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17ME51

Fifth Semester B.E. Degree Examination, Desei;1401 n.2020
Management and Engineering Economics

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use of Interest factors table is permitted.

Module-1

- 1 a. Define meaning of Management and explain characteristics of Management. (06 Marks)
- b. Discuss different Levels of Management. (06 Marks)
- c. Briefly explain the early management approaches. (08 Marks)

OR

- 2 a. Discuss the importance and purpose of planning process. (10 Marks)
- b. With the help of block diagram, explain Hierarchy of plans. (10 Marks)

Module-2

- 3 a. List and explain in brief the Principles of Organization. (14 Marks)
- b. Discuss the need of Committees in an organization with classification. (06 Marks)

OR

- 4 a. Discuss the three types of leadership styles mentioning their advantages and disadvantages. (10 Marks)
- b. With the aid of block diagram, explain Maslow's Hierarchy of Needs theory. (10 Marks)

Module-3

- 5 a. Engineers are now expected not only to generate novel technological solution but also to make skillfull financial analysis of the effects of implementation — discuss. (06 Marks)
- b. State and explain the law of supply and demand mentioning the factors influencing it. (08 Marks)
- c. Determine the effective interest rate for a nominal annual rate of 6% that is compounded:
 - (i) Semi-annually
 - (ii) Quarterly
 - (iii) Monthly
 - (iv) Daily
 (06 Marks)

OR

- 6 a. Explain time value of money assuming amount of your choice and draw the cash flow diagram. (08 Marks)
- b. A person wishes to have a future sum of Rs.1,00,000 for his son's education after 10 years from now. What is the single payment that he should deposit now so that he gets desired amount after 10 years? The bank gives 15% interest rate compounded annually. (04 Marks)
- c. A celebrity is at the height of his career. He wants to invest Rs.10 lakhs from the end of this year and follow it up with 9 lakhs, 8 lakhs and so on for the next five years, when his income would go on diminishing. Find the maturity amount 6 years later if a film producer agrees to pay him 15% rate of interest, compounded annually. (08 Marks)

Module-4

- 7 a. An engineer has two bids for an elevator to be installed in a new building. The details of the bids for the elevators are as follows:

Bid	Engineer's estimates		
	Initial cost (Rs.)	Service life (years)	Annual Operations & Maintenance Cost (Rs.)
Alpha Elevator Inc.	4,50,000	15	27,000
Beta Elevator Inc.	5,40,000	15	28,500

Determine which bid should be accepted, based on the present worth method of comparison assuming 15% interest rate, compounded annually. (10 Marks)

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- b. A person owns a corner plot. He must decide which of the several alternatives to select in trying to obtain a desirable return on his investment. After much study and calculation, he decides that two best alternatives are given in the following table:

Particulars	Alternative I	Alternative II
First cost (Rs.)	20,00,000	36,00,000
Annual property taxes (Rs.)	80,000	1,50,000
Annual Income (Rs.)	8,00,000	9,80,000
Life of building (years)	20	20
Salvage Value (Rs.)	0	0

Evaluate the alternatives based on the Future Worth Method at $i = 12\%$.

(10 Marks)

OR

- 8 a. Define the following terms: (i) MARR (ii) IRR (iii) ERR (05 Marks)
- b. What are the clues for IRR calculations? (05 Marks)
- c. Farmhouse can be purchased for Rs.90,000 and the expected resale value after 20 years is Rs.60,000. if the annual rental income is Rs.11,800 and expenses Rs.4700, what will be the rate of return earned on this farmhouse? (10 Marks)

Module-5

- 9 a. Explain how selling price is determined for a product with a block diagram. (06 Marks)
- b. The expenditure incurred in manufacturing a machine is as follows:
- | | |
|---|--------------|
| 1. Material consumed | Rs.55,00,000 |
| 2. Indirect factory wages | Rs.8,00,000 |
| 3. Director's fee | Rs.3,00,000 |
| 4. Advertisement | Rs.1,00,000 |
| 5. Net profit | Rs.1,20,000 |
| 6. Depreciation on sales department car | Rs. 11,000 |
| 7. Printing & Stationary | Rs.2500 |
| 8. Depreciation of plant | Rs.45,000 |
| 9. Direct wages | Rs.6,50,000 |
| 10. Factory rent | Rs.60,000 |
| 11. Telephone & postage charges | Rs.15,000 |
| 12. Gas & Electricity | Rs.50,000 |
| 13. Office salaries | Rs.2,10,000 |
| 14. Office rent | Rs.50,000 |
| 15. Showroom rent | Rs.1,50,000 |
| 16. Salesman commission | Rs.26,500 |
| 17. Sales dept. car expenses | Rs.15,000 |

Estimate the selling price.

(14 Marks)

OR

- 10 a. List and explain five methods of depreciation. (10 Marks)
- b. Discuss the various causes of depreciation. (05 Marks)
- c. A company has purchased an equipment whose first cost is Rs.1,00,000 with an estimated life of Eight years. The estimated salvage value of the equipment at the end of its life time is Rs.20,000. Determine the depreciation charge and book value at the end of various (eight) years using straight line method of depreciation. (05 Marks)