



University of Kelaniya - Sri Lanka

Centre for Distance and Continuing Education

Faculty of Commerce & Management Studies

Bachelor of Business Management (General) Degree Third Examination (External) – 2013

January - 2017

BMGT E3045 – Operational Management

No. of Questions : **Eight (08)**

Time: 03 Hours

Answer any five (05) questions

- (01) a) Define the "Operations Management" and explain the role of operations management in an organization. (05 marks)
- b) What was the major contribution to Operations Management by F.W.Taylor? Explain. (05 marks)
- c) What are the main differences between products and services? (05 marks)
- d) Explain the different stages of product life cycle with a suitable example. (05 marks)
- (Total 20 Marks)**

- (02) a) Why is forecasting important for an operations manager? (05 marks)
- b) What steps would you flow when applying a forecasting methods? (05 marks)

- c) What are the main advantages that quantitative techniques for forecasting have over qualitative techniques?

(05 marks)

- d) You are given the following partial demand and forecast data for a product.

Quarter	4	5	6	7
Forecast	400	430	600	490
Demand	420	370	680	1060

- (i) Compute an exponentially smoothed forecast for quarter 8 with $\alpha = 0.15$
- (ii) Observing the actual demands for quarters 4 through 7, should you update the value of α in part (i). Justify your answer by giving reasons.

(05 marks)

(Total 20 Marks)

- (03) a) List out the stages in the development of a new product. Explain each stages in brief.

(05 marks)

- b) What are the factors that influence product design of a new product?

(05 marks)

- c) Explain the factors to be considered while selecting the location for the new plant.

(05 marks)

- d) A company has five existing production facilities. The company is now centralising its purchase system and establishing a warehouse which will supply materials to the five facilities. The loads required at each facility and its coordinates are shown in following table. Where should the warehouse be located.

Facility	X coordinate	Y coordinate	Load
A	25	40	450
B	350	400	350
C	325	75	1500
D	400	150	250
E	450	350	450

(05 marks)

(Total 20 Marks)

- (04) a) What do you mean "Plant layout"? (05 marks)
- b) What are the objectives of plant layout? (05 marks)
- c) The tasks given in following table are to be performed on an assembly line in the sequence specified. The desired output for an assembly line is 60 units per a shift of 8 hours.

Activity	Activity duration (Minutes)	Immediate predecessor
A	5	-
B	3	A
C	4	B
D	3	B
E	6	C
F	1	C
G	4	D, E, F
H	2	G

- (i) Construct an activity diagram for the tasks.
- (ii) What is the cycle time?
- (iii) What is the theoretical minimum number of work stations?
- (iv) Balance the work flow. (Show through the diagram)
- (v) Compute the efficiency of the line. (10 marks)

(Total 20 Marks)

- (05) a) Distinguish between design capacity and system capacity. (05 marks)
- b) How the following organizations adjust to the daily fluctuations in demand?
- (i) An Airline
- (ii) A Restaurant

(05 marks)

- c) A manufacturing company makes three products each of which requires three operations as part of the manufacturing process. The company can sell all of the products it can manufacture but its production capacity is limited by the capacity of its operations centers. Additional data concerning the company is as follows.

Product	Manufacturing requirements			Cost (Rs.)	Selling price (Rs.)
	Centre 1	Centre 2	Centre 3		
A	1	3	2	11	15
B	3	4	1	12	20
C	2	2	2	10	16
Hours available	160	120	80		

Formulate the product mix schedule.

(10 marks)

(Total 20 Marks)

- (06) a) i) What is inspection? Explain the purpose of inspection.
ii) Explain the different methods of inspection.

(10 marks)

- b) Explain the difference between the following cost of quality assurance.

- i) Prevention costs and appraisal costs.
ii) Internal Failure costs and External Failure costs.

(10 marks)

(Total 20 Marks)

- (07) a) Distinguish between "Method study" and "Work Measurement"

(05 marks)

- b) What are the steps in performing stop watch time study?

(05 marks)

