

December 2024

B.Tech. (ME) (Fifth Semester)

Industrial Engineering (PCC-ME-505-21)

Time : 3 Hours]

[Maximum Marks : 75

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) Types of communication in industry and how it affects productivity ? **1.5**
- (b) What are the challenges for implementing ERP in industries ? **1.5**
- (c) Write the components of Industry 4.0. **1.5**
- (d) Describe, how job costing is done ? **1.5**

- (e) What is MFCA ? 1.5
- (f) Define THERBLIGS. 1.5
- (g) What is the principle of motion economy ? 1.5
- (h) Define Inventory turnover ratio. 1.5
- (i) Write three definitions of quality. 1.5
- (j) Describe the direction of flows in SCM. 1.5

Part B

2. (a) Explain the importance of travel chart in effective layout of a production plant. Prepare a travel chart for a hypothetical engineering concern with 4 functional departments, i.e. foundry, machining, welding and inspection 10
- (b) Describe lean manufacturing with sketch. Why is it required ? 5

3. (a) A company manufactures ball-point pens that can be sold at Rs. 15 per piece. Variable cost of the pen is Rs. 10 per unit. If the company has made a total investment in fixed cost to the tune of Rs. 30,000, what is the break-even sale for the pen ? 5
- (b) Describe the methods for work measurement in details. 10
4. Classify the different forecasting method in details. 15
5. (a) Derive the formula for determining EOQ for inventory model with uniform demand. 5
- (b) An item is produced at the rate of 50 items per day. The demand occurs at the rate of 25 items per day. If the setup cost is Rs. 100 per set up and holding cost is Rs. 0.01 per unit of item per day, find the economic lot size for one run, assuming that shortages are not permitted. Also find the time of cycle and minimum total cost for one run. 10

6. (a) What is FSN analysis ? Describe key components and Implementation of FSN Analysis in Inventory Management. 10

(b) Illustrate Gantt Chart in details with neat sketch and its applications. 5

7. Find solution of Processing 5 Jobs Through 4 Machines Problem : 15

Job	1	2	3	4	5
Machine-1	11	13	9	16	17
Machine-2	4	3	5	2	6
Machine-3	6	7	5	8	4
Machine-4	15	8	13	9	11