**UNIT – I**

1. Define Production system and explain Consumption Cycle in detail with a neat

 diagram

2. List the Objectives of Production Planning and Control.

3. Explain the Functions of PPC with diagram.

 4. Explain the types of Production System with diagram

5. Explain the Elements of Production Planning and Control in detail.

6. Explain the Organization for PPC department with diagram.

**UNIT – II**

1. Apply exponential smoothening method and forecast model for the following data with α=0.1, 0.5and compare the models.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Period | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Units | 56 | 61 | 55 | 70 | 66 | 65 | 72 | 75 |

2. Apply regression analysis to forecast the data for 12th period. Comment on the accuracy of the analysis

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Demand | 45 | 42.5 | 50.1 | 50.6 | 62 | 52 | 53.5 | 64.3 | 60.1 | 73.6 | 71 |

3. Apply 4 Month moving average forecasting technique to predict the demand for 13th period.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Demand | 360 | 390 | 431 | 351 | 378 | 410 | 502 | 385 | 474 | 511 | 584 | 475 |

4. Classify qualitative forecasting techniques and explain them in detail.

5. Apply regression analysis to forecast the data for 13th period. Comment on the accuracy of the analysis.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Demand | 12 | 14 | 9 | 14 | 10 | 16 | 11 | 9 | 17 | 13 | 10 | 9 |

6. Apply 3 Month and 5 Month moving average model to predict the forecast for 12th Month.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Demand | 210 | 150 | 185 | 195 | 310 | 190 | 160 | 150 | 240 | 265 | 235 |

**UNIT – III**

1. List out the objectives of Inventory Control.

2. Explain the reasons for keeping Inventories.

3. Explain Inventory Costs.

4. Explain ABC Analysis in detail

5. Explain EOQ (basic) model in detail.

6. Explain P and Q System with diagram.

7. A manufacturer has to supply his customers 3600 units of his product per year. Shortages are not permitted. Inventory carrying cost amounts Rs.1.2 per unit per annum. The setup cost per run is Rs.80. Find

 i)EOQ

 ii) Optimum number of orders per annum

 iii) Average Annual inventory cost (minimum)

 iv) Optimum period of supply per optimum order

8. Illustration on ABC Analysis. Ten items are kept in the inventory. The details regarding the number of items used per annum and price per unit are given below. Classify the items into A, B and C class.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ItemNo. | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 |
| Annualusage | 200 | 100 | 2000 | 400 | 6000 | 1200 | 120 | 2000 | 1000 | 80 |
| Price(Rs) | 40.00 | 360.00 | 0.20 | 20.00 | 0.04 | 0.80 | 100.00 | 0.70 | 1.00 | 400.00 |

**UNIT – IV**

1. Explain MRP in detail.

2. Explain BOM importance in production control.

3. Explain about the types of follow up in detail.

4. Explain seven wastes of Lean Manufacturing in detail.

5. Explain Explain Lean Manufacturing Systems

6. Product A is made of three units of B and four units of C. B is made of two units of D

 and four units of E. D is made of two units of E and one unit of G. Cis made of four

 units of G and two units of H. a) Show the bill of material (Product Structure).

 b) If 500 A are required, how many units of each component are added?

**UNIT – V**

1. Explain Scheduling and Loading.

2. Define Routing. Explain the factors affecting routing.

3. Describe Routing Procedure in detail.

4. Solve the single machine scheduling problem using following data

|  |  |  |
| --- | --- | --- |
| Job work | Operation Time (in days) | Delivery Schedule (in days)  |
| A | 5 | 7 |
| B | 12 | 16 |
| C | 21 | 25 |
| D | 9 | 13 |
| E | 10 | 12 |
| F | 15 | 16 |

 Determine the total completion time, Average Completion time and average lateness of the jobs using EDD and SPT.

5. Solve 5 jobs on 4 machines problems and find the optimal sequence.

|  |  |
| --- | --- |
|  | **machines** |
| jobs | M1 | M2 | M3 | M4 |
| A | 15 | 4 | 6 | 11 |
| B | 8 | 3 | 7 | 13 |
| C | 13 | 5 | 5 | 9 |
| D | 9 | 2 | 8 | 16 |
| E | 11 | 6 | 4 | 17 |

**UNIT – VI**

1. Define Dispatching and Expediting.

2. Explain the Dispatching Functions

3. Define aggregate planning

4. Summarize the importance of Aggregate Planning

5. Explain Aggregate Planning Strategies in detail

6. Mention the needs for expediting

7. Explain the dispatching procedure in detail