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) – 2022

March - 2025

BMGT E3045 – Operational Management

No of questions : 08 (Eight) Time: 03 Hours

Answer any **Five (05)** questions.

Question No. 01

a) What is "Operations Management"? Explain its significance and role within an organization.

(05 Marks)

b) How does Operations Management impact the overall success of a business? Explain.

(05 Marks)

c) What are the differences between Operations Management and other areas like Marketing or Finance?

(05 Marks)

d) Identify two current trends in Operational Management and describe them.

(05 Marks)

(Total 20 Marks)

Question No. 02

a) What is the role of product design in operations management?

(05 Marks)

b) What challenges do operations managers face when designing a new product ?

(05 Marks)

c) How does the global market affect the design of a new product?

(05 Marks)

d) How have some leading companies (e.g., Apple, Toyota) successfully integrated product design into their operations strategy?

(05 Marks)

(Total 20 Marks)

Question No. 03

a) Explain what forecasting is in operations management and why it is important.

(05 Marks)

b) Explain some of the factors to be considered in selecting a forecasting method.

(05 Marks)

c) Differentiate between qualitative and quantitative forecasting methods, giving examples of each.

(05 Marks)

d) The 'Hot Food' restaurant uses an exponential smoothing method to forecast weekly usage of tomato sauce. Its forecast for March 1st week was 200 bottles, whereas actual usage in the same week was 300 bottles. If the restaurant's manager uses an alpha (α)of 0.70, what is their forecast for the 2nd week of March.

(05 Marks)

(Total 20 Marks)

Question No. 04

a) Explain why capacity planning is essential for a business.

(05 Marks)

b) What are the key factors that influence capacity planning decisions in manufacturing organizations?

(05 Marks)

c) The ABC company has determined that it needs to expand in order to accommodate growing demand for its laptop computers. The decision has come down to either expanding now with a large facility, incurring additional costs (Rs 50,000), or expanding small, knowing that in three years management will need to reconsider the question.

Management has estimated the following chances for demand:

- The likelihood of demand being high is 0.60
- The likelihood of demand being low is 0.40.

Profits for each alternative have been estimated per month as follows:

• If demand is high, large expansion has an estimated profitability of Rs. 100,000.

If demand is low, large expansion has an estimated profitability of Rs. 60,000

• If demand is low, small expansion has an estimated profitability of Rs. 50,000

• Small expansion with an occurrence of high demand would require considering whether to expand further. If the company expands at that point, the profitability is expected to be Rs. 70,000. If it does not expand further, the profitability is expected to be Rs. 45,000.

(i) Draw a decision tree showing the decisions, chance events, and their probabilities, as well as the profitability of outcomes.

(05 Marks)

(ii) Solve the decision tree and decide what ABC company should do.

(05 Marks)

(Total 20 Marks)

Question No. 05

a) What are the key factors that influence facility location decisions in operations management?

(05 Marks)

b) Explain the consequences of poor facility location decisions for a business.

(05 Marks)

c) Explain how location decisions differ between service industries and manufacturing industries?

(05 Marks)

d) Explain how technological infrastructure availability impacts the decision to locate a business in a particular city.

(05 Marks)

(Total 20 Marks)

Question No. 06

a) Give an example of a product layout in local business and draw a picture of the locations of departments/ sections.

(05 Marks)

b) The tasks given in the following table are to be performed on an assembly line in the specified sequence. The desired output for an assembly line is 40 units per hour.

Activity	Task Time (Seconds))	Immediate predecessor
A	60	none
B	12	A
C	35	B
D	55	A
E	10	D
F	50	E
G	05	F, C

(i) Construct an activity diagram for the tasks.

(ii) Calculate the cycle time (in seconds) to achieve the desired output rate.

(iii) What is the theoretical minimum number of workstations?

(iv) State which work element/s should be assigned to each workstation.

(v) Compute the efficiency of the line.

(03 Marks for each)

(Total 20 Marks)

Question No. 07

a) Describe the objectives of job design.

(05 Marks)

b) Explain any two work measurement techniques.

(05 Marks)

c) Following information is provided to you for each of five elements performed in producing a particular product.

Element	Mean observed time (in minutes)	Performance Rating Factor	Frequency
1	0.96	0.96	1.0
2	1.45	1.10	1.0
3	3.33	1.00	0.33
4	1.24	0.90	1.0
5	1.18	1.05	1.0

(i) Calculate the normal time for each element.

(03 Marks)

(ii) If the company uses a 15 percent allowance factor based on time worked, calculate the standard time for each element.

(03 Marks)

(iii) Calculate the standard hourly output.

(04 Marks)

(Total 20 Marks)

Question No. 08

a) Explain the objectives of inventory management in a local business.

(05 Marks)

b) Explain the relevant costs associated with inventory policies.

(05 Marks)

c) What challenges do companies face in implementing effective quality control systems, and how can they overcome them?

(10 Marks)

(Total 20 Marks)