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Total Number of Pages : 02

B.Tech
PME6I101

6th Semester Regular / Back Examination 2018-19

PRODUCTION & OPERATION MANAGEMENT

BRANCH : MECH

Max Marks : 100

Time : 3 Hours

Q.CODE : F996

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 Only Short Answer Type Questions (Answer All-10) (2 x 10)

- What is flexible manufacturing?
- Define lateness, earliness and tardiness? Write equations to represent them?
- Given the data 63, 64, 66, 67, 67, 69, 71, 72 find the forecast for the eighth period using simple average, and 3 period moving average?
- What are the costs considered in the transportation model for aggregate planning?
- How are the ordering cost, carrying cost and shortage cost related at the optimum when shortage cost is included?
- What is Brain Storming?
- Mention some principles in agility?
- What is the difference between forward scheduling and backward scheduling?
- Is exponential smoothing a form of weighted average? How?
- How is the order quantity and reorder level related?

Part- II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- The following information about Lead Time Demand is given. The values are 300, 350, 400, 450 and 500 with probabilities 0.2, 0.25, 0.3 and 0.2 and 0.05. Find the reorder level if $C_c = \text{Rs}4/\text{unit}/\text{year}$ and $C_s = \text{Rs} 10/\text{unit}/\text{year}$?
- Explain the Importance of Aggregate Planning and Capacity Planning. List the difference between them.
- Suppose you are working as a turnkey project consultant. One of your clients wants guidance in selecting facility location for his new fast-food restaurant. Guide your client.
- Explain Six Sigma process of Japanese manufacturing
- Discuss the steps of Delphi Method.
- What are the assumptions of the basic EOQ Model? Distinguish between a fixed order-quantity system and fixed-time-period system.
- Explain one qualitative model for layout?
- Explain the relevance of Just in Time system in modern Manufacturing Industry?
- A work-study sample of a manufacturing activity conducted over a 40-hour period shows that a worker with an 85% rating produced 12 parts. The worker's idle time was 10% and the allowance factor was 12%. Find the Normal and Standard time for this activity.
- What is planning and examine the importance of planning and control in manufacturing sector.
- Describe briefly different models of facility location with a live example.
- Write basic issues and tools of managing production.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 Given the data 92, 93, 92, 91, 93, 94, 92 find the forecast for the eighth period using simple exponential smoothing? Use $\alpha = 0.2$ $\alpha = 0.7$ and initial forecast using simple average? Explain the effect of α on the contribution of the data for the various periods. **(16)**

Q4 Consider the demand for six periods (in man hours) 3000, 3200, 4000, 3600, 4200 and 3800. Regular time capacity is 3600 hours and overtime capacity is 400 hours in a month. The RT, OT and inventory costs are 30, 45 and 5 per unit and per unit per month. Formulate and solve a transportation model? Use outsourcing cost as Rs. 50 per hour. **(16)**

Q5 Consider a five job three machine flow shop scheduling problem. The processing times for the five jobs are J1 (27, 10, 8), J2 (12, 9, 10), J3 (11, 10, 8), J4 (8, 13, 12) and J5 (14, 12, 9). Find a heuristic solution using the Campbell Dudek Smith (CDS) heuristic? **(16)**

Q6 Mention situations in (i) banking, (ii) advertising, (iii) agriculture, (iv) hoteliering where production and operations management are involved. Describe the inputs, outputs, processes, utilities used in these organization **(16)**