**MRP I SYSTEMS AND MRP II SYSTEMS**

**SUGGESTED EXERCISE-1**

Let us plan the material requirements of the following products:

1

3

1

3

2

P1 and C3 are independent demand products; that is, they are manufactured under external customers’ demand. P1 is a finished product and C3 is a component sold as a spare part.

The production schedule is the following:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Products\Date** | **01-Apr** | **08-Apr** | **15-Apr** | **22-Apr** |
| **P1** | 80 | 95 | 87 | 99 |
| **C3** | 150 | 145 | 160 | 130 |

Besides, we know the available inventory and the safety stock for each product, their manufacture term, the percentage of failures and the manufacture lot, shown below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PRODUCTS** | **SFT STOCK**  | **REP TERM**  | **% FAILURES** | **AVAIL STOCK** | **LOT** |
| P1 | 10 | 1 | 0 | 10 | LBL |
| T1 | 0 | 2 | 5 | 25 | M10 |
| C3 | 10 | 1 | 5 | 10 | M25 |
| C1 | 15 | 1 | 10 | 15 | M25 |
| C2 | 15 | 1 | 12 | 15 | M50 |

Data:

M 25 Multiple of 25 lots

M 50 Multiple of 50 lots

M 10 Multiple of 10 lots

LBL Lot by lot (we order only what is required)

Complete each component’s files and define the launches or manufacture orders for each one.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| LEVEL 0 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Gross requirements |   |   |   |  |  |  |  |  |
| Available stock |   |   |   |  |  |  |  |  |
| Net requirements |   |   |   |  |  |  |  |  |
| Launches |   |   |   |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| LEVEL 1 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Gross requirements |   |  |  |  |  |  |  |  |
| Available stock |   |  |  |  |  |  |  |  |
| Net requirements |   |  |  |  |  |  |  |  |
| Launches |   |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Gross requirements |  |  |  |  |  |  |  |  |
| Available stock |  |  |  |  |  |  |  |  |
| Net requirements |  |  |  |  |  |  |  |  |
| Launches |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| LEVEL 2 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Gross requirements |  |  |  |  |  |  |  |  |
| Available stock |  |  |  |  |  |  |  |  |
| Net requirements |  |  |  |  |  |  |  |  |
| Launches |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Gross requirements |  |  |  |  |  |  |  |  |
| Available stock |  |  |  |  |  |  |  |  |
| Net requirements |  |  |  |  |  |  |  |  |
| Launches |  |  |  |  |  |  |  |  |

We want to calculate the manufacturing capacity in the working centres for the established production schedule.

Determine the workload for each working centre (assembly, C100, C200, C300 and C400), indicating the dates when overtime is necessary to meet the production schedule established, if in each working centre, we start in the following conditions:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PRODUCT | NoSTAGE | W.LOAD | TERM | LOT | PREP T. (hours). | OPER T. (minutes). |
| P1 | 1 | Assembly | 1 | 100 | 6 | 22 |
| T1 | 1 | c100 | 1 | 100 | 4 | 5,5 |
|  | 2 | c200 | 1 | 150 | 5 | 14 |
| C1 | 1 | c300 | 1 | 100 | 1 | 4 |
| C2 | 1 | c300 | 1 | 200 | 1 | 4 |
| C3 | 1 | c400 | 1 | 100 | 1 | 9 |

Besides, represent graphically the results got.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| P1 | ASSEMBLY |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| T1 | C100 |  |  |  |  |  |  |  |  |
| C200 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| C1 | C300 |  |  |  |  |  |  |  |  |
| C2 | C300 |  |  |  |  |  |  |  |  |
| C3 | C400 |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   |  |  |  |  |  |  |  |  |
| ASSEMBLY |  |  |  |  |  |  |  |  |
| CA. MAX |  |  |  |  |  |  |  |  |
| C100 |  |  |  |  |  |  |  |  |
| CA. MAX |  |  |  |  |  |  |  |  |
| C200 |  |  |  |  |  |  |  |  |
| CA. MAX |  |  |  |  |  |  |  |  |
| C300 |  |  |  |  |  |  |  |  |
| CA. MAX |  |  |  |  |  |  |  |  |
| C400 |  |  |  |  |  |  |  |  |
| CA. MAX |  |  |  |  |  |  |  |  |