

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA-SEMESTER-II-EXAMINATION-WINTER-2024

Subject Code: 4529205

Date: 17/01/2025

Subject Name: Production & Operations Management

Time: 02:30 PM TO 05:30 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

- Q.1** **Each question carries 02 marks** **14**
- (a) Robust Design
(b) Kaizen
(c) Six Sigma
(d) Outsourcing
(e) Reverse Engineering
(f) Concurrent engineering
(g) Pull system

- Q.2** (a) What do you mean by facility location? What are the factors to be considered while selecting facility location for the cement manufacturing plant? **07**
- (b) Define various types of manufacturing process with suitable example with its merits and demerits. **07**

OR

- (b) What do you mean by plant layout? Explain the types of layout with its merits and demerits. **07**

- Q.3** (a) In a factory, there are seven jobs from A to G to perform, each of which should go through two machines M1 and M2. The processing times (in hour) for the jobs are given here. You are require to determine the optimal sequence for performing the jobs using Johnson's rule. Also find the waiting times of the jobs. **07**

| JOB | M1 | M2 |
|-----|----|----|
| A | 9 | 2 |
| B | 5 | 4 |
| C | 8 | 10 |
| D | 3 | 5 |
| E | 4 | 6 |
| F | 1 | 11 |
| G | 7 | 6 |

- (b) What do you mean by quality? Explain various dimensions of the quality with relevant example. **07**

OR

- Q.3** (a) What do you mean by aggregate production plan? Discuss various aggregate production planning strategies. **07**

- (b) What do you mean by ISO? Explain the ISO standards pertaining to quality, **07**

safety and environment.

- Q.4 (a)** What do you mean by lean manufacturing? Explain various elements of lean manufacturing. **07**
- (b)** Critical Care Hospital at Rajkot sources 20,000 disposable syringes every year from a supplier. The OC per order is RS. 100 and the CC is Rs. 1 per unit per year. The price of syringes is RS.5. The supplier offers a 5% discount if purchases are made in lots of 10,000 syringes or more. Determine whether the discount model is better than the EOQ model in this situation. **07**

OR

- Q.4 (a)** What do you mean by MRP? Explain inputs of MRP system. **07**
- (b)** What is SQC (statistical Quality Control)? Explain the role of control chart in quality control. **07**
- Q.5 (a)** What is Total Quality Management? Explain the basic purpose of TQM. **07**
- (b)** Draw a network diagram for the following activities. **07**

| Activity | Immediate Predecessor |
|----------|-----------------------|
| A | - |
| B | A |
| C | A |
| D | C |
| E | B |
| F | C |
| G | D, E |
| H | G |
| I | H |
| J | F |
| K | I, J |
| L | K |
| M | L |
| N | J |
| O | M, N |

OR

- Q.5 (a)** Discuss various causes for accidents along with the preventive measures of it in industries. **07**
- (b)** Infinite solutions ltd is planning to develop new mobile application. It has identified the activities given in the table. **07**

| Activity | Predecessor | a | m | b |
|----------|-------------|---|----|----|
| A | - | 1 | 2 | 3 |
| B | A | 3 | 5 | 7 |
| C | A | 6 | 10 | 14 |
| D | A | 4 | 6 | 8 |
| E | BCD | 8 | 9 | 10 |
| F | E | 2 | 4 | 6 |
| G | F | 1 | 3 | 5 |

Draw the network diagram & find the executed duration of the application development project.