GUJARAT TECHNOLOGICAL UNIVERSITY
MBA. Second Semester (Regular / Evening) Examination May 2010

Subject code: 820006
Subject Name: Production & Operation Management

Date: 27 / 05 / 2010   Time: 11.00 am – 01.30 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)** 1. Define the following terms in brief: **07**
(a) EOQ (b) Productivity (c) Andons (d) ISO (e) Break Even Point
(f) TQM (g) Kaizen

(b) What do you mean by JIT? Explain the basic elements of JIT.   **07**

Q.2 **(a)** As a plant manager of ceramics products, how will you select the appropriate   **07**
location of plant? Discuss consideration of various factors affecting it.

(b) What is meant by aggregate production planning? Why it is required?   **07**

OR

(b) Explain the types of manufacturing process in brief.   **07**

Q.3 **(a)** Answer the following questions in brief: **07**
1. What is concurrent engineering? Why is it better than traditional "silo effect"?
2. Differentiate between intermittent and continuous production system.

(b) Define the various types of plant layout in brief with suitable examples of   **07**
each.

OR

Q.3 **(a)** What is MRP? What are the inputs and outputs required by the MRP   **07**
processing logic?

(b) What is a cellular layout? How is it different from a process layout? How is   **07**
group technology useful in cellular layout?

Q.4 **(a)** What do you understand by Operations Scheduling? What are the problems   **07**
faced in the absence of proper scheduling?

(b) Indira Bank is considering opening a cash transaction window for customer   **07**
service in the major export show. Management estimates that customers will
arrive at the rate of 12 per hour. The teller who will staff the window can
service customers at the rate of one every four minutes.
Assuming Poisson arrivals and exponential service, find:
1) Utilization of the teller.
2) Average number in the waiting line.
3) Average number in the system.
4) Average waiting time in line.
5) Average waiting time in the system, including service.

OR

Q.4 **(a)** What do you mean by Demand Forecasting? Explain the various qualitative   **07**
methods of demand forecasting in brief.

(b)	Activity	Predecessor	Time Period (Weeks)	07
	A	----	2	
	B	A	3	
	C	A	4	
	D	B,C	5	
	E	D	3	
	F	D	4	
	G	B,C	5	
	H	E	2	
	I	G,F	3	
	J	H,I	4	

1. Draw Activity on Arrow (AOA) diagram.
2. Find out Critical Path and its duration.
3. Find out Early Starting Time (EST), Early Finish Time (EFT), Latest Starting Time (LST) and Latest Finish Time (LFT).
4. Find out Slack for each activity.

Q.5 (a) What do you mean by six-sigma? Explain the various analytical tools **07** associated with six-sigma.

(b) An auto industry purchases spark plugs at the rate of Rs. 35 per piece. The **07** annual consumption of spark plug is 20000 nos. If the ordering cost is Rs. 350 per order and carrying cost is 30% p.a. Find out EOQ and time between orders assuming 360 working days? If he supplies of spark plugs offers a discount of 5% for order quantity of 2000 nos. per order, do you accept the discount offer? Bank rate of interest is 5% and obsolescence cost is Rs. 35000.

OR

Q.5 (a) Discuss the importance of information technology in managing supply chain. **07**

(b) An oil packaging company wants the oil to be packed must be exactly 10 liter **07** with a tolerance of $\pm$ 0.5 liter. The packaging process had a process mean of 9.85 liter and a standard deviation of 0.12 liter. Find out process capability ratio and process capability index and comment on it.

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