

(3 Hours)

Total Marks: 80

- N.B. 1) Question No.1 is compulsory.
2) Attempt any three questions out of the remaining five questions.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever required but justify the same.

Q.1 Attempt any four.

- a. Principles of motion economy (5)
- b. Different techniques of Industrial Engineering (5)
- c. Factors influencing Plant Layout (5)
- d. What do you mean by Incentive Scheme? List its different types? (5)
- e. Different methods of depreciations. (5)

Q.2a. What is the difference between Value Engineering and Value Analysis? What are the steps involved in it? Explain with the help of an example. (10)

b. Define productivity. What are the factors influencing productivity? (10)

Q.3.a. Explain the following charts with the help of a suitable example. (10)

- i) Flow Process Chart
- ii) Multiple Activity Chart

b. What is the importance of Material Handling? Which factors need to be considered for the selection of material handling equipment? (10)

Q.4.a An operation involves the following elements given below with their related data, (10)

| Element | Observed time (minutes) | Rating | Remarks |
|---------|-------------------------|--------|-------------------|
| A | 0.20 | 90 | - |
| B | 0.05 | 80 | - |
| C | 0.03 | 100 | - |
| D | 0.78 | 100 | - |
| E | 0.06 | 100 | - |
| F | 0.05 | 100 | - |
| G | 0.02 | 85 | Once in 5 pieces |
| H | 0.06 | 80 | - |
| I | 0.10 | 90 | - |
| J | 0.04 | 90 | Once in 20 pieces |

Assuming rest and personal allowances as 13% and contingency allowance as 2%, calculate standard time of the job.

b. What is the importance of Facility Location? Which factors are controlling it? (10)

Q.5. a. Why does money have a time value? Explain the basic time value of money model with four variables involved in it. (10)

b. What do you mean by Ergonomics? What are the different types of Displays and Controls? (10)

Q.6. Write short notes on (Any Four)

a. Job Evaluation (5)

b. Line Balancing (5)

c. MOST (5)

d. Financial Statements (5)

e. BPR (5)
