# MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

**Paper Code : HM-601/HM-EE601/HM-EEE601/HM-HU601/HS-HU601 Economics for Engineers**

**UPID : 006621**

*Time Allotted : 3 Hours* *Full Marks :70*

*The Figures in the margin indicate full marks.*
*Candidate are required to give their answers in their own words as far as practicable*

## Group-A (Very Short Answer Type Question)

1. Answer any ten of the following : [ 1 x 10 = 10 ]

(I) Project A has a Benefit-Cost Ratio=1.13. An alternative, Project B has a Benefit-Cost Ratio=1.23. Which project should be selected?

(II) What is expected value?

(III) In which method, the amount of depreciation remains unchanged?

(IV) For a project to be financially viable what should be the value of the profitability index ?

(V) What is the difference between recurring and non recurring cost?

(VI) What is MARR?

(VII) Fill in the blank: Break even analysis is a type of _____ analysis.

(VIII) What is a decision node?

(IX) What is the full form of FVIF?

(X) What is an intangible asset?

(XI) To compute the updated cost of a boiler in same year but of new capacity, what measure should we should ideally use?

(XII) What is the difference between Internal Rate Of Return and Return on Investment?

## Group-B (Short Answer Type Question)

Answer any three of the following : [ 5 x 3 = 15 ]

2. How is cost index model used in estimation of cost? [5]

3. What do you understand by time value of money? [5]

4. Calculate Working Capital, Current ratio and Quick ratio from the following information: [5]
Stock= Rs. 50,000; Debtors= Rs 41,000; Bills receivable= Rs. 9000; Advance tax= Rs. 4,000; Cash =Rs33,000; Bills payable = Rs 37,000; creditors =Rs 60,000 and bank overdraft = Rs 3000.

5. What do you understand by Economic Decision Trees? [5]

6. What do you understand by Profit-Volume Ratio? Explain. [5]

## Group-C (Long Answer Type Question)

Answer any three of the following : [ 15 x 3 = 45 ]

7. (a) The Alpha Drug Company has just purchased a capsule machine for Rs. 20,00,000. The plant engineer estimates that the machine has a useful life of five years and a salvage value of Rs. 25,000 at the end of its useful life. Compute the depreciation schedule for the machine by straight line method. [ 7 ]

(b) An automobile company has purchased a wheel alignment device for Rs. 10,00,000. The device can be used for 15 years. The salvage value at the end of the life of the device is 10% of the purchase value. Find the depreciation at the end of the seventh year using the double declining balance method of depreciation. [ 8 ]

8. (a) The maintenance cost of an equipment is nil in the first year but there after increases by Rs. 150 every year. The revenue from the equipment is Rs. 2000 in first year and there after decreases by Rs. 250 every year. Find net annual equivalent if interest rate is 6 % and the equipment has a 10 year life. Suggest if the equipment is financially viable. [ 10 ]

(b) A savings and loan offers a nominal interest rate of 5.25% rate per annum compounded daily over 365 days per year. What is the effective annual rate? [ 5 ]

9. (a) A manufacturer of motor cycles buys side boxes at Rs. 240 each. In case he makes it himself, the fixed and variable costs would be Rs. 3,00,000 and Rs. 90 per side box respectively. Should the [ 7 ]

manufacturer make or buy
the side boxes if the demand is 2,500 side boxes?

(b) Consider the following data of a company for a particular financial year: [ 8 ]
Sales = Rs. 2,40,000
Fixed cost = Rs. 50,000
Variable cost = Rs. 75,000
Find the following:
(i) Contribution
(ii) Profit
(iii) BEP
(iv) Margin of safety

10. (a) What is incremental cost? What do you understand by life cycle cost? [ 6 ]

(b) Distinguish between per unit model and segmenting model. Discuss the advantages and disadvantages in both methods of cost estimation. [ 6 ]

(c) Distinguish between cash cost vs book cost. [ 3 ]

11. (a) Define 'economic life' of an equipment. [ 3 ]

(b) A firm is considering replacement of an equipment, whose first cost is Rs. 1,750 and the scrap value is negligible at any year. Based on experience, it was found that the maintenance cost is zero during the first year and it [ 12 ]
increases by Rs. 100 every year thereafter. When should the equipment be replaced if i = 0%?

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