

IV B.Tech I Semester Regular Examinations, November 2006
PRODUCTION PLANNING AND CONTROL
 (Common to Mechanical Engineering, Mechatronics and Production Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the four M's of Production.
 (b) Explain the Production Control function. [8+8]
2. Explain process - focused organizational structure. [16]
3. (a) Explain the Delphi method of forecasting.
 (b) A comparison of monthly sales of an expensive item, against the total number of visits made by a salesman during the previous month, yields the following data. Is the correlation of the two variables good enough to enable the number of sales visits, to be adopted as an efficient indicator of future sales? [8+8]

| | | | | | |
|-------------|---|---|---|---|----|
| Sales | 1 | 3 | 5 | 7 | 11 |
| Visits made | 2 | 4 | 8 | 9 | 10 |

4. (a) What are the advantages of ABC analysis?
 (b) What are the limitations of ABC analysis?
 (c) How VED analysis overcome the limitations of ABC analysis? [5+5+6]
5. (a) Distinguish between capacity balance and line balance.
 (b) Draw a line of Balance for the given data. [6+10]

| Element No | Predecessor | Time in Minute |
|------------|-------------|----------------|
| 1 | - | 8 |
| 2 | 1 | 10 |
| 3 | 1 | 7 |
| 4 | 2,3 | 6 |
| 5 | 2,4 | 4 |
| 6 | 5 | 3 |
| 7 | 5 | 5 |
| 8 | 6,7 | 4 |

Take cycle time as 12 minutes

6. (a) Define routing ?
 (b) Discuss different routing procedure. [4+12]

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7. When the company is manufacturing a Product whose demand is fluctuates in the market . What strategies it has to adopt to match capacity and demand. Explain. [16]
8. (a) Explain how do you present production delays.
- (b) What are the course of production delays, give examples. [8+8]

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1. (a) Define machine tool. Explain the selection of a machine tool.
(b) Explain Planning the best sequence of operations. [8+8]

2. Explain the role of :
(a) Tool engineer
(b) "Estimator" in the preparation of process Planning sheet. [16]

3. What is time series analysis? How the forecast is made from the time series. [16]

4. Annual usage of an item is 24000 units, ordering cost is Rs.120 per order, carrying cost is 20%, Price is Rs.20 /item . Lead time of procurement is 10 days. There are 240 working days per year. Determine EOQ and orders per year. In the past two years, the usage rate has gone as high as 140 units per day. What amount of stock is required to protect against this higher usage rate? What is the reorder point? [16]

5. (a) What is Just-In-Time (JIT) inventory system.
(b) What are the elements of Just - In - Time (JIT) inventory system. [4+12]

6. (a) Explain the terms forward scheduling and backward scheduling.
(b) Explain with a neat sketch how Gantt chart is used to show schedules. Explain the symbols used in drawing Gantt chart. [6+10]

7. (a) What is scheduling? What are the different scheduling methods?
(b) What is aggregate planning? Explain the pure strategies of aggregate planning? [8+8]

8. (a) What is meant by Dispatching?
(b) Enumerate the duties of a Dispatcher.
(c) Give a list of records maintained by Dispatching Department? [4+8+4]

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1. (a) Explain the important steps in attaining an 'End product' of a company.
(b) Explain the specifications contained in working drawings. [8+8]
2. List the common information and data contained in a process sheet. Explain briefly. [16]
3. What is time series analysis? How the forecast is made from the time series. [16]
4. Annual usage of an item is 24000 units, ordering cost is Rs.120 per order, carrying cost is 20%, Price is Rs.20 /item . Lead time of procurement is 10 days. There are 240 working days per year. Determine EOQ and orders per year. In the past two years, the usage rate has gone as high as 140 units per day. What amount of stock is required to protect against this higher usage rate? What is the reorder point? [16]
5. (a) Define P - System ? When you recommend this for controlling inventory?
(b) How is the reorder point determined ? What is the significance of the reorder points to the production manager? [4+12]
6. (a) Define Scheduling.
(b) Explain different methods of scheduling. [4+12]
7. (a) In assignment linear programming how can one tell when an optimal solution has been reached?
(b) Why is input control is important?
(c) What single criterion priority decision rule might you expect to find an use with regard to the following:
 - i. An air lines ticket counter
 - ii. A hospital emergency room . [6+4+6]
8. (a) Explain briefly the dispatching activities.
(b) Explain the necessity of close control in dispatching activities ? [8+8]

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1. (a) Define:
 - i. Production
 - ii. Production Planning
 - iii. Production Planning and Control
 (b) Write about the Principles of Production Planning and Control. [6+10]
2. Explain the role of :
 - (a) Production Planning engineer and
 - (b) Industrial engineer in the preparation of process Planning sheet. [16]
3. (a) Explain the methods used for short-range forecasting.
 (b) Find the MAD (Mean Absolute Deviation) and MSE (Mean Square Error) for the following forecast. [8+8]

| Period | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Actual Demand | 97 | 93 | 110 | 98 | 130 | 133 | 129 | 138 | 136 | 124 | 139 | 125 |
| Forecasted Demand | 100 | 100 | 100 | 100 | 102 | 104 | 106 | 108 | 110 | 112 | 114 | 116 |

4. (a) What is selective control of inventories?
 (b) Compare ABC analysis and VED analysis. [8+8]
5. (a) Define P - System ? When you recommend this for controlling inventory?
 (b) How is the reorder point determined ? What is the significance of the reorder points to the production manager? [4+12]
6. Draw a schedule chart and a load chart for the following data

| Jobs | Time in Hrs on Machines | |
|------|-------------------------|---|
| | x | y |
| A | 2 | 4 |
| B | 5 | 2 |
| C | 1 | 3 |

Give order of machine is first on x and then on y. [16]

7. (a) Explain forward scheduling and back ward scheduling.

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- (b) List out the guide lines for aggregate scheduling
 - (c) Explain the different costs associated with aggregate planning. [5+6+5]
8. (a) Give a specimen of Technological Route Card and explain.
- (b) Give the specimen of move card. [10+6]
