Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII • EXAMINATION – WINTER • 2014

Subject Code: 182501 **Date: 04-12-2014**

Subject Name: Production and Operations Management

Time: 02:30 pm - 05:00 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) List and briefly discuss different phases of production planning and control **07**

(b) Consider the following problem in single machine scheduling with independent jobs. **07**

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 for each of the following performance measures:

1. To minimize mean flow time.
2. To minimize the maximum lateness

Q.2 (a) OMKAR industry estimates that it will sell 12000 units of its product for the forthcoming year the ordering cost is Rs. 100 per order and the carrying cost per unit per year is 30% of the purchase price per unit. The purchase price per unit is Rs. 50. Find **07**

a. Economic order quantity (EOQ)
b. No. of orders per year

(b) Derive EOQ formula for the purchase model without shortages. **07**

OR

(b) Distinguish between P and Q systems of Inventory. **07**

Q.3 (a) List and explain various pure strategies and mixed strategies in aggregate planning. **07**

(b) What is master production scheduling? Explain with an example. **07**

OR

Q.3 (a) What are the types of demand patterns? Explain them with suitable sketches **07**

(b) Explain Delphi method for Demand Forecasting. **07**

Q.4 (a) Explain difference between a product limit stack and a process limit stack. Give an example of each. **07**

(b) Explain problem of selective assembly. **07**

OR

Q.4 (a) Explain the concept of cycle time with a suitable example. **07**

Q.4 (b) Discuss the steps of RPW method for line balancing **07**

Q.5 (a) Explain break even analysis with the help of chart. **04**

(b) Mumbai based manufacturer has identified the following options for obtaining a machined part: it can buy the part at Rs. 200 per unit (including materials); it can make the part on a numerically controlled semiautomatic lathe at Rs. 75 per unit (including materials); or it can make the part on a CNC machining centre at Rs. 15 per unit (including materials). There is negligible fixed cost if the item is purchased; a semiautomatic lathe cost Rs. 80,000; and a machining centre costs Rs. 200,000. Prepare a decision criterion for the manufacturer for selecting the best alternative. **10**

OR

Q.5 **(a)** What are the basic inputs for MRP? **04**

(b) Consider following two machines and six jobs flow shop problem. **10**

Job	**a**	**b**	**c**	**d**	**e**	**f**
Machine 1	5	10	8	9	6	12
Machine 2	7	8	13	7	11	10

Obtain the optimal schedule and the corresponding makespan for the above problem.

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