

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MBA - SEMESTER-II • EXAMINATION – WINTER 2013**

**Subject Code: 2820006****Date: 31-12-2013****Subject Name: Production and Operations Management (POM)****Time: 2.30 pm – 5.30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What is Transformation Process: Explain the transformation Process in a Bank. **07**  
 (b) Explain the Factors affecting Facility Location Planning. **07**

- Q.2** (a) How many types of Basic Layouts are there for a facility? Briefly explain each of them. **07**  
 (b) Find the Initial feasible solution by Vogel's Approximation Method. **07**

Plants	Warehouses			Supply (Units)
	W1	W2	W3	
P1	48	60	56	150
P2	45	55	53	250
P3	50	65	60	350
P4	52	64	55	250
Demand (Units)	200	350	250	

The entries in the cells indicate unit transportation costs.

**OR**

- (b) Irfan Bearings Pvt. Ltd is considering the replacement of the old machines in their factory by new advanced machines. The production manager has identified the activities given in the table for this project. Draw the network diagram of the project and find the critical path with its situation. **07**

Activity	Duration (Days)	Required Predecessor
A	2	-
B	5	-
C	3	A
D	1	A
E	4	B
F	3	B
G	7	C
H	5	D
I	1	E
J	2	F
K	2	GHIJ
L	5	GHIJ
M	4	K
N	2	L

- Q3** (a) Explain the benefits of JIT with a schematic Diagram. **07**  
 (b) Alliance tyres is a distributor of MRF Tyres in Ludhiana. For the Zigma brand of radial tyres used in Maruti 800, following table shows its observations of the distribution of demand during lead time (DDL) in the past. The CC of a tyre **07**

unsold during the lead time is estimated to be Rs. 50 and the stock out cost is estimated at Rs. 100. Find the optimum level of Safety stock that will involve the minimum expected Costs.

DDLT (Units)	Frequenc y
5	7
6	21
7	27
8	31
9	14
Total	100

**OR**

- Q3 (a)** Discuss Various material handlings Equipments. **07**  
**(b)** Prity Hospital at Bangalore sources 20,000 disposable syringes every year from a supplier. The OC per order is Rs. 100 and the CC is Rs. 1 per unit per year. The price of a syringe is Rs. 5. The supplier offers a 5% discount if purchases are made in lots of 10,000 syringes or more. Determine whether the discount model is better than the EOQ model in this situation. **07**

- Q4 (a)** What are the two types of maintenance? Explain in relation to the types of maintenance. **07**  
**(b)** Powertone Gensets is a Bangalore based com[any, which manufactures electrical generators for industrial use. The marketing department of Powertone Gensets has provided the data given in the table on the demand forecasts for the coming eight weeks and the number of generators committed to its institutional customers so far. For a manufacturer lot size of 300 units, prepare the MPS schedule and the available-to-promise inventory for the given duration of eight weeks. **07**

	Weeks in June and July							
	1	2	3	4	5	6	7	8
Demand Forecasts (units)	76	89	163	204	88	40	112	134
Customer orders committed (units)	85	121	170	154	72	20	11	-
Initial Inventory	50							

**OR**

- Q4 (a)** Following tables gives the processing times (in Times) of seven Jobs to be processed on three machines M1, M2 and M3 in the order M1, M2, M3. Sequence these jobs using Johnson's method and find the overall processing time. Also find the waiting times of the jobs and the idle times of the machines. **07**

Jobs	M1	M2	M3
A	1	7	8
B	3	3	10
C	7	8	9
D	9	2	11
E	4	8	9
F	5	6	14
G	2	1	12

- (b)** What are the routing, dispatching, prioritization and expediting? Explain. **07**

- Q5 (a)** What is Six Sigma? How it is implemented? **07**

- (b) Vadhodara furnitures is a manufacturer of executive tables foe corporate institutions. In order to control the quality of its Tables, the QC manager selects 15 tables at random and inspects for number of scratches on each one of them. The result is given in the following table are obtained. Prepare a stable C chart based on this data. 07

Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No. of defective Tables	13	9	19	7	8	10	12	0	2	5	7	11	9	13	1

**OR**

- Q5** (a) Explain the ABC analysis technique of Inventory Control. 07
- (b) A product of electronic equipment needs to add a component sub-assembly operation that can produce 80 units during 8 hours shift. The operation have been designed for 3 activities as shown: 07

Operation	Activity	Standard Time (minutes)
A	Mechanical Assembly	12
B	Electric wiring	16
C	Testing	3

- How many workers will be required for each activity?
- Compute the balance efficiency.

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