Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 171501 **Date: 26-11-2013**

Subject Name: Operations Planning and Control

Time: 10:30 TO 01:00 **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)** Discuss interrelationship of PPC function with other functions in an organization. Discuss different phases of PPC. **07**

(b) Discuss modern day MPC system, its different inputs and outputs. **07**

Q.2 **(a)** Discuss the importance of sales forecasting function in an organization. Discuss components of time-series analysis. **07**

(b) Find out the three year moving averages starting from 1989. **07**

Year	Sales (Rs. In Million)
1989	10
1990	15
1991	20
1992	25
1993	15
1994	12
1995	15
1996	24
1997	15
1998	21
1999	15
2000	24

OR

(b) Discuss resource scheduling with an example. **07**

Q.3 **(a)** Discuss salient distinguishing features of production planning for Batch, Continuous, and Job production. **07**

(b) Fit a straight line by the least squares method to the following figures of production of Sugar factory. Estimate the production for 1989. **07**

Year	1979	1980	1981	1982	1983	1984	1985
Production (Units in '000)	76	87	95	81	91	96	90

Or

Q.3 **(a)** Discuss Master Production Scheduling. Take an example of inventory build-up technique for meeting the demand. **07**

(b) Discuss preparation and application of Route sheet with an example. **07**

Q.4 **(a)** Discuss types of Gantt charts for loading and scheduling. **07**

(b) Discuss Principle inputs of an MRP file. Discuss development of MRP schedule, and the hierarchy of tree of MRP. **07**

Or

Q.4 **(a)** What are the conditions under which you apply Johnson's rule for finding Optimal Sequence of operations? **07**

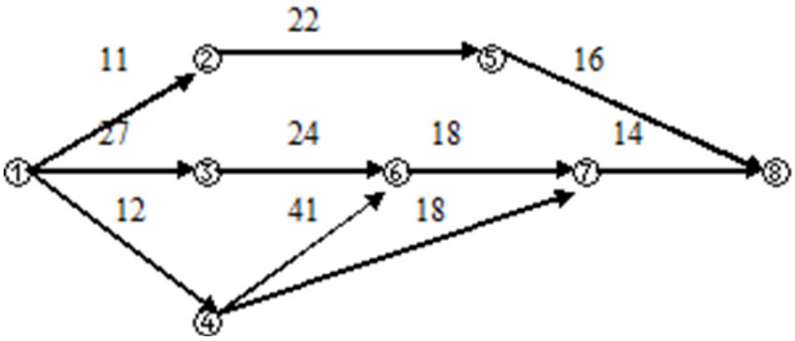
Q.4 **(b)** Use Johnson's algorithm to determine optimal sequence and total elapsed time for the following Job-Machine combination. **07**

Processing times in Hrs.

Job	1	2	3	4	5	6
M/C A	15	11	12	11	13	14
M/C B	9	7	6	8	1	7
M/C C	23	22	24	23	21	25

Q.5 **(a)** Discuss Line balancing and the Heuristic approach to a LB problem. **07**

(b) Below given is the network diagram for an assembly line. Determine assignments to work station to provide min. possible cycle time. Also determine line efficiency. **07**



Or

Q.5 **(a)** What is aggregate planning? Discuss pure strategies for aggregate planning. Why normally a mixed strategy is preferred? **07**

(b) A company is contemplating two plans of using subcontracting v/s inventory build up for their aggregate planning. Company plans to use the inventory equal to its average deficit right from the first quarter, and meet the rest of the demand with the available resources (Calculate deficit= Max. demand – demand of the particular quarter). In other plan, company plans to produce 25% of demand in-house and give the rest to subcontracting at Rs. 100/unit. The Inventory carrying cost/unit is Rs. 225/unit. If the demand is as given below, suggest which aggregate plan should be selected. **07**

Quarter	1	2	3	4	5	6	7	8
Demad in units	1245	1140	1002	1000	1350	1300	1280	1240

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