

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA - SEMESTER-II • EXAMINATION – WINTER • 2014

Subject Code: 820006

Date: 02-01-2015

Subject Name: Production and Operations Management (POM)

Time: 02:30 pm - 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.

- Q.1** (a) How products differ from services? Explain the transformation process in detail with suitable example. **07**
(b) What is facility layout? Discuss the various types of facility layouts with relevant examples. **07**

- Q.2** (a) As a POM manager, What key factors will you consider regarding facility location to establish a new cement plant? **07**
(b) Discuss the various production processes. Explain with differentiating productions of chemicals from automobile car manufacturing. **07**

OR

- (b) Explain and link the importance of aggregate production planning to the overall strategic management to an organization **07**

- Q.3** (a) A general hospital consumes a drug in the quantity of 2400 units (Identical) annually. The hospital incurs Rs.0.5 per unit per year in holding the inventory. The cost to place an order is Rs.40 per order. The supplier of the drug offers the following discounts as per the table below. As a manager will you go for discount? Justify your answer. **07**

Quantity	Price per unit
0-700	Rs25
701-900	Rs.24.50
901 & more	Rs.24.25

- (b) What is line balancing? Explain the concept of cycle time, efficiency and balance delay. **07**

OR

- Q.3** (a) A mo-bike manufacturing firm has requirement of 15000 headlight bulbs per year. The carrying cost is Rs.1 per unit per year. The company operates 300 days a year with ordering cost for bulbs being Rs.300 per order. The lead time of supplier is 8 days and standard deviation of daily consumption is 15 units. If the firm desires 99% of the service level (1% stock out), Calculate the following: **07**
1. Economic Order Quantity
2. Total Inventory Cost
3. No. of orders in a year
4. Safety Stock

- (b) Explain the methodology of assigning n-jobs to one machine, n-jobs to two machines and n-jobs to n-machines. **07**

- Q.4 (a)** Draw a PERT network. Find the probability that project will be finished in 60 days. **07**

Activity	Immediate Predecessor/s	Optimistic Time(days)	Most likely Time(days)	Pessimistic Time(days)
A	-	4	6	8
B	-	5	6	13
C	A	10	12	14
D	B	8	9	10
E	C,D	15	18	21
F	C,D	6	6	6
G	E	10	11	12
H	F	8	11	14
I	G,H	7	10	13

- (b) What is JIT? Discuss the elements of JIT. **07**

OR

- Q.4 (a)** Construct the network diagram for the following project. Calculate the additional cost if project is crashed for 3 weeks. **07**

Activity	Immediate predecessor/s	Normal Time(weeks)	Normal cost (Rs.)	Crash Time(weeks)	Crash Cost(Rs.)
A	-	2	1000	2	-
B	-	3	2200	2	2500
C	A	7	1800	5	2000
D	A	5	1500	3	1800
E	B	2	1000	2	-
F	B	4	1200	3	1500
G	D,E	6	2500	5	2800
H	G,F	3	2000	2	2100
I	H,C	3	2200	3	-

- (b) Write a note on lean manufacturing system. **07**

- Q.5 (a)** How TQM did transform the conventional view towards quality? How is it linked to external suppliers? Answer in detail. **07**

- (b) Mention various charting methods used in statistical quality control. **07**

OR

- Q.5 (a)** Describe the ISO standard 9000 **07**

- (b) Write a note on process of DMAIC of six sigma quality. **07**
