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RF-4297-98

M. B. A. (Sem. II) (FT) & (Eve.) (CP-204) & M. B. A. (THM) (Sem. II) Examination

April / May - 2010

Production & Operations Management

(New Course)

Time : **3** Hours] [Total Marks : **100**

RF-4297

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **M.B.A. (Sem. 2) (FT) & (Eve.) (CP-204) & (THM) (Sem. 2)**

Name of the Subject :

☛ **Production & Operations Management (New)**

☛ Subject Code No. : **4 2 9 7** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Figures to the right indicates full marks.

Question : 1(A) What do you mean by Operations Management ? Explain operations Management from System's Perspective by taking suitable example (8)

(B) A company has three existing warehouses to which it will ship furniture from a new factory whose location must be decided . The factory will receive raw materials from its wood supplier and its fabric supplier . The annual number of shipments , shipment costs and the locations of the suppliers and warehouses are shown below . Use the simple median method to find the best location & also find the Total transportation Cost . (10)

Existing facility	Annual load to or from factory	Cost /Load/km To or from factory	Co-ordinate Location(X,Y)-Km
Wood Supplier	120	8	(100 , 400)
Fabric Supplier	200	6	(800 , 700)
Warehouse –1	60	5	(300 , 600)
Warehouse –2	40	5	(200 , 100)
Warehouse –3	70	5	(600 , 200)

Question : 2 What do you mean by Facility Location? Explain Factors that affect the selection of a new facility . (16)

OR

(A) ABC typesetting Solutions is a major type setter of printing material based at Surat . It has recently received six orders for type setting printing material .Table shows the six jobs in the order of their arrival , their processing time and due dates of delivery to the customers . Sequence the given jobs according to the priority rules of (1) LCFS (2) Due Date (3) SPT Compare these methods on the criteria of Mean flow time and Average lateness (9)

Jobs (In order of Arrival)	Processing Time	Due date
A	3	9
B	7	10
C	4	7
D	2	4
E	5	8
F	8	12

(B) Find the sequence that minimizes the total time required in performing the following job on three machines in the order ABC . Processing times are given in the following table . Also determine idle time on each machine and total elapsed time . (7)

Job	1	2	3	4	5
Machine A	8	10	6	7	11
Machine B	5	6	2	3	4
Machine C	4	9	8	6	5

Question : 3 Obtain the initial basic feasible solution by using Least cost method & Vogel's Approximation Method. The Entries in the cell indicates the unit transportation cost. (16)

Warehouse / Market	M1	M2	M3	M4	M5	Supply
Warehouse – 1	100	70	50	30	40	290
Warehouse – 2	30	95	40	125	50	230
Warehouse – 3	75	20	65	40	30	370
Warehouse – 4	20	40	95	85	80	110
Demand	200	150	120	280	250	1000

OR

Question : 3 An airline that operates 7 days a week has the time table shown below . Crews must have a minimum layover of 5 hours between flights . Obtain the pairing of flights that minimizes layover time away from home assuming that crews flying from Delhi to Jaipur can be based either at Delhi or Jaipur for any given pairing , the crew will be based at the city that results in smaller layover . (16)

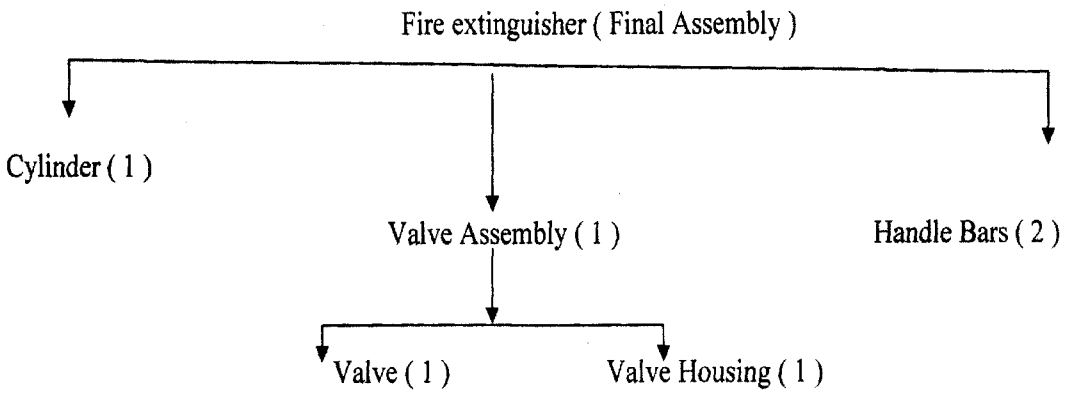
	Delhi	Jaipur		Jaipur	Delhi
Flight No	Depart	Arrive	Flight No	Depart	Arrive
101	7.00AM	8.00AM	201	8.00 AM	9.15 AM
102	8. 00AM	9.00 AM	202	8.30 AM	9.45 AM
103	1.30 PM	2.30 PM	203	12 NOON	1.15 PM
104	6.30 PM	7.30 PM	204	5.30 PM	6.45 PM

Question 4 (A) What do you mean by Inventory ? Explain Fixed order Period System (P System) . (6)

(B) A company uses 1200 units per month of an electronic component each costs Rs.2 .The ordering cost is Rs 50 per order and carrying cost is 6 % of the purchase price . find out Economic Order Quantity . If The company gets 5 % discount if it places single order per year , should they accept the discount offer? (10)

Question : 5 . A firm has planned to manufacture fire extinguisher whose product structure (16)

Is as shown below .



The Master production schedule to manufacture the fire extinguisher is given in below .The details of Bill of materials along with economic order quantity and stock on hand for the final product and subassemblies are also shown below .

Master production schedule

Week	1	2	3	4	5	6	7	8
Demand	100	-	150	140	200	140	-	300

Details of bill of Materials

Parts Required	Order quantity	No of units	Lead time (Week)	Stock on hand
Fire extinguisher	300	1	1	150
Cylinder	450	1	2	350
Valve assemblies	400	1	1	325
Valve	350	1	1	150
Valve Housing	450	1	1	350
Handle Bars	700	2	1	650

Complete the material requirements plan for the fire extinguisher , cylinder , valve assembly , valve , valve housing and handle bars and show what quantities of orders must be released and when they must be released in order to satisfy the MPS .

(OR)

Question :5 (a) Explain any THREE of the following terms (6)

(1) Assignable Causes of variation (2) LTPD (3) AQL

(4)Producer's Risk (5) Consumer's Risk

(b) 20 Samples each of size 10 were inspected . The number of defectives each of them Were :

Sample No	1	2	3	4	5	6	7	8	9	10
No of defective	0	1	0	3	9	2	0	7	0	1
Sample No	11	12	13	14	15	16	17	18	19	20
No of defective	1	0	0	3	1	0	0	2	0	0

Calculate the control limits for number of defective chart and state whether the process is within the control or not . (10)

Question : 6 Write Any THREE Shore Notes (18)

1. Group Technology Layout
2. Maintenance Management
3. ABC Analysis
4. Continuous Manufacturing System
5. Assembly Line Balancing