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10ME71

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020
Engineering Economy

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART - A

- 1 a. Briefly explain problem solving process in decision making, with a neat sketch. (08 Marks)
b. Briefly explain the law of demand and law of supply. (06 Marks)
c. Determine the effective interest rate in the following cases:
(i) Nominal rate of 12% compounded monthly with time interval of one year.
(ii) Nominal rate of 18% compounded weekly with time interval of one year.
(iii) Nominal rate of 13% compounded monthly with time interval of two years. (06 Marks)
- 2 a. State the conditions for present worth comparisons. (06 Marks)
b. Two motorcycles of brand A and B are available on the following terms:
(i) Motor cycle A – Make a down payment of Rs.5000 and then Rs.6000 at the end of each year for 7 years.
(ii) Motor cycle B – Make a down payment of Rs.15,000 and no payment for the next 3 years. From the end of the 4th year annual payments of Rs.12000 for the next 4 years. (08 Marks)
c. Explain (i) Common multiple (ii) Steady period method of comparing the assets that have unequal lives. (06 Marks)
- 3 a. Two types of power converter Alpha and Beta are under consideration for a particular application. An economic comparison is to be made at an interest rate of 12%. Following cost estimation has been obtained. Determine the annual equivalent costs of the two systems, select the best converter. (10 Marks)
- | Cost particulars | Alpha | Beta |
|------------------------|----------|----------|
| Purchase price | Rs.15000 | Rs.25000 |
| Estimated service life | 6 years | 9 years |
| Salvage value | Rs. 4000 | Rs. 7000 |
| Annual operating cost | Rs. 3000 | Rs. 2000 |
- b. A sheltered workshop requires a lift truck to handle pallets for new contract. A lift truck can be purchased for Rs.270000. Annual insurance costs are 3% of the purchase price payable on the first of each year. An equivalent truck can be rented Rs.15000 per month payable at the end of each month. Operating costs are same for both alternatives. For what minimum number of months must a purchased truck be used on the contract to make purchasing more attractive than leasing? Interest is 12% compounded monthly. Assume that the purchased truck has no salvage value. (10 Marks)
- 4 a. Define (i) MARR (ii) IRR (iii) ERR. (06 Marks)
b. Define depreciation. List and explain any two causes. (06 Marks)
c. A CNC machine costs Rs.3000000 is estimated to serve 8 years after which its salvage value is estimated to be Rs.250000. Find (i) Depreciation fund at the end of the 5th year by fixed percentage method and declining balance method. (ii) Book value of the machine after 4th year and 6th year by declining balance method. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.



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PART – B

- 5 a. Briefly explain the contents of elements of cost. (08 Marks)
b. Differentiate between estimation and costing. (04 Marks)
c. A firm is producing 100 units per day. The direct material cost is found to be Rs.160, the direct labour cost is Rs.200 and factory overheads chargeable to it are Rs.250. If the selling expenses are 40% of the factory cost what must be the selling price of each unit to realize a profit of 15% of the selling price? (08 Marks)

- 6 a. The company X having certain reserves and surplus has the following details as on 31st Dec.2000.

Dividend payable	72000	Debtors	160000
Bank balance	10000	Bills payable	20000
Equity shares	200000	Plant and equipment	80000
Provision for taxes	40000	Bills receivable	20000
Stock	77000	Creditors	55000
8% preference shares	135000	General reserve	40000
Land and Building	200000	Cash in hand	15000

- Prepare a balance sheet as on 31st December 2000. (12 Marks)
b. Differentiate between profit and loss account and balance sheet. (08 Marks)
- 7 a. List and explain various financial ratios. (12 Marks)
b. What are the advantages and disadvantages of financial ratio analysis? (08 Marks)
- 8 a. What are the objectives of profit planning? (08 Marks)
b. How do you classify budgets? Explain the production budget and sales budget. (12 Marks)

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