CBCS SCHEME

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15ME51

# Fifth Semester B.E. Degree Examination, Jan./Feb. 2021
## Management and Engineering Economics

Time: 3 hrs. Max. Marks: 80

**Note:** ***Answer any FIVE full questions, choosing ONE full question from each module.***



### Module-1

1 a. Define Management. Differentiate between Administration and Management. **(08 Marks)**

b. Explain briefly the purpose and planning. **(08 Marks)**

**OR**

2 a. Briefly explain , whether management is a Science (or) Art. **(08 Marks)**

b. Explain briefly the main steps involved in planning. **(08 Marks)**

### Module-2

3 a. Explain with a neat diagram, line and staff organization. **(08 Marks)**

b. Briefly explain the techniques of selection. **(08 Marks)**

**OR**

4 a. Describe briefly the essentials of a Sound Control System. **(08 Marks)**

b. Briefly explain the Maslow's Hierarchy of needs. **(08 Marks)**

### Module-3

5 a. Explain how Cash Flow Diagrams (CFD) are helpful to the decision maker to understand and solve Engineering Economics problems and give borrower's and lender's perspectives for cash flow diagram. **(08 Marks)**

b. A person is planning for his retired life. He has 10 more years of service. He would like to deposit 20% of his salary which is Rs 10,000/- at the end of the First year and there after he wishes to deposit the same amount (Rs 10,000) with an Annual increase of Rs 2000/- for the next 9 years with an interest rate of 20%. Find the total amount at the end of the $10^{th}$ year of the above series. **(08 Marks)**

**OR**

6 a. State and explain Law of Returns. **(08 Marks)**

b. 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 a time interval of one year.

iii) Nominal rate of 13% compounded monthly with a time interval of two years.

iv) Nominal rate of 9% compounded semi annually with a time interval of two years. **(08 Marks)**

### Module-4

7 a. Two motorcycles of brand "A" and "B" are available on the following terms :

i) Motor cycle "A" – make a down payment of Rs 5,000/- and then Rs 6,000/- 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 end of the $4^{th}$ year annual payments of Rs 12,000/- for the next 3 years. Find the future worth of Motor cycle A & B. **(08 Marks)**

b. A stand by lighting generator is required for a shop. Two types are available. If both generators have a life of 4 years and the interest rate is 15% per year, which offers the lowest equivalent annual cost.

| | Type - 1 | Type - 2 |
|---|---|---|
| First - Cost | Rs 5,000/- | Rs 3,200/- |
| Salvage value | Rs 1,000/- | - Nil - |
| Annual operating costs | Rs 780/- | Rs 950/- |

**(08 Marks)**

**OR**

8 a. Compare the two investment proposals given below, if the firms MARR is 15%. Life of all the two proposals is 10 years. Compare using IRR.

| Investment proposal | Initial Cost | Annual Return |
|---|---|---|
| Proposal 1 | 5,50,000/- | 1,40,000/- |
| Proposal 2 | 6,25,000/- | 1,60,000/- |

**(08 Marks)**

b. A crane can be taken on lease for a project for 3 years for Rs 1,80,000/- payable now, maintenance included. It can also be purchased for Rs 2,40,000/- and be sold at the end of 3 years for Rs 1,00,000/-. Maintenance costs are expected to be Rs 5,000/- per year for the first two years and Rs 10,000/- for the third year payable at the end of each year. At what interest rates would the two alternatives be equivalent? **(08 Marks)**

## Module-5

9 a. Briefly explain the functions of Estimating department. **(08 Marks)**

b. A CNC machine costs Rs 30,00,000/- is estimated to serve for 8 years after which its salvage value is estimated to be Rs 2,50,000/- Find

i) Depreciation fund at the end of the $5^{th}$ year by Fixed percentage method and Declining Balance method.

ii) Book value of the machine after $4^{th}$ year and $6^{th}$ year by Declining Balance method.

**(08 Marks)**

**OR**

10 a. Explain with a block diagram the elements of cost and components of cost. **(08 Marks)**

b. 'Pizza corner" employed 75 workers in a particular month to work in the outlets as well as for home delivery. The following are the details of expenditure :

i) Cost of material = Rs 80,000/-

ii) Rate of wages for each workers = Rs 20 per hour of normal duty, Rs 40 per hour of overtime duty.

iii) Man hours per day of normal duty = 8 hours.

iv) Number of holidays per month (without wages) = 5 days.

v) Total overhead expenses = Rs 20,000/-.

vi) Total overtime availed by workers = 200 hours.

vii) Profit = 20% of total cost.

Determine i) Total cost for the month.

ii) Profit for the month.

iii) Man hour rate of overheads. **(08 Marks)**

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