ANNUAL SUPPLEMENTARY EXAMINATION-2024
4th Semester B.Tech
ENGINEERING ECONOMICS
HS30101 / HS_2002
(For 2022 & Previous Admitted Batches)

Time: 2 Hours 30 Minutes

Full Marks: 50

Answer any FIVE questions.
Question paper consists of two SECTIONS i.e. A and B.
Section A is compulsory.
Attempt any Four question from Sections B.
The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable
and all parts of a question should be answered at one place only.

SECTION-A

1.   Answer the following questions: [1 × 10]

(a)   Point out any four factors affecting law of demand, with suitable examples from your day to day life.

(b)   In the month of June, 2023, there was an increase in price of Tomato from 20 rupees per kg to 70 rupees per kg in Cuttack. The buyers were seen queuing infront of shops to buy them at more than double the price. Which laws of economics is violated in the above case, and why?

(c)   Define MRS. Bring out the importance of MRS in the theory of Indifference curve.

(d)   Differentiate between Fixed Cost and Variable cost. Draw the diagrams of both taking imaginary figures.

(e)   Why are Isoquants generally convex to the origin?

(f)   What is the relevance of time value of money?

(g) Draw a cash flow diagram, taking imaginary values for gradient series

(h) In which case price elasticity of demand is relatively steeper? Provide suitable example for the same.

(i) Differentiate between Giffen's good and Veblen's good.

(j) Chameli plans to deposit 5000 rupees in SBI, for 10 years at 12% (Nominal interest rate) computed quarterly. How much will Chameli receive after maturity?

SECTION-B

2. (a) Why demand curve is downward sloping? Elaborate any five reasons **with appropriate examples**. [5]

   (b) In a certain examination, students appeared for Microeconomics and Macroeconomics as a part of their program. The list of marks secured in their mid semester are given below: [5]

Name	Cita	Lita	Pita	Gita	Sita	Bita	Rita	Mita
Micro	10	13	15	14	15	1	14	12
Macro	12	15	8	12	15	16	9	13

Calculate the regression equation between marks in Micro and Macro economics.

After the marks were displayed it was found that there was a particular question which was in the old syllabus and not a part of new syllabus of Microeconomics. Thus all students are to be given 2 marks more as grace mark.

Re calculate the regression equation between marks in Macroeconomics and updated marks in Microeconomics.

3. (a) Marvel is planning to setup a new TV series. The [5] estimated benefits and costs that are expected from the three alternatives under consideration are given in the following table.

Projects	Shaktimaan	Spider Man	Bat Man
Initial Cost	15,00,00,000	25,00,00,000	40,00,00,000
Annual Cost as wages of staff	20,00,000	25,00,000	35,00,000
Annual earnings from advertisement	1,00,00,000	1,20,00,000	1,80,00,000
Annual income from brand promotion	25,00,000	35,00,000	50,00,000
Annual revenue from OTT	35,00,000	45,00,000	60,00,000
Annual profits	10,00,000	20,00,000	35,00,000

If the interest rate is 9% and the life of projects is estimated to be 50 years, by comparing the Benefit Cost ratios, determine which project should be selected.

(b) Champa (house maid) has received 1,00,000 lakh [5] rupees as prize money for saving a small kid during a road accident. She is planning to deposit it in a bank for 10 years so as to earn some interest. On a hot summer day, she visits X, Y and Z bank and enquires about their prevailing rate of interest. The mangers offer her glass of water and provide her the details.

Banks	Nominal Rate (%)	Compounded
X	8	Monthly
Y	10	Biannually
Z	12	Quarterly

Champa is now confused which is the best alternative out of the three. She approaches you for help, as you have studied the concept of effective rate of interest in your E.Economics class.

Help Champa by calculating the effective rate of interest for all the three banks. And **explain** which is the best alternative out of the three, by calculating the maturity value that for three of the cases.

4. (a)   [5]
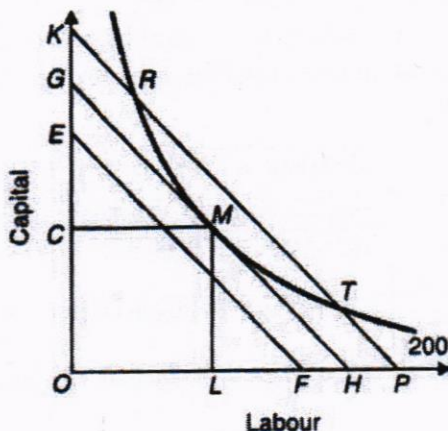
(i) Out of R, M and T which is the point of equilibrium?

(ii) Why other two points cannot be considered as optimum point of equilibrium?

(iii) Which concept of economics is represented in the diagram? Elaborate the concept in detail.

(iv) What does line EF represent? Explain the economic interpretation of the line.

(v) 'IQ$_s$ can touch the axis'. Argue for or against the statement.

(b) A Fintech company has its production function as-   [5]

$Q = 100K^{0.5}L^{0.5}$ ---- Labour (L) and Capital (K)

Wage Rate (w) = 30 Price per unit of capital (r) = 40

a) Determine the optimum combination of Labour and Capital required for producing one thousand four hundred forty four outputs. What is the minimum cost of production?

b) If TC=1200, determine the optimum combination of Labour and Capital required to produce maximum output? What is that level of output?

5. (a) A software company has TC= $150+200Q-9Q^2+0.25Q^3$. Evaluate [5]

       a) TVC-Total Variable Cost function

       b) AVC-Average Variable Cost function

       c) MC-Marginal Cost function

       d) ATC-Average Total Cost function

       e) Minimize AVC and MC

  (b) Represent the five cases listed below diagrammatically using the linear demand and supply function - [5]

       a) Increase in demand more than increase in supply.

       b) Increase in demand less than increase in supply.

       c) Decrease in demand more than decrease in supply.

       d) Decrease in demand less than decrease in supply.

       e) Increase in demand equal to increase in supply.

6. (a) In March 2024, Forbes published an article titled, Inflation Rate in India: March 2024 Data. It started with the line, *'Inflation is crucial to determine one's purchasing power'.* [5]

    Elaborately explain the starting line, bringing out atleast **five reasons** why Inflation is crucial in determining an individual's purchasing power and standard of living.

  (b) To quote, Business Today article titled - Inflation down, no overheating in economy (Feb 27, 2024, 11:03 PM IST), *"RBI's Monetary Policy Committee (MPC) member Jayanth R Varma, who voted for a 25 basis* [5]

point rate cut in the last panel meeting, on Tuesday explained why he wanted the rate cut. He was the only one in the six-member panel to favor a rate cut."

What other alternative methods are available to reduce inflation apart from bank rate with the RBI? Explain the methods in detail, pointing out its impact in Indian Economy.

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