

Wb

(REVISED COURSE)

(3 Hours)

[Total Marks x 100]

MA 2007

- N.B (1) Question No. 1 is compulsory.
 (2) Attempt any four questions out of remaining from the six questions.
 (3) Assume suitable data if required.
 (4) Figures to the right indicate full marks.

1. Write short notes on any four of the following :— 20
- (a) MRP II
 - (b) Just in Time
 - (c) Purchasing in MPC
 - (d) Computer Integrated Manufacturing
 - (e) Routing and scheduling.

2. (a) Two products A and B are to be manufactured by firm. Each of these products requires processing on two machines M_1 and M_2 . Product A requires 4 hours on machine M_1 and 5 hour on machine M_2 . Product B requires 5 hours on M/c, machine M_1 and 2 hours on machine M_2 . The available capacity per month is 100 hrs and 80 hrs for Machine M_1 and M_2 respectively. The Profit per unit is Rs. 10 each Rs. 5 on Product A and B respectively. Estimate the number of units of each type to be produced per month for maximum profit. 12

- (b) What role plays by Demand Management in MPC system. Explain the following in brief 8
- (i) Demand Forecasting
 - (ii) Demand Management and MPs.

3. (a) An Automobile dealers wishes to put four repairman to four different jobs. The repairman have somewhat different kind of skills and they exhibit different level of efficiency from one job to another. The dealer has estimated the number of manhours that would be required for each job-man combination. This is given in the matrix form in the table below. Find the optimal assignment. 10
- Effectiveness matrix in man-hours needed.

Job \ Man	A	B	C	D
1	5	3	2	8
2	7	9	2	6
3	6	4	5	7
4	5	7	7	8

- (b) Explain the following with suitable example : 3
- (i) Shop floor control 3
 - (ii) Finite and infinite loading 4
 - (iii) Buffer stock

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B-ECM) VI Rev Manu. Plan. & Control

4. A Project consist of following six activities :

29/5/18

Activity	Normal time N(t)	Crash time (ct)	Normal cost	Crash cost
1—2	3	2	1600	1800
1—3	7	5	1400	2000
2—3	5	3	2500	3000
3—4	4	3	500	800
3—5	2	1	4200	4400
4—5	8	6	1600	2600

- (a) Draw the network for the activities stated above 5
 - (b) Identify the Critical Path. 5
 - (c) What is Total Project duration and associated cost 5
 - (d) If the duration of project to be reduced by 1 week, which activity or activities duration to be reduced ? What will be the total project cost. 5
5. (a) A company manufacturing washing M/c establishes a fact that there is a relationship between sale and washing machine and poulation of city. The market research carried out reveals the following information. 10

Population (Millions)	5	7	15	22	27	36
No. of washing m/c Demand (000)	28	40	65	80	96	130

Fit a linear regression equation and estimate the demand for washing m/c for a city with population of 45 millions.

- (b) Explain in detail Input and Outputs of capacity requirement planning with flow of Information in it. 10
6. A small unit manufacturing a product and it is expected to supply 80 units in a week 1, 120 units in week 4, 120 units in week 6 and 100 in week 8. Each propduct is made up of 2 housing, a shaft assembly and one wheel, for shaft assembly order quantities, lead time and inventories on at the beginning of period 1 are given below : 20

Part	Order quantity	Lead time	Inventory on hand
Housing	600	2 weeks	200
Shaft Assembly	400	3 weeks	440
Wheel	800	1 week	100

Apart from the above requirement, another 180 shaft assembly required for another customer 600 units of housing are already schedule to be received at the beginning of week 2. Complete the material requirement plans for housing, shaft and wheel, and show what quantities of order must be released and when they must be released in order to satisfy the MPS.

- 7. (a) Define the term Aggregate Plan, what are its objectives, input and output ? 10
- (b) Describe the functions of Vendor Development, and what factors should be considered for selection of vendor. 10