Reg. No. : | | | | | | | | | | | | |

**Question Paper Code : 53355**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Eighth Semester

Mechanical Engineering

MG 6863 — ENGINEERING ECONOMICS

(Regulation 2013)

(Common to PTMG 6863 – Engineering Economics for B.E. Part Time – Seventh Semester – Mechanical Engineering Regulation – 2014)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the formula to calculate engineering efficiency and economic efficiency.
2. Give examples of opportunity cost and sunk cost.
3. Define value engineering.
4. What is meant by effective interest rate?
5. Write the potential sources of cash inflow over the project life.
6. State the formula to calculate rate of return.
7. Identify any two difference between replacement and maintenance.
8. List the types of maintenance.
9. An asset has been purchased for Rs. 10,000 and it will have a scrap value of Rs. 1,000 at the end of its useful life of 10 years. Calculate depreciation.
10. State the objectives of providing depreciation.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the factors which influence demand and supply.

Or

(b) What is meant by break-even point? Draw a break-even chart and discuss its components.

12. (a) Compile the aims and basic steps of value engineering.

Or

(b) Describe equal payment series compound amount and equal payment series sinking fund with the help of cash flow diagrams.

13. (a) A company must decide whether to buy machine A or machine B :

| | Machine A | Machine B |
|---|---|---|
| Initial cost | Rs. 4,00,000 | Rs. 8,00,000 |
| Useful life in years | 4 yrs | 4 yrs |
| Salvage value at the end of machine life | Rs. 2,00,000 | Rs. 5,00,000 |
| Annual maintenance cost | Rs. 40,000 | Rs. 0 |

At 12% interest rate, which machine should be selected? Use future worth method of Comparison.

Or

(b) Draw and explain a cash flow diagram for alternative of your own choice.

14. (a) Summarize the concept of challenger and defender with suitable examples.

Or

(b) What is meant by maintenance and replacement? Elucidate the various types of replacement problem.

15. (a) State the meaning for the term depreciation fund and explain the various methods of depreciation.

Or

(b) Define inflation and elaborate the procedure to adjust inflation.

PART C — (1 × 15 = 15 marks)

16. (a) A factory has 1000 bulbs installed cost of individual replacement is Rs. 3 while the group replacement cost is Rs. 1 per bulb respectively. It is decided to replace all the bulbs simultaneous at a fixed interval and also to replace the individual bulbs that fail in between. Determine the optional replacement policy. Failure probabilities are given below.

| Week : | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Probability : | 0.10 | 0.25 | 0.50 | 0.70 | 1.00 |

Or

(b) An ABC company is considering replacement of an eqpt. whose first cost is Rs. 1,750 and the scrap value is negligible at any year. Based on the experience it is found that the maintenance cost is zero during the first year and it increases every year by Rs. 100 when should the eqpt. be replaced if interest rate is assumed to 12%.

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