



UNIVERSITY OF RUHUNA
FACULTY OF MANAGEMENT AND FINANCE

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BACHELOR OF BUSINESS ADMINISTRATION HONOURS DEGREE

4000 LEVEL FIRST SEMESTER END EXAMINATION - AUG/SEP 2025

Three Hours

MKT 41503: Marketing Engineering

Academic Year 2024/2025

Instructions

- This paper contains four (04) questions.
- Answer all questions.
- Use of a calculator is permitted.

Question 01

Read the following case study and answer the questions.

“Refresh” is a leading beverage company in Sri Lanka known for offering a wide range of soft drinks catering to the local market. In response to the growing demand for frozen desserts, the company is now planning to diversify its product range by launching a new line of ice creams. Their objective is to attract more consumers and expand their market share. To ensure the new product meets consumer preferences, the company has decided to conduct a conjoint analysis. This analysis will help identify the ideal combination of product features that appeal to the target market. Once the preferred product designs are identified, the management also wants to forecast the long-term adoption pattern of the ice cream to support production and marketing decisions. The company is now evaluating which forecasting method would best serve the purpose.

- a) Briefly explain the main stages involved in conducting a conjoint analysis. (06 marks)
 - b) List down three possible attributes and two levels for each attribute relevant to the new line of ice creams. (03 marks)
 - c) Based on the above product mix, calculate the total number of possible product combinations. (02 marks)
 - d) Briefly explain how ‘Refresh’ can benefit from using conjoint analysis in the production development process. (04 marks)
 - e) Recommend a suitable forecasting method to predict the long-term adoption of the new ice cream. Justify your recommendation. (03 marks)
 - f) Explain the key assumptions used in the forecasting method you recommended. (03 marks)
 - g) Using a graphical illustration, explain the forecasting method you suggested in question ‘e’. (04 marks)
- (Total 25 marks)**

Question 02

'Maxel' is a medical equipment provider that sells contracts to four customer segments, namely segments A, B, C, and D. Using the Enginius software, the company performed a 'Customer Lifetime Value Analysis' at a discount factor of 10% for the next five (05) years. Answer the following questions using the output shown in Tables 1 and 2.

Table 1: Individual Customer Lifetime Value per Segment

Segments	Number of Customers	Gross Margins (LKR)	Marketing Costs, next period (LKR)	Customer Lifetime Value (LKR)
Segment A	3800	220,000	40,000	501,530
Segment B	8000	420,000	30,000	1,094,810
Segment C	9000	150,000	20,000	241,650
Segment D	9200	75,000	10,000	155,680

Table 2: Number of Customers per Segment Over 5 Years

Segments	N + 1	N + 2	N + 3	N + 4	N + 5
Segment A	3 800	2 090	1 150	632	348
Segment B	8 000	6 380	4 994	3 860	2 959
Segment C	9 000	5 220	3 028	1 756	1 018
Segment D	9 200	6 620	4 738	3 377	2 399

- Why has 'Maxel' used a discount rate (i.e., 10%) to calculate customer lifetime value? (02 marks)
 - How many customers are there with the company now, and how many customers will still be with the company after five years? (02 marks)
 - Compute the overall churn rate after 5 years. (02 marks)
 - What is the total customer lifetime value in each of the four segments, in current LKR values? (04 marks)
 - Briefly explain how an organization can increase the customer lifetime value. (05 marks)
- (Total 15 marks)**

Question 03

- Discuss the key trends that favor the application of marketing engineering in the business environment. (06 marks)
 - Briefly explain the difference between a model and a market response model in the context of marketing. (05 marks)
 - Briefly describe any two types of dynamic effects. (04 marks)
- (Total 15 marks)**

Question 04

- a) The ADBUDG response model is widely used in advertising. Explain the assumptions of the ADBUDG response model. (06 marks)
 - b) State potential uses of mapping techniques in marketing decision making. (05 marks)
 - c) Briefly explain any two types of temporal pricing with examples. (04 marks)
- (Total 15 marks)**
