Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA - SEMESTER–II • EXAMINATION – SUMMER • 2014

Subject Code: 820006 Date: 02-06-2014

Subject Name: Production and Operations Management (POM)

Time: 10.30 am - 13.30 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** You are a Senior Engineer in Canal Solar Power Project. You have selected to install solar panel on the various Narmada canals for 1 Megawatt (MW) power project. Explain to the management why you have chosen such location for project. **07**

(b) Explain principles of material handling and list down material handling equipments. **07**

Q.2 **(a)** Give a brief note on the following terms **07**

i) Total Quality Management

ii) Six Sigma

(b) What is transformation process? Explain the same with context of hospital. **07**

OR

(b) What are the steps that should be followed by an entrepreneur in setting up a new service facility? **07**

Q.3 **(a)** Explain the following control charts **07**

i) X-bar (Mean) Chart

ii) R-chart

iii) P-chart

(b) A manufacturing firm has been offered a particular component part it uses according to the following discount pricing schedule provided by the supplier **07**

1-199	Rs.65
200-599	Rs.59
600 +	Rs.56

The manufacturing firm uses 700 of the components annually, the annual carrying cost is Rs.14 and the ordering cost is Rs.275. Determine the amount the firm should order

OR

Q.3 **(a)** What do you understand by Operations Scheduling? What are the problems faced in the absence of proper scheduling? **07**

(b) What is ABC Analysis? Elaborate the same with the use of example. **07**

Q.4 **(a)** Natrajan Works is an ancillary unit at Pune. The production supervisor of Natrajan has to schedule two works W1 and W2. The machining time (in hours) required by the two works on the two machines is shown below. Determine the sequence in which the jobs should be scheduled to minimize the total machining time. **07**

	M1	M2
W1	3	9
W2	5	11

(b) The following table shows for each activity needed to complete the project the normal time, the crash time in which the activity can be completed of a building contract and the cost per day for reducing the time of each activity. The contract includes penalty clause of rs.100 per day over 17 days. The overhead cost per day is Rs. 160. **07**

Activity	Normal time in days	Crash time in days	Cost of Reduction Per Day (Rs.)
1-2	6	4	80
1-3	8	4	90
1-4	5	3	30
2-4	3	3	-
2-5	5	3	40
3-6	12	8	200
4-6	8	5	50
5-6	6	6	-

The cost of completing the eight activities in normal time is Rs. 6500

a) Calculate the normal duration of the project , its cost and critical path
b) Crash the project up to third level and find the cost and time associated with the same.

OR

Q.4 **(a)** Draw a network corresponding to the following information. Obtain the early and late start and completion time and determine the critical activities. **07**

Activity:	1-2	1-3	2-6	3-4	3-5	4-6	5-6	5-7	6-7
Duration:	4	6	8	7	4	6	5	19	10

(b) Arrivals at a telephone booth are considered to be Poisson, with an average time of 10 minutes between one arrival and the next. The length of a phone call is assumed to be distributed exponentially, with mean 3 minutes. **07**

Find:

1. The probability the an arrival finds that four persons are waiting for their turn
2. The average number of persons waiting and making telephone calls; and
3. The average length of the queue that is formed from time to time

Q.5 **(a)** Explain the following **07**

1. Chase strategy
2. Level Production strategy

(b) Explain various facility layouts in detail. **07**

OR

Q.5 **(a)** What are various industrial safety measures? **07**

(b) What is quality? Discuss the various dimensions of quality. **07**

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