

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA – SEMESTER 01– • EXAMINATION – WINTER 2014

Subject Code: 2820006

Date: / / 2014

Subject Name: Production and Operations Management

Time:

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) Multiple Choice Questions:

(6)

- a) Services differ from manufactured products in 4 ways: intangibility, inseparability, perishability and _____
- a. Homogeneity
 - b. Heterogeneity
 - c. Intractability
 - d. Invisibility
- b) What type of process would a paper mill be most likely to use?
- a. Continuous flow
 - b. Project
 - c. Job shop
 - d. Batch work
- c) Diseconomies of scale are
- a. Collections of resources brought together at one geographic location
 - b. Quantities of goods and services produced in a given location
 - c. Used to determine market accessibility
 - d. Increases in the unit cost of output that occur when production volumes increase too much
- d) Productivity increases when
- a. Output decrease while inputs remain the same
 - b. Inputs decrease while outputs remain the same
 - c. Inputs and output increase proportionately
 - d. Inputs increase while output remain the same

- e) A measure of the success of an operation in producing outputs that satisfy customers is
 - a. Efficiency
 - b. Effectiveness
 - c. Quality
 - d. Profitability
- f) The inputs to a transformation process include all except one
 - a. Materials
 - b. People
 - c. Assembly
 - d. information

B) Define the following: (4)

- a. Operations Management
- b. Capacity Planning
- c. Kaizen
- d. Lean Manufacturing

C) Write a short note on JIT. (4)

Q. 2.

- (A) What is a cellular layout? How is it different from a process layout? How is group technology useful in cellular layout? (7)
- (B) Suppose you are working as a project consultant. One of your clients wants guidance in selecting facility location for his new fast-food restaurant. Guide your client and give justifications for choosing the location. (7)

OR

- (B) If you want to set up a Power Plant, what are the factors will you consider before selecting the location? (7)

Q. 3.

- (A) What is TQM? Explain Six-Sigma concept in Quality Management. (7)
- (B) Explain batch production and mass production along with its advantages and disadvantages. Suggest suitable method of production for below categories and why (7)
 - 1. Automobile
 - 2. Computers

OR

- (A) What is meant by aggregate production planning? Why it is required? Discuss the strategies in aggregate planning to manage demand & supply. (7)

- (B) Take any service sector of your choice. When you visit for this service what are the dimensions based on which you will judge overall service quality? (7)

Q. 4.

- (A) Explain MRP System. What are the logics used in MRP? Explain its Methodology. (7)
- (B) A bicycle manufacturing company has annual demand of 8000 tyre. The cost of ordering is Rs. 500 per order. The carrying cost is Rs.5 per unit per year. The lead time offered by the supplier is 5 days. The standard deviation of consumption during lead time is 100 units. The service probability of stock out is 95 % ($z=1.96$). If the company operates for 350 days a year calculate the following:
- Economic order quantity
 - No. Of order per year
 - Reorder point with safety stock.
- (7)

OR

Q. 4.

- (A) Identify different types of inspection and discuss their role in the Quality assurance and Control Process. What is the relationship between inspection and acceptance sampling? (7)
- (B) The supplier to a soap manufacturing company is offering the following discount schedule for one of the raw material.

Units Ordered (in Kg.)	Unit Price (Rs.)
0-999	50.00
1000-2999	49.75
3000-5999	49.50
6000-8999	49.25
9000 & above	49.00

If the annual demand is of 10000 kg per year and the ordering cost is Rs.200 per year, will you go for the discount? Justify your answer. Carrying cost is 5% of the material cost. (7)

Q. 5.

An IT project manager has undertaken a project of developing software for a huge library. There are several activities to be undertaken in the project as the table shows. Project manager is interested in which activities in the project can be delayed without disturbing the overall project duration. The activities and corresponding time is as follows: (14)

Activity	Immediate Predecessor	Optimistic time	Most Likely Time	Pessimistic Time
A	-	3	4	5
B	-	5	7	9

C	-	8	8	8
D	A	1	2	3
E	B	8	10	12
F	B	7	8	9
G	C	8	8	8
H	D,E	7	9	11
I	D,E	4	5	6
J	F,G	3	4	5
K	F,G	5	5	5
L	I,J	6	7	8
M	K	4	6	8
N	H,L,M	3	4	5

- 1) Estimate the project completion time
- 2) Enumerate which activities can be delayed and up to what time without influencing the over all project completion time.
- 3) Calculate the variance of all the activities.
- 4) Calculate the probability of completion of project in 50 days.

OR

Q. 5.

Mr. Rakesh is working as a project manager in a construction firm. For his new project, he has estimated all the relevant activities and their probable completion time. He also estimated the probable cost for all the activities in assuming the normal circumstances. The project is yet to be started.

The client of this project changed his mind and demanded to get the project completed in the minimum possible time and he is ready to pay any additional costs. Mr. Rakesh is required to reduce the project time to minimum possible amount and also calculate the additional costs. Mr. Rakesh is required to estimate the costs for normal project completion time and also for the minimum project completion time based on the following data: **(14)**

Activity	Immediate Predecessor	Normal Time	Crash time	Normal cost	Crash cost
A	-	8	5	1000	1300
B	-	7	6	1200	1400
C	A	8	6	1800	2000
D	A	7	5	5000	5500
E	A	6	5	3200	3800

F	B	5	5	4500	-
G	E,F	4	2	800	1500
H	B	3	2	750	1000
I	D,G, H	8	6	1200	2000
J	C,I	6	4	5000	7000

- 1) If you are in the position of Mr. Rakesh how would you proceed? Give the detail elaboration of the processes and methods you are going to use to estimate the minimum project completion duration and normal project duration.
- 2) What is the increment in the cost of the project if the project is going to be completed in the minimum possible time?