



# University of Kelaniya – Sri Lanka

## External Examinations Branch

### Bachelor of Commerce (Special) Degree Third Examination (External)- 2010 December 2011/ January 2012

#### Faculty of Commerce and Management

#### BCOME 3025 – Operations Management

No. of questions: Six (06)

Time: 03 hours

Answer any five (05) questions.

Quality control limits tables and graph papers will be provided.

- (01). a) Discuss the ways in which the operation function interrelates with other functions of an organization. (07 marks)
- b) Briefly explain the role of production in implementing corporate strategies. (07 marks)
- c) Briefly describe the functions of an operations manager in an organization. (06 marks)
- (Total 20 marks)
- (02). a) “Product planning is the starting point of planning process in a firm.” Comment on this statement. (06 marks)
- b) What do you mean by new product development? Why new product development is important for an organization? (07 marks)
- c) Briefly explain the stages of new product development. (07 marks)
- (Total 20 marks)
- (03). a) Briefly explain the importance of productivity in achieving objectives of Operations Management. (05 marks)
- b) A furniture manufacturing company has provided the following data.

	2009	2010
Value of the production (Rs.)	25,000	40,000
Labour (Rs.)	10,000	15,000
Raw material (Rs.)	8,000	12,500
Capital	6,000	15,000
Other	3,000	5,500

Based on the above data calculate;

- i). Partial measure
- ii). Multi factor measure
- iii). Total measure

(07 marks)

c) Draw a mean chart from the following data relating to 10 samples, each of size 4.

Comment on the state of control.

Sample No.	Observations			
	1	2	3	4
1	14	14	10	7
2	10	12	11	9
3	8	12	13	9
4	15	12	9	14
5	12	10	8	14
6	12	8	8	10
7	11	8	10	10
8	15	10	10	12
9	13	12	12	12
10	14	12	7	12

(08 marks)

(Total 20 marks)

(04). a) Explain the relationship between order quantity and inventory ordering cost, order quantity and inventory holding cost using suitable graphical illustrations.

(06 marks)

b) A particular supplier supplies 6000 tyres per year. Cost of placing an order is Rs. 100 and cost of holding one unit is calculated as 20% of the purchase price of a tyre. Purchase price of a tyre is Rs. 500.

Calculate;

- i). Economic Order Quantity
- ii). No. of orders per year
- iii). Optimal time between two orders

(07 marks)

c) Annual demand for an item is 5000 units. Ordering cost is Rs.600 per order and inventory holding cost is Rs.15 per unit per year. Its price breaks are as follows.

Quantity (units)	Price (Rs.)
$0 \leq Q_1 \leq 2000$	15
$2000 \leq Q_2 \leq 3000$	13
$3000 \leq Q_3 \leq 5000$	10
$5000 \leq Q_4$	8

Calculate the optimal order size.

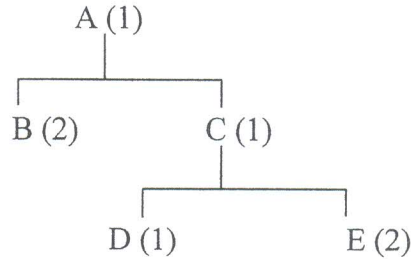
(07 marks)  
(Total 20 marks)

(05). a) What do you mean by Material Requirements Planning?

Briefly explain the elements of Material Requirements Planning.

(06 marks)

b) You are given the following information relating to Material Requirements Planning of Quick Suppliers Ltd.



Material File

Item	Stock on hand	Lead time (Months)	Economic Order Quantity
A	125	1	150
B	50	2	400
C	30	1	280
D	65	1	330
E	230	1	650

Master production Schedule

Month	1	2	3	4	5	6
Demand (Units)	0	200	0	80	150	200

Prepare Material Requirements Planning tables for all items using EOQ method.

(14 marks)  
(Total 20 marks)

(06). Write short notes on the following.

- Operations strategies
- Job design
- Production system
- Quality control
- Productivity

(04 marks each)  
(Total 20 marks)

<i>Number of Observations in Sample</i>	<i>Chart for Averages</i>		
	<i>Factors for Control Limits</i>		
<i>n</i>	<i>A</i>	<i>A<sub>1</sub></i>	<i>A<sub>2</sub></i>
2	2.121	3.760	1.880
3	1.732	2.394	1.023
4	1.500	1.880	0.729
5	1.342	1.596	0.577
6	1.225	1.410	0.483
7	1.134	1.277	0.419
8	1.061	1.175	0.373
9	1.000	1.094	0.337
10	0.949	1.028	0.308
11	0.905	0.973	0.285
12	0.866	0.925	0.266
13	0.832	0.884	0.249
14	0.802	0.849	0.235
15	0.775	0.816	0.223
16	0.750	0.788	0.212
17	0.728	0.762	0.203
18	0.707	0.738	0.194
19	0.688	0.717	0.187
20	0.671	0.697	0.180
21	0.655	0.679	0.173
22	0.640	0.662	0.167
23	0.626	0.647	0.162
24	0.612	0.632	0.157
25	0.600	0.619	0.153