

THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF MECHANICAL ENGINEERING
 BACHELOR OF INDUSTRIAL STUDIES (INDUSTRIAL MANAGEMENT)
 FINAL EXAMINATION 2011/2012



MEX 4240 – OPERATIONS MANAGEMENT

DATE : 12th March 2012

TIME : 1400hrs-1700hrs

DURATION : 03 hours

INSTRUCTIONS

1. Answer any five (05) questions only.
2. All questions carry equal marks.

1. (a) 'Operation management is the study of decision making in the operations function.' If you were an operation manager, what would be the key areas in which you have to make decisions? Discuss the importance of such decisions in operations function.
- (b) Compare and contrast production management and operation management with suitable examples.
2. (a) 'Inventory requires a great deal of capital and it affects the delivery of goods to customers'. Discuss the importance of maintaining inventories.
- (b) Derive an expression for economic order quantity clearly stating all the assumptions and defining the parameters you consider.
- (c) Carpet retailer wanted to determine the quantity of a certain type of carpet to buy in order to cater to the demand without any shortages. The following details are found based on past sales records.

Annual demand:	720 meters per year
Ordering cost:	Rs. 2500.00 per order
Cost of capital:	25%
Price of the carpet:	Rs. 800.00 per meter

Find the economic order quantity in meters.

3. (a) What are the factors affecting the productivity? Discuss them.
- (b) Discuss the factors that you have to consider when implementing productivity improvement program in your organization.
- (c) Discuss the advantages and disadvantages implementing wage incentive system to improve productivity.

- (d) There is a natural conflict between management and labour regarding productivity. Why does this conflict occur? What can be done about it?
4. (a) Discuss the term “Market Driven Approach” and “Technology Driven Approach” in new product design.
- (b) Three new product ideas, A, B and C, have been suggested. These ideas have been rated as given below.

Characteristics	Product			Weight (%)
	A	B	C	
Development cost	P	F	VG	10
Sales prospects	VG	E	G	15
Producibility	P	F	G	10
Competitive advantage	E	VG	F	15
Technical risk	P	F	VG	20
Patent protection	F	F	VG	10
Compatibility with strategy	VG	F	F	20
				100

P- Poor, F – Fair, G – Good, VG – Very Good, E – Excellent

- (i) Five point Likert Scale is applied to rate the product as P=1, F=2, G=3, VG=4, and E=5. Determine the weighted score for each product idea. What is the ranking of the three products?
- (ii) Discuss the advantages and disadvantages of this method in product selection.
5. (a) Discuss the difference between forecasting and planning with suitable examples.
- (b) What is meant by time series forecasting? Give a suitable example to demonstrate the application of time series forecasting.
- (c) Demand variation of particular product during last twelve month is given below.

1	2	3	4	5	6	7	8	9	10	11	12
20	36	58	30	60	24	32	16	44	28	30	54

- (i) Find a suitable moving average.
- (ii) Prepare a three period weighted moving average forecast using weights of $w_1=0.5$, $w_2=0.3$ and $w_3=0.2$.

6. (a) What is meant by aggregate planning ?
- (b) Discuss the “Modifying Demand Approach” and “Modifying Supply Approach” in aggregate planning.
- (c) Explain the difference between “Backward Loading” and “Forward Loading”.
- (d) Discuss the number of essential factors for any loading system.
7. (a) ‘The best positioning of plant is vital for the overall efficiency of a factory.’ Do you agree? Justify your answer.
- (b) Discuss the factors that you have to consider when positioning your plant/equipment in the factory.
- (c) What are the advantages of “Flow Layout”? Explain your answer with suitable example.
- (d) Some prefer to have process layout over flow layout. Do you agree? Justify your answer.

ALL RIGHTS RESERVED