

**FINAL  
ALTERNATIVE ASSESSMENT**

(COVER PAGE)

Session : April 2020

Programme : Diploma in Business (DIB)  
DIPLOMA IN FINANCE (DIF)  
DIPLOMA IN MARKETING (DMKT)  
DIPLOMA IN ENTREPRENEURSHIP (DENT)

Course : **MAT1106: Business Mathematics**

Date of Examination : August 6, 2020 (Thursday)

Time : 12:00noon – 2:30pm Reading Time : Nil

Duration : 2 Hours : 30 Minutes

**Special Instructions :**

This paper consists of **ALL THREE (3)** questions.

Materials permitted : Non-Programmable Calculator

Materials provided : Nil

Examiner(s) : **Hatin Fatihah Binti Hasan, Foo Kai Pin, Miza Mumtaz Ahmad,  
Dr Narinderjit Singh and Siew Woo Bing**

Chief Moderator : Dinesh Kumar Govindasamy

*This paper consists of 4 printed pages, including the cover page*

DIPLOMA IN BUSINESS PROGRAMME (DIB)  
 DIPLOMA IN FINANCE PROGRAMME (DIF)  
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 DIPLOMA IN ENTREPRENEURSHIP PROGRAMME (DENT)  
 MAT1106 BUSINESS MATHEMATICS  
 FINAL ALTERNATIVE ASSESSMENT: APRIL 2020 SESSION

**Instruction:** Answer **ALL** questions.

**Question 1**

Below are the total sales (in thousands) of Restoran Ikan Bakar Pasir Mas for the past 12 months.

- (a) Obtain a trend value for this data using exponential smoothing with a smoothing constant of  $\alpha = 0.5$  and find the forecast error for each month. Hence, find the forecasted total sales (RM'000) for the month of March 2020.

Month	Total sales (RM'000)
Mar-2019	15.01
Apr-2019	16.00
May-2019	19.50
Jun-2019	19.02
Jul-2019	17.36
Aug-2019	18.00
Sep-2019	16.09
Oct-2019	16.89
Nov-2019	17.00
Dec-2019	16.01
Jan-2020	15.04
Feb-2020	10.23

(30 marks)

- (b) Discuss the reasons that may have contributed to the differences between the forecast result and the actual result in total sales of Restoran Ikan Bakar Pasir Mas for the month of March 2020. (Assuming the actual total sales for March 2020 is RM8,490).

(10 marks)

**(Total: 40 marks)**

**Question 2**

Mr Ali has been saving RM650 every month in ABC Bank for the past 6 years. On the other hand, Ms Siti has been saving RM500 every month in PQR Bank for the past 5 years since she started to work and she also has a fixed deposit of RM10,000 in the same bank for the past 4 years.

(a) Mr Ali and Ms Siti plan to buy a bungalow together worth RM1,200,000 located in Damansara with a 10% down payment towards financing the house.

(i) Find Ali's accumulated savings in ABC Bank if the bank offers him an interest of 5% compounded monthly for the first 3 years and 2% compounded monthly for the rest of the period and determine Siti's accumulated savings in PQR Bank if the bank offers her an interest rate of 3.56% compounded monthly for both of her savings.

(22 marks)

(ii) Determine the down payment of the bungalow and the amount to be financed by Ali and Siti. Do they have enough money to pay the down payment for the bungalow?

(5 marks)

(b) After the purchase of the bungalow, Ali and Siti had reduced their monthly savings to RM400 (Ali) and RM350 (Siti) each in ROCO Bank. Calculate their total savings if the bank offers them 4% interest compounded monthly for 10 years.

(10 marks)

**(Total: 37 marks)**

**Question 3**

- (a) A small company manufactures and sells  $x$  unit of soaps per day. The company pays RM80 for oils and RM20 for lye used to make 20 unit of soaps. The demand function is known to be  $p = 10 - 0.5x$ . The company bought 2 blenders for RM50, tools for RM30 and mold for RM20.
- (i) Determine the number of soaps should be produced and sold to achieve maximum daily revenue, hence calculate the maximum daily revenue. (6 marks)
- (ii) Find the profit function. (5 marks)
- (iii) Find the maximum daily profit and the number of soaps to be sold to achieve the maximum profit. (4 marks)
- (b) In year 2019, a study was conducted in Tumpat with 3% poverty rate had caused 4.56% of crime rate. The same study has been conducted in Wakaf Bharu with 4.5% poverty rate had caused 7% crime rate. If Kuala Krai has 4.1% poverty rate, estimate the crime rate in Kuala Krai.

(8 marks)

**(Total: 23 marks)****~The End~***Formatted/MAT1106 (AA)/April 2020/hizam*