



SPRING END SEMESTER 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) What do you mean by price effect?
- (b) Distinguish between relatively inelastic demand and perfectly inelastic demand.
- (c) From the following table find out $MRTS_{LK}$ and $MRTS_{LK}$.

Combination	Units of Labour Used(L)	Units of Capital Used(K)
A	1	20
B	2	15
C	3	11
D	4	8
E	5	6

- (d) Explain the relationship between total cost (TC) and marginal cost (MC).
- (e) A company charges 25% interest rate on its credit amount. Find out the effective interest rate if the compounding is monthly.
- (f) A company takes a loan of ₹ 70,00,000 at 11% interest rate compounded annually. Find out the installment amount that the company has to pay if the number of compounding is 25.
- (g) An instrument has been purchased at ₹ 80,00,000 with estimated salvage value of ₹ 20,000 at the end of its service life of 10 years. Find out the rate of depreciation and book value of the instrument after 5 years with the help of straight-line method of depreciation.
- (h) Write down the annual worth criterion.
- (i) What do you mean by Net Present Value (NPV)?
- (j) How bank rate will help to control inflation of an economy?

SECTION-B

2. (a) Define income effect and explain how it's different from price effect. [5]
- (b) A company has the following sales in different years. [5]
Forecast sales for the year 2010 and 2012.

Year	2003	2004	2005	2006	2007	2008	2009
Sales (in \$000)	15	25	30	45	50	55	62

3. (a) Explain the output maximization and cost minimization case through producer's equilibrium with the help of suitable diagrams. [5]

- (b) A company has the following total cost (TC) function: [5]

$$TC = 100 + 5Q + Q^2$$

Find:

- Total Fixed Cost (TFC)
- Average cost (AC) function
- marginal cost (MC) function
- The level of output at which AC will be minimum
- The level of output at which MC will be minimum

4. (a) A company has to choose the best project out of alternative available projects. Find out the best project on the basis of present worth method, if $i = 16\%$ compounded annually. [5]

Particulars	Project A	Project B
Initial cost (₹)	50,00,000	65,00,000
Life of the project (in years)	17	17
Annual revenue (₹)	3,00,000	5,00,000
Salvage value (₹)	3000	5000

- (b) A company wants to purchase a machine. There are two machines available in the market. Find out which machine the company should select on the basis of future worth method, if $i = 18\%$ compounded annually. [5]

Particulars	Machine 1	Machine 2
Initial cost (₹)	20,00,000	15,00,000
Life of the project (in years)	20	20
Annual operation and maintenance cost (₹)	1,00,000	1,50,000

5. (a) Project A and B are the two mutually exclusive projects which are being considered for investment. [5]
The initial cost of project A is ₹ 35,00,000 with annual return of ₹ 8,50,000 for the next 10 years. The initial cost of project B is ₹ 40,00,000 with annual return of ₹ 9,00,000 for the next 12 years. Both the projects have no salvage value. Find out which project will be selected on the basis of benefit-cost analysis, if the interest rate is 10% compounded annually.
- (b) The purchased price of a machine is ₹ 2,00,000. Find [5]
out the depreciation amount and book value of the machine for 5 years with the help of declining balance method of depreciation if the rate of depreciation is 25%.
6. (a) Explain any five causes of inflation. [5]
- (b) Explain fiscal policy of the Government for controlling [5]
inflation.
