

VPM's
DR VN BRIMS, Thane
Programme: MMS (2017-19) (Operations)
Third Semester Examination October 2018

Subject	Materials Management		
Roll No.		Marks	60 Marks
Total No. of Questions	7	Duration	3 Hours
Total No. of printed pages	3	Date	2.11.2018

Q1) 20 Marks (Compulsory)

A. A shop works a 400 minute day. The manager of the shop wants an output of 200 units per day for the assembly line that has the elemental task shown in the table below: **(10 Marks)**

Task	Task Time (Min)	Task must follow Tasks listed below
A	0.5	
B	1.4	A
C	1.2	A
D	0.7	A
E	0.5	B,C
F	1	D
G	0.4	E
H	0.3	G
I	0.5	F
J	0.8	E,I

- i. Construct precedence diagram (2 Marks)
- ii. Compute the cycle time (2 Marks)
- iii. Compute theoretical minimum number of workstations(2 Marks)
- iv. Assign tasks to the workstations(2 Marks)
- v. Compute efficiency and idle time per cycle. (2 Marks)

B. Read the case and answer the Questions:

BRUEGGER'S BAGEL BAKERY

Bruegger's Bagel Bakery makes and sells a variety of bagels, including plain, onion, poppy seed, 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 Rs.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 industries because it can be highly profitable: it only costs about Rs.10 to make a bagel, and they can be sold for Rs.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 Rs.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 proximately 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 the main plant where they are sliced into bagel chips, packaged, 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.

- I. Bruegger's maintains relatively little inventory at either its plants or its retail stores. List the benefits and risks of this policy. **(3 Marks)**
- II. Quality is very important to Bruegger's. **(3 Marks)**
 - a. What features of bagels do customers look at to judge their quality of bagels?
 - b. At what points in the production process do workers check bagel quality?
 - c. List the steps in the production process, beginning with purchasing ingredients, and ending with the sale, and state how quality can be positively affected at each step.
- III. Bruegger'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? **(4 Marks)**

Attempt Any FOUR from the Remaining SIX Questions

Q2) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) Describe various methods of purchasing and their application to different circumstances.
- b) Differentiate between independent and dependent demand inventory. Dependent demand inventory items do not need to be forecast. Why not? Explain with the help of examples?
- c) In an inventory system, the cost of placing an order is Rs. 100 per order. The annual demand is 5000 units and the inventory carrying charges are 20%. The item costs Rs. 75 each. Find EOQ and total inventory related - cost

Q3) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) Consider the following data pertaining to a shirt company. Sleeve length, Price, Neck Size, Market region, Colour, Sales person Style Material. Design a suitable coding system with appropriate selection of the coding symbols.
- b) Explain the following with an example and justify the need for such classification.
 - I. *Direct Material*
 - II. *Indirect Material*
- c) Explain the procedure for letter of credit with an example. How it facilitates international transaction?

Q4) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) Explain functions and responsibilities of Materials Manager from Forecasting to Disposal of Scrap.
- b) How do you classify an item as capital equipment? what factors to be considered for evaluation of their bids?
- c) A firm maintains its stores ledger on the basis of FIFO method. Following is the summary of the receipts and issues of raw materials during the month of April 2006

Stores Ledger Sheet									
Date	Particulars	Receipts			Issues			Balance	
2006		Quantity	Rate Rs.	Amount Rs.	Quantity	Rate Rs.	Amount Rs.	Quantity	Amount Rs.
April 01	Balance	300	22	6600					
April 03	M.R.NO.14				150	22	3300		
April 08	P.O.NO.07	200	25	5000					
April 12	P.O.NO.09	400	23	9200					
April 17	M.R.NO.16				150	22	3300		
					200	25	5000		
					150	23	3450		
April 20	M.R.NO.18				100	23	2300		
April 23	P.O.NO.11	600	20	12000					
April 25	M.R.NO.26				150	23	3450		
					450	20	9000		
April 28	P.O.NO.12	200	26	5200			350		
April 29	M.R.NO.32				150	20	3000		
					150	26	3900		
April 30	Shortage				10	26			

Calculate closing stock value for FIFO method

Q5) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

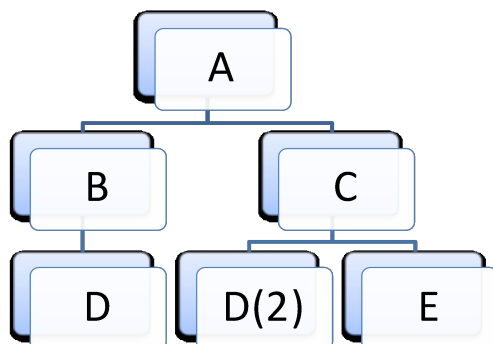
- What are the modes of disposal? Explain the criteria for selection of mode with an example.
- How the buyer-seller relationship is influenced? Explain with an example.
- Explain the different types of containerization with their advantages

Q6) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks.

- Examine the major advantages and shortcomings of FIFO, LIFO, and Average methods of stores evaluation. Under what conditions are the three inventories flow methods essentially equivalent?
- Explain the scope and importance of Materials Management in globalised and competitive business environment.
- Explain Intermodal Transportation with an example and b Ring out its advantages.

Q7) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- Given the bill of materials for the printer cartridge shown below, a gross requirement to build 170 units of A, on-hand inventory levels for each item as shown in the table below, and assuming zero lead-times for all items A, B, C, D, and E, compute the net requirements for each item.



Item	On-Hand Inventory
A	50
B	50
C	90
D	70
E	15

- What are the major inputs to a 'MRP' system? Explain with examples.
- You are a purchase manager of an organization. You are asked by the CEO to submit a cost reduction plan to him. What factors would you consider in finalizing the report?