



B.E./B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2012

MECHANICAL ENGINEERING

SEVENTH SEMESTER – (REGULATIONS 2004)

26

**ME505 ENGINEERING ECONOMICS & COST ANALYSIS**

Time : 3 hr

Max Mark : 100

Answer ALL Questions

PART-A (10 X 2 = 20 Mark)

1. What are the objectives of managerial economics?
2. Define V Ratio
3. What are the functions of Value Engineering?
4. What are the advantages of Effective Interest Rate?
5. When do we use Present worth method?
6. What are the significances of Annual Equivalent method?
7. When Does Company opts for Shut down Maintenance?
8. How will you find out economic life of an asset?
9. What are the causes for depreciation?
10. What is evaluation of public alternatives?

PART-B (5 X 16 = 80 Mark)

11. Mr X has a Rs 1,50,000 investment in a business. He wants a 15% return on his money. From an analysis of recent cost figures he finds that his variable cost of operating is 60% of sales; his fixed costs are Rs 75,000/year. Sho supporting computations for each answer.

- (i) What sales volume must be obtained to break-even?
- (ii) What sales volume must be obtained to get his 15% return on investment.
- (iii) Mr X estimates that even if he closed the doors of his business he would incur Rs 25,000 expenses per year. At what sales would he be better off by locking his sales up?

12 (a) Discuss the procedure of value engineering? (16)

OR

12 (b) Discuss the steps adopted to compute the following:

- (i) Single payment compound amount factor
- (ii) Uniform gradient series annual equivalent factor
- (iii) Equal payment series payment present worth factor
- (iv) Equal payment series capital recovery factor (4+4+4+4)

13 (a) The initial cost of a project is Rs 80 crores. The life of the project is 8 years. The salvage value at the end of the life is Rs.10 crores. Based on the similar nature of business, the following data of the annual revenue shown in table 1.1 follow normal distribution. Check whether the project is feasible at a discount rate of 10% with a significance level ( $\alpha$ ) of 0.05 using present worth method (16)

Table 1.1 Data of Annual Revenue

Annual Revenue (Rs in Crores)	10	11	12	13	14	15	16	17	18	19
No of Companies	2	7	10	25	30	24	8	9	5	2

OR

13 (b) Explain the steps involved in the annual equivalent method for Cost dominated cash flow diagram with suitable example? (16)

14 (a) Classify and discuss the various types of maintenance? (16)

OR

14 (b) Describe the Capital recovery with return and concept of challenger and defender? (16)

15 (a) Elaborate the various methods of depreciation with suitable examples? (16)

OR

15 (b) Write short notes for the following:

- (a) Material Selection for Product design (4)
- (b) Elements of Costs (4)
- (c) Evaluation of Public Alternatives (4)
- (d) Inflated Adjusted Decisions (4)