TRIBHUVAN UNIVERSITY
FACULTY OF MANAGEMENT
Office of the Dean
March - April 2017

Full Marks: 60
Time: 3 Hrs.

BIM / Seventh Semester / MGT 205: Operations Management

Candidates are required to answer all the questions in their own words as far as practicable.

Group "A"

Brief Answer Questions: [10 × 1 = 10]

1. Define operations management.

2. What do you mean by continuous production system?

3. Define Concurrent Engineering.

4. Define operations strategy.

5. What is productivity?

6. What is total quality management?

7. What is six sigma?

8. What are the general procedures in Facility Location?

9. What is the transformation process?

10. Define supply chain management.

Group "B"

Short Answer Questions: [6 × 5 = 30]

11. Describe in brief about the product development process.

12. What is aggregate planning? Discuss its strategies.

13. Describe about various types of layout.

14. Consider a process by which coils are manufactured. Sample size of 5 is randomly taken from process and the resistance values (in ohms) of coils are measured. All the sample observations are given in the following table. Draw the mean chart and range chart and see whether the processes are in control or not.

Sample	Observations (ohms)
1	20,22,21,23,22
2	12,18,22,20,20
3	25,18,20,17,22
4	20,21,22,21,21
5	10,24,23,22,20

(For n = 5, A_2 = 0.58, D_3 = 0, D_4 = 2.115)

15. Obtain the optimal assignment of the following problem. The figure in the cell represent the time in minutes to get the task processed on machine.

Task	Machine			
	M_1	M_2	M_3	M_4
A	10	12	8	14
B	12	19	17	22
C	16	18	21	10
D	8	12	17	19

16. Rajesh wishes to buy new frames and has two models, F1 costing Rs. 100 and F2 costing Rs.200. He wants to buy frames not more than 30 and can spend up to Rs 4000 only. He can make profit of Rs.20 from F1 and Rs.50 from F2. Formulate the problem as linear programming. How many frames of each model he would buy? Solve it by using simplex method to maximize the profit.

Group "C"

Comprehensive Answer Questions: *[4 × 5 = 20]*

17. Read the following case analytically and answer the following questions.

Bruegger's Bagel Bakery makes and sells a variety of bagels, including plain, onion, poppyseed, and cinnamon raisin, as well as assorted flavors of cream cheese. Bagels are the major source of revenue for the company.

The bagel business is a $3 billion industry. Bagels are very popular with consumers. Not only are they relatively low in fat, they are filling, and they taste good! Investors like the bagel industry because it can be highly profitable: it only costs about $.10 to make a bagel, and they can be sold for $.50 each or more. Although some bagel companies have done poorly in recent years, due mainly to poor management, Bruegger's business is booming; it is number one nationally, with over 450 shops that sell bagels, coffee, and bagel sandwiches for takeout or on-premise consumption. Many stores in the Bruegger's chain generate an average of $800,000 in sales annually.

Production of bagels is done in batches, according to flavor, with each flavor being produced on a daily basis. Production of bagels at Bruegger's begins at a processing plant, where the basic ingredients of flour, water, yeast, and flavorings are combined in a special mixing machine. After the dough has been thoroughly mixed, it is transferred to another machine that shapes the dough into individual bagels. Once the bagels have been formed, they are loaded onto refrigerated trucks for shipping to individual stores. When the bagels reach a store, they are unloaded from the trucks and temporarily stored while they rise. The final two steps of processing involve boiling the bagels in a kettle of water and malt for one minute, and then baking the bagels in an oven for approximately 15 minutes.

Quality is an important feature of a successful business. Customers judge the quality of bagels by their appearance (size, shape, and shine), taste, and consistency. Customers are also sensitive to the service they receive when they make their purchases. Bruegger's devotes careful attention to quality at every stage of operation, from choosing suppliers of ingredients, careful monitoring of ingredients, and keeping equipment in good operating condition to monitoring output at each step in the process. At the stores, employees are instructed to watch for deformed bagels and to remove them when they find them. (Deformed bagels are returned to a processing plant where they are

sliced into bagel chips, pack- aged, and then taken back to the stores for sale, thereby reducing the scrap rate.) Employees who work in the stores are carefully chosen and then trained so that they are competent to operate the necessary equipment in the stores and to provide the desired level of service to customers.

The company operates with minimal inventories of raw materials and inventories of partially completed bagels at the plant and very little inventory of bagels at the stores. One reason for this is to maintain a high degree of freshness in the final product by continually supplying fresh product to the stores. A second reason is to keep costs down; minimal inventories mean less space is needed for storage.

Questions:

a. Bruegger's maintains relatively little inventory at either its plants or its retail stores. List the benefits and risks of this policy.

b. What features of bagels do customers look at to judge their quality?

c. At what points in the production process do workers check bagel quality?

d. Brugger's has bagel making machines at its plants. Another possibility would be to have a bagel making machine at each store. What advantages does each alternative have?

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