Code No: 07A80302 **R07** **Set No. 2**

IV B.Tech II Semester Examinations,APRIL 2011
PRODUCTION PLANNING AND CONTROL
Common to Mechanical Engineering, Mechatronics

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain the procedure involved in carrying ABC analysis.
   (b) What are short comings of ABC classification. [16]
2. Explain the following inputs of MRP system:
   (a) Master production schedule
   (b) Bill of Material
   (c) The inventory records file. [16]
3. Describe the following forms used in dispatching:
   (a) Move order
   (b) Production ticket. [16]
4. Why the worksheets are prepared ? Give an example of worksheet. [16]
5. How does scheduling in Job shops differ from High volume continuous systems? Explain in detail. [16]
6. (a) Explain characteristics of the following:
      i. Intermittent and
      ii. Continuous production systems.
   (b) Mention the nature of PPC function in those respective production system. [16]
7. The demand for six consecutive periods for a product is as follows: 105,108,112,116,120,130.
   (a) Establish a linear forecaster
   (b) Determine the forecasted demand in 11th period
   (c) Calculate the coefficient of determination and standard deviation for the line of the best fit. [16]
8. The following list defines the precedence relationships and element times for a component:

Element	Processing time (min)	Immediate predecessors
1	0.5	-
2	0.3	1
3	0.8	1
4	0.2	2
5	0.1	2
6	0.6	3
7	0.4	4,5
8	0.5	3,5
9	0.3	7,8
10	0.6	6,9

The estimated cycle time is 1 min. What is the theoretical number of workstations required to minimize the balance the delay? Also find the practical number of work centers using the Ranked positional method. [16]

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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
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1. Classify the production systems. Mention characteristics of each of those systems. [16]
2. Describe the MRP process, including netting, exposing and time phasing. [16]
3. Discuss in detail the sequential steps involved in dispatching. [16]
4. There are five jobs, each of which is to be processed through three machines A, B and C in the order ABC. Processing times in hours are:

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

   How should the jobs be loaded in order to minimize the total elapsed time? [16]
5. Describe any one quantitative technique used for Assembly line balancing. [16]
6. Explain the following devices used for loading and scheduling:
   (a) Produc-Trol Board and
   (b) Sched-U-Graph. [16]
7. (a) Show that in exponential smoothing method, weightage to the past data declines exponencially.
   (b) Compare exponential smoothing forecast for different values of smoothing constant. [16]
8. The store of oil engine repair shop has 10 items whose details are shown in the following table. Apply ABC analysis to the store: [16]

Component Code	Description	Price /unit	Unit/year
C01	Packing thread	100	100
C02	Tower bolt	200	300
C03	Hexagonal nut	50	700
C04	Bush	300	400
C05	Coupling	500	1000
C06	Bearing (big)	3000	30
C07	Bearing(small)	1000	100
C08	Fuel pump	7000	500
C09	Fixture	5000	105
C10	Drill bit	60	1000

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Code No: 07A80302 **R07** **Set No. 1**

IV B.Tech II Semester Examinations,APRIL 2011
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Time: 3 hours **Max Marks: 80**

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1. (a) What is the distinction between a scheduling rule and a scheduling criterion?
   (b) Explain the scheduling rules with their relative advantages and disadvantages. [8+8]

2. Place Aggregate planning in context with the term planning horizon. What is the appropriate planning horizon for Aggregate planning? Explain the procedure involved in Aggregate plan. [16]

3. Compare various types of production systems. [16]

4. Discuss in detail the following functions of routing:
   (a) Interpretation of detailed drawings
   (b) Methods analysis and
   (c) Work standards. [16]

5. Suppose a company produces a type of desk that has the BOM given below. The desk is made by assembling two drawers, two handles, one drawer frame, and two legs into a drawer module. Then two drawer modules, desk back and a desk top are assembled into a desk.
   (a) Construct a product structure tree and
   (b) Construct a production time chart. [16]

Level No	Item description	No.Required	Lead Time(Weeks)
00	Desk		1
01	Desk top	1	2
01	Desk back	1	1
01	Leg/drawer module	2	1
01	Drawer frame	1	1
02	Desk legs	2	1
02	Drawers	2	2
02	Handles	2	2

6. (a) How do you classify inventories into A class, B class and C class items.
   (b) Mention the control procedures are to be exercised on A class, B class and C class items. [16]

7. The following series of 10 observations of sales of a company are given as follwed, 390, 390, 320, 370, 340, 330, 340, 390, 310, 350 (All figures in Rs. Lakhs). Given initial foreast is 350 lakhs. Compute the difference between alpha=0.5 and alpha=0.1. [16]

8. Differentiate between dispatching and expediting and point out to what extent these differences should lead to a clear and rigid demarcation of responsibilities between dispatching and expediting. [16]

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Code No: 07A80302 **R07** **Set No. 3**

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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Distinguish between the route card and route sheet, with an example. [16]
2. What is the meaning of Aggregate plan? What are the objectives of aggregate plans? What are the inputs and the nature of the outputs? [16]
3. Discuss the applications of computers in production control. [16]
4. (a) Distinguish between Line Balancing and Line of Balance.
   (b) Explain the various steps of Line of Balance technique. [16]
5. (a) Derive expression for smoothing constant.
   (b) What are the effects of smoothing constant on the quality of forecast. [16]
6. The Reliance Company has accepted several jobs that are due in the next few days. A batch of these jobs is assigned to L & T Company. The pertinent data for these jobs are given below:

Job	1	2	3	4	5	6
Time to process (days)	5	4	3	1	1	2
Due in (days)	11	10	16	2	1	3

   (a) Can L & T Company finish all its jobs on time?
   (b) Give the schedule that L & T Company should follow in processing these jobs. Justify your choice of a schedule.
   (c) If the company pays a penalty of $10 per day for a job that is tardy but receives no reward for jobs finished early, what schedule would you recommend to L & T Company?
   (d) If the company receives a reward of $10 per day that a job is early and a penalty of 10 per day that a job is tardy, what schedule would you recommend to L & T Company? [16]
7. (a) Explain characteristics of Job shop production system.
   (b) Give internal organization chart for Job shop production system. [16]
8. The following information is about a group of items.. Classify the items as A, B and C: [16]

Item no	501	502	503	504	505	506	507	8	9	10
Annual use	30000	280000	3000	110000	4000	220000	15000	80000	60000	8000
Price	10	15	10	5	5	10	5	5	15	10

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