sub: Principles of Microeconomics

Time: 3 Hours

Maximum Marks: 60

Note: Attempt any five questions including Q.No.1 which is compulsory.

- Q1 Write short notes on (any three) (4x3=12)
- Backward bending supply curve of labour
 - Economies and diseconomies of scale in long run cost structure
 - Degrees of monopoly discrimination.
 - Shifts in supply curve.
- Q2 With the help of a schedule, explain three phases of production in short run. In which stage does the producer produce and why? (8+4)
- OR
- Q3 Illustrate how market equilibrium of automobile market will be affected if incomes of the consumers are rising on one hand and government raises taxes on automobile on the other. (12)
- Q4 Explain the concept of deadweight loss through consumer and producer surplus when government imposes tax on production of the commodity. Illustrate how varying elasticity of supply affect this scenario. (8+4)
- OR
- Q5 What is the implication of 'free entry and exit' under perfect competition in the short run? Use appropriate diagrams to answer the question. (12)
- Q6 What do you understand by substitution and income effect? Using indifference curve theory, illustrate the break-up of these effects when consumer consumes a normal good and a giffen good; and the price of normal good falls. (4+8)
- OR
- Q7 When price of 'Z' good rises from rupees 25 per unit to rupees 30 per unit, its quantity demanded falls from 500 units to 350 units.
- Calculate elasticity of demand of good Z by percentage method and comment upon the nature of the good. (4)
 - Calculate elasticity of demand of good Z by total outlay method. (4)
 - Calculate cross-price elasticity of demand of good 'K' if its demand changes from 120 units to 180 units due to change in price of good Z. comment upon the relation of the two goods. (4)
- Q8 Explain the role of price ceiling and price floor by taking case of:
- Housing rent controls (6)
 - Minimum wage controls. (6)
- OR
- Q9 Explain and illustrate the three basic problems of an economy with the help of production possibility frontier. (12)



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END TERM EXAMINATION

FIRST SEMESTER (BA(ECO)) JANUARY 2024

Paper Code: BAECO-103

Subject: Statistical Method-I

Time: 3 Hours

Maximum Marks: 60

Note: Attempt all question as directed. Internal choice is indicated.

Q1 Write Short note on any three:

(4x3=12)

- Correlation and covariance
- Measures of Central Tendency and Measure of Dispersion
- Skewness and Kurtosis
- Fisher's Ideal Index Number

Q2 (a) If A, G, H is the Arithmetic Mean, Geometric Mean and Harmonic Mean of two numbers x and y respectively, then prove the following: (8)

$$i). G^2 = AH$$

$$ii). A \geq G \geq H$$

- (b) If AM and GM of roots of a quadratic equation are 10 and 8 respectively, obtain the relevant quadratic equation. (4)

OR

(4x3=12)

Q3 Calculate

- Standard Deviation
- Karl Pearson coefficient of Skewness
- Coefficient of Variation

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	3	61	132	153	140	51	2

Q4 Suppose a certain disease has an incidence rate of 0.1% (that is, it afflicts 0.1% of the population). A test has been devised to detect this disease. The test does not produce false negatives (that is, anyone who has the disease will test positive for it), but the false positive rate is 5% (that is, about 5% of people who take the test will test positive, even though they do not have the disease). Suppose a randomly selected person takes the test and tests positive. What is the probability that this person actually has the disease? (12)

OR

Q5 There are two bags A and B. Bag A contains "n" white and "2" black balls and B contain "2" white and "n" black balls. One of the two bags is selected at random and two balls are drawn from it without replacement. If both the balls drawn are white and the probability that the bag A was used to draw the balls is $\frac{6}{7}$. Find the value of "n"? (12)

Q6 Suppose that X and Y have a continuous joint p.d.f as given below: (4+4+4=12)

$$f(x, y) = \begin{cases} \frac{3}{2} y^2, & 0 \leq x \leq 2, 0 \leq y \leq 1 \\ 0, & \text{otherwise} \end{cases}$$

- Find the marginal P.d.f's of X and Y
- Are X and Y independent?
- Are the Event $\{X < 1\}$ and $\{Y \geq \frac{1}{3}\}$ independent?

P.T.O.

OR

Q7 Suppose that X and Y have a continuous joint P.d.f as given below:

(4+4+4=12)

$$f(x, y) = \begin{cases} Kxy, & 0 < x < 1, 0 < y < 1 \\ 0, & \text{otherwise} \end{cases}$$

- Find the marginal P.d.f's of X and Y.
- Are X and Y independent?
- Find $P(X+Y \leq 1)$

Q8 Let X be the discrete random variable having P.m.f.

(4+4+4=12)

x	0	1	2	3	4	5	6	7
P(X=x)	0	k	2k	2k	3k	k ²	2k ²	7k ² +k

- Determine the constant k.
- Find $P(X < 6)$ and What will be $P(X \geq 6)$
- Obtain $P(X > 2 | X < 5)$

OR

Q9 The P.m.f $f(x)$ of a random variable X is zero except at the point $x=0, 1, 2$. and $f(0)=c$ $f(1)=2c^{-1}$, $f(2)=4c^{-1}$ (4+4+4=12)

- Determine the value of c
- Find the Probability $P(X > 0 | X < 2)$
- Find the expectation and variance of X



BAECO-103

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END TERM EXAMINATION

FIRST SEMESTER [BA(ECONOMICS)] JANUARY 2024

Paper Code: BAECO-105

Sub: Mathematics for Economics-I

Time: 3 Hours

Maximum Marks: 60

Note: Attempt any five questions including Q.No.1 which is compulsory.

- Q1 Attempt **any four** parts: (4x3=12)
- The population of a country was 80 crores in 1993. Find the population in 1997 assuming that the annual rate of growth is 2.5% per annum.
 - Find the equation of the line through (-2, 3) with slope -4. Then find the point at which this line intersects the x-axis.
 - Determine whether the following matrix is non singular:

$$A = \begin{pmatrix} 1 & -2 & 3 \\ -4 & 2 & 6 \\ 2 & -5 & 7 \end{pmatrix}$$
 - Find $\lim_{x \rightarrow \infty} \frac{a_1 x^2 + b_1 x + c_1}{a_2 x^2 + b_2 x + c_2}$
 - For what value(s) of x is the product of the following vectors equal to seven?

$$A = \begin{pmatrix} x \\ x-5 \\ 3 \end{pmatrix} \quad B = \begin{pmatrix} 2 \\ x \\ 3x \end{pmatrix}$$

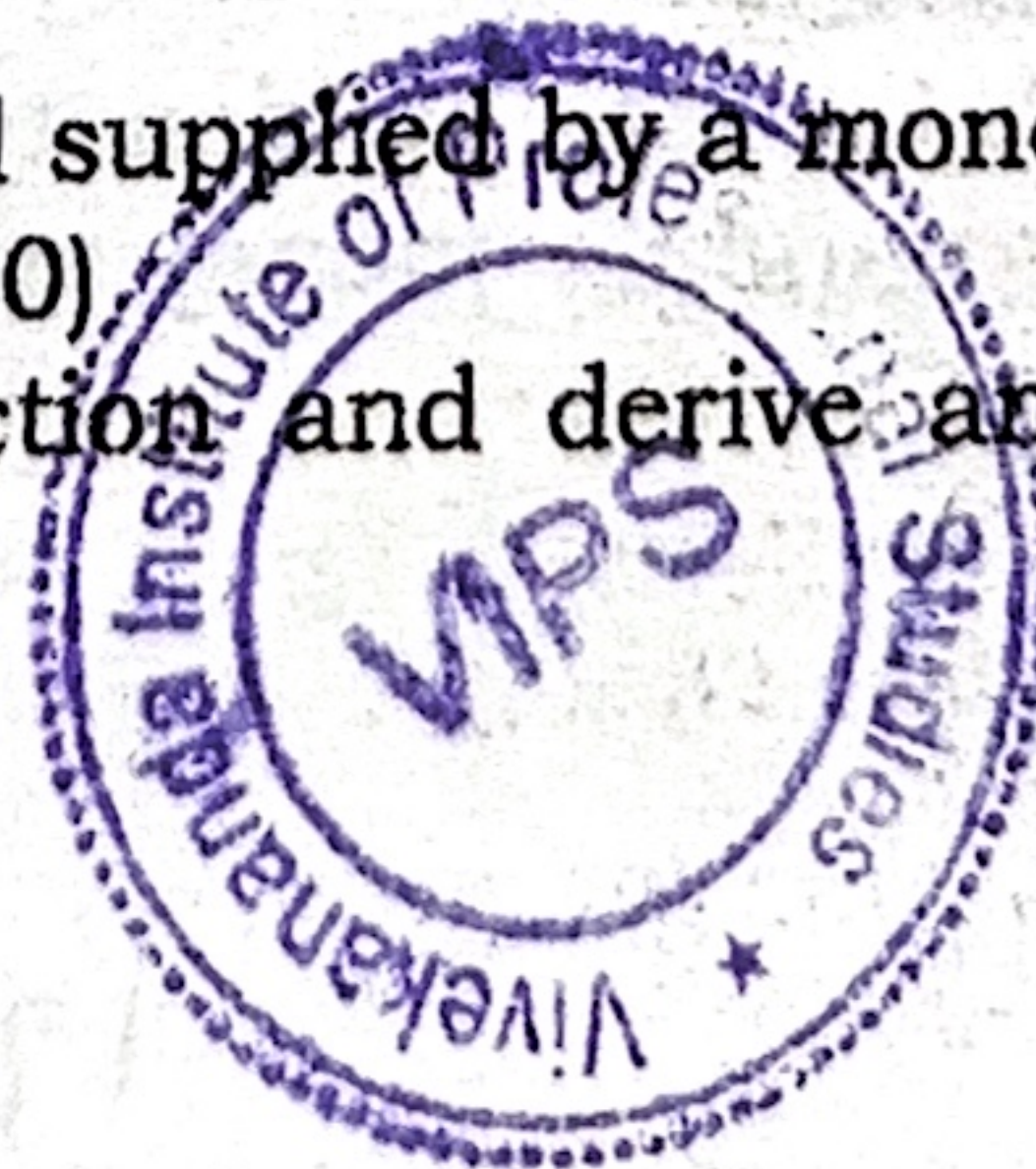
- Q2 A firm faces the following demand function for its output: (4+4+4=12)

$$X = \begin{cases} 12 - p & \text{for } 0 \leq p \leq 8 \\ 20 - 2p & \text{for } 8 \leq p \leq 10 \\ 0 & \text{for } p \geq 10 \end{cases}$$

- Graph this demand function with p on vertical axis and x on horizontal axis. For what value of output does the demand curve has a kink?
- Express the firm's revenue as a function of output and graph this function. Is it continuous?
- What is the firm's marginal revenue function? Graph this function.

OR

- Show whether the function $y = 5 - x^6$ is monotonic or not. What happens when $x > 0$? (6+6=12)
- The demand function for a good supplied by a monopolist is $x = (1000 - p^3) / p^3$ ($0 < p \leq 10$). Find the inverse demand function and derive an expression for marginal revenue.



P.T.O.

P 4/3

[2-1]

Q3 i) Let f be defined for all x by $f(x) = x^3 + (3/2)x^2 - 6x + 10$. (8+4=12)

- Find $f'(x)$ and $f''(x)$.
- Find the stationary points of f and the intervals where f is increasing.
- Find the inflection points of f and the intervals of concavity / convexity.
- Find the truth value of $(\neg P \rightarrow Q) \rightarrow (S \rightarrow R)$ if it is known that P, Q, R are true and S is false.

OR

- In a class of 60 students, 45 students like music, 50 students like dancing, 5 like neither. Find the number of students in the class who like both music and dancing.
- Find the domain of the following function:
 $y = (x+1)^{1/2} + 1 / (x-1)^{1/2}$
- Let $f(x) = (ax+b) / (cx-a)$, where a, b and c are constants and $c \neq 0$. Assuming that $x \neq a/c$, show that
 $f(ax+b/cx-a) = x$

Q4 i) Determine the rank of the following matrix for all values of t : (6+6=12)

$$A = \begin{bmatrix} t+3 & 5 & 6 \\ -1 & t-3 & -6 \\ 1 & 1 & t+4 \end{bmatrix}$$

- Prove that the homogeneous system of equations

$$\begin{aligned} ax + by + cz &= 0 \\ bx + cy + az &= 0 \\ cx + ay + bz &= 0 \end{aligned}$$

has a nontrivial solution if and only if $a^3 + b^3 + c^3 - 3abc = 0$

OR
Find the equilibrium values of Y and r from the following macro-economic model:

Real Sector:
 $Y = C + I + G_0$ (equilibrium condition)
 $C = C_0 + C_1Y - C_2r$
 $I = I_0 + a_0Y - a_1r$ (12)

Monetary Sector:

$$\begin{aligned} M_d &= M_s \text{ (equilibrium condition)} \\ M_d &= M_0 + mY - hr \\ M_s &= S \text{ (constant)} \end{aligned}$$

Where Y, C, I, r, M_d, M_s denote income, consumption, investment, rate of interest, demand for money and supply of money respectively.

P.T.O.

[3-1]

Q5 Find the eigenvalues and eigenvectors of the following:

(6+6=12)

$$A = \begin{bmatrix} 2 & 1 & -1 \\ 0 & 1 & 1 \\ 2 & 0 & -2 \end{bmatrix}$$

OR

Suppose the inter-industry flows of the product of two industries are given as under:

Producer Industry	Consumer Industry X	Consumer Industry Y	Domestic Demand	Gross Output
X	30	40	50	120
Y	20	10	30	60

Determine the technology matrix and compute the equilibrium levels of output of the two products when domestic demand vector is

$$\begin{bmatrix} 80 \\ 40 \end{bmatrix}$$

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END TERM EXAMINATION

FIRST SEMESTER [B.A. (ECONOMICS) (HONS.)] JANUARY 2024

Paper Code: BAECO-107

Subject: Business English-I

Time: 3 Hours

Maximum Marks: 60

Note: Attempt all questions as directed. Internal choice is indicated.

Q1 Write short notes. Attempt all parts:

(4x3=12)

(a) Formal and Informal types of Communication

OR

Advantage of Written over Oral Communication

(b) Gender sensitive Communication

OR

Role of Feedback in Communication

(c) Overcoming stage fear

OR

Reading between the lines

Q2 Describe various types of Non-verbal Communication.

(12)

OR

Explain Skimming, Scanning and Intensive levels of reading.

Q3 Write a paragraph on one of the following:

(12)

Economic Growth and Social Welfare

OR

Economics and Globalisation

Q4 Write a letter to the Editor of Hindustan Times on the issue of economic empowerment of women.

(12)

OR

Write an email to your friend warning him against increasing cases of online financial fraud these days. Advise him how to stay safe from these cheats.

Q5 Attempt both parts:

(7)

(a) Read the following paragraph and answer the questions:

Traditional theory has clear-cut conceptions with regard to the demand curve confronting a particular source of output in two cases, those of perfect competition and of absolute monopoly. An individual source of output working in conditions of perfect competition can always find a market for any amount of output it pleases at a price determined by forces outside itself. Variation in its own contribution to the supply of the commodity does not have an appreciable effect on its price. The starting point in the theory of imperfect competition is the proposition that individual sources of output are very frequently confronted with a downward sloping demand curve. With the aid of this premise many interesting conclusions may be deduced and many paradoxes resolved. But first it may be asked- how is the premise itself established? The possibility of a particular source of supply being confronted by a downward sloping demand curve has always been recognised by economic theory, namely, in the case of absolute monopoly. The claim now advanced is that the phenomenon is far more widespread than has been commonly supposed or implied, and the chief basis of this claim is actual observation. This is a notable instance of the assistance which the inductive method may give to the course of a priori reasoning. The phenomenon occurs so frequently in fact as to suggest the framing of a theoretical structure into which it can easily be fitted.

P.T.O.

Answer the questions in the context of the passage.

1. Give a suitable title to the passage.

(1)

2. What are the attributes of 'perfect competition'?

(2)

3. Which of the following are not implied in the passage?

(2)

(i) Absolute monopoly leads to a perfect competition.

(ii) A source of output may be confronted with a demand curve.

(iii) Sources of output confronted with a downward sloping demand curve, is seen as imperfect competition.

(iv) Competition essentially leads to market reforms.

4. Identify the word in the passages which is a synonym of "often and usually".

(1)

5. Identify the word in the passages which is an antonym of "relative and provisional".

(1)

(b) Explain the role of audio-visual aids in a business presentation.

(5)

OR

Correct the sentences if required. Otherwise write 'No change'.

1. We use to visit Kartavya Path daily now.

2. People suffered enormous during the economic slump.

3. Can you tell what is your name.

4. The course would familiarized the students with listening skills.

5. We should do our work ourselves.

BAECO-107
P2/2