

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020

Subject Code:3152511
Date:29/01/2021
Subject Name:Production and Operation Management
Time:10:30 AM TO 12:30 PM
Total Marks: 56
Instructions:

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- | | | Marks | | | | | | | | | | | | | | | |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|---|---|-----------|----|----|----|----|---------------------------------|-----|-----|-----|-----|--|
| Q.1 | (a) Explain the term "Productivity" in brief. | 3 | | | | | | | | | | | | | | | |
| | (b) Discuss in detail based on which criteria make or buy decision depends? | 4 | | | | | | | | | | | | | | | |
| | (c) Define and Differentiate between Production Planning and Process Planning by giving example in each case. | 7 | | | | | | | | | | | | | | | |
| Q.2 | (a) Explain Delphi method for Demand Forecasting. | 3 | | | | | | | | | | | | | | | |
| | (b) Identify the basic inputs, Conversion Media and Outputs for the following production Systems. (1) Hospital and (2) Forging Industry. | 4 | | | | | | | | | | | | | | | |
| | (c) Discuss: (1) The strategic role of forecasting in supply chain management. & (2) Demand behavior | 7 | | | | | | | | | | | | | | | |
| Q.3 | (a) Write brief note on "Aggregate planning and its pure strategies". | 3 | | | | | | | | | | | | | | | |
| | (b) What are the basic Inputs of MRP? | 4 | | | | | | | | | | | | | | | |
| | (c) What is the meaning of <i>least squares</i> in a regression model? The following data relate the sales figures in thousands rupees of the air conditioners to the number of customers registered that week. | 7 | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 25%;">Week</th> <th style="width: 12.5%;">1</th> <th style="width: 12.5%;">2</th> <th style="width: 12.5%;">3</th> <th style="width: 12.5%;">4</th> </tr> </thead> <tbody> <tr> <td>Customers</td> <td>16</td> <td>12</td> <td>18</td> <td>14</td> </tr> <tr> <td>Sales : (Rs.) x 10³</td> <td>330</td> <td>270</td> <td>380</td> <td>300</td> </tr> </tbody> </table> | Week | 1 | 2 | 3 | 4 | Customers | 16 | 12 | 18 | 14 | Sales : (Rs.) x 10 ³ | 330 | 270 | 380 | 300 | |
| Week | 1 | 2 | 3 | 4 | | | | | | | | | | | | | |
| Customers | 16 | 12 | 18 | 14 | | | | | | | | | | | | | |
| Sales : (Rs.) x 10 ³ | 330 | 270 | 380 | 300 | | | | | | | | | | | | | |
| | (i) Perform a linear regression that relates sales of air conditioners to customers. (ii) If the forecast is for 20 customers next week, what are the sales expected to be? | | | | | | | | | | | | | | | | |
| Q.4 | (a) Write brief note on "Types of Gantt charts as applied to scheduling" | 3 | | | | | | | | | | | | | | | |
| | (b) What is scheduling? What are the scheduling criteria? What is sequencing jobs in work centers? Name and explain five priority sequencing rules | 4 | | | | | | | | | | | | | | | |
| | (c) Consider the following problem in single machine scheduling with | 7 | | | | | | | | | | | | | | | |

independent jobs.

Jobs	A	B	C	D	E	F	G	H
Processing Time	5	12	8	10	3	15	8	6
Due date	10	16	11	16	6	25	12	14

Obtain the optimal schedule to minimize mean flow time.

- Q.5**
- (a) Write in detail about sequencing jobs through one process. 3
 - (b) Write a shortnote on Dispatching rules. 4
 - (c) What are objective of assembly line balancing? Discuss rank positional weight method. 7
- Q.6**
- (a) Describe the main functions of Supply Chain management 3
 - (b) State the importance and objectives of material management. Explain: vendor development and selection. 4
 - (c) What is meaning of level production chase demand, peak demand, overtime/under time, subcontracting, backlogs, backordering? 7
- Q.7**
- (a) Briefly Explain the steps which are followed in "KANBAN SYSTEM". 3
 - (b) Write a short note on E-commerce and Electronic data Interchange 4
 - (c) A Purchase manager has decided to place an order for a minimum quantity of 500 units of a particular item of inventory in order to get discount of 10%, past records reveal that 8 orders (each of 200 units) were placed last year. Given ordering cost = Rs 500/year, Inventory Carrying cost = 40% of inventory value and price of item = Rs 400 per unit. What is the effect of this decision on company? 7
- Q.8**
- (a) Write short note on the ABC classification system. 3
 - (b) Discuss various inventory costs associated with organization. 4
 - (c) State and explain Concepts and applications of JIT in Manufacturing Sector. 7
