25 (2) POMN 202

2013

PRODUCTION MANAGEMENT

Paper : 202

Full Marks : 70

Pass Marks : 28

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer **any five** questions.

1. *(a)* Discuss the role of FMS and Group Technology in facilitating the conversion process. Cite relevant examples for both the technologies.   7

   (b) Discuss how the different management thoughts have contributed toward production management.   7

2. *(a)* What are the various issues encountered in a product life cycle as regards to operation ?   7

(b) Given the following two machine problems. Use Jhonsons algorithm to find the optimum sequence and also calculate the total idle time. 7

Jobs	M/c 1 (Mins)	M/c 2 (Mins)
A	10	2
B	17	9
C	15	15
D	29	12
E	12	17

3. (a) The following table shows the number of defects for 16 samples of sample size 100. Construct an appropriate control chart and comment on the process of production. 10

| Sample No.	No. of Defects	Sample No.	No. of Defects
1	8	9	8
2	12	10	11
3	5	11	14
4	17	12	11
5	9	13	15
6	6	14	8
7	6	15	8
8	6	16	3

(b) What is the advantage of control charts over acceptance sampling plans ? 4

4. Firm XYZ has a requirement of 10,000 units of a component annually. The ordering cost is Rs. 2,000 per order and the inventory holding cost is 2% of the cost of inventory. The following quantity discounts are available according to quantity ordered.

Quantity	Price per unit
0 – 499	Rs.1,000
500 – 799	Rs. 990
> 800	Rs. 970

Find the optimum quantity of inventory to be ordered. 14

5. Product A has a requirement of 600 units to be delivered in the 8th week. Product A has two sub-components B and C. Sub-component C has another sub-component D. The product tree is given below :

A LT = 2 weeks

B LT = 2 weeks

C LT = 1 week

D LT = 3 weeks
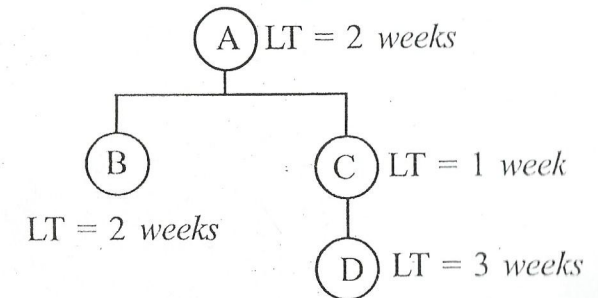
2 units of component 'B' and 3 units of component 'C' are required for one unit of product 'A'. Also 4 units of sub-component 'D' is required for one unit of sub-component 'C'.

Quantities available in hand are

A → 200 units

B → 350 units

C → 0 units

D → 2200 units

Develop and complete the MRP records for A, B, C & D. 14

6. (a) What type of layouts are suitable for an Intermittent production and Continuous production ? Cite suitable examples to explain the answer. 7

(b) Given the following tasks and precedence requirement for an assembly line. Calculate

(a) Theoretical minimum number of stations required to balance the line with a 60 *second* cycle time.

(b) Balance the line using the LOT rule and find the efficiency. 7

Task	Task Time (Seconds)	Required predecessor
A	30	None
B	30	None
C	50	B
D	25	A
E	35	B
F	45	E
G	20	D
H	40	G

7. Write short notes on *any two* topics : 7+7=14

(a) Costs involved with inventory.

(b) JIT philosophy.

(c) Importance of facility location.

(d) Measurement of productivity.