



Private & Confidential

**BERJAYA BUSINESS SCHOOL
FINAL EXAMINATION**

Student ID (in Figures) :

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Student ID (in Words) : _____

Subject Code & Name : **MAT1114 ESSENTIAL MATHEMATICS FOR BUSINESS**
Trimester & Year : September – December 2022
Lecturer/Examiner : Suhada Binti Ishak
Duration : 2 Hours

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of 2 parts:
PART A (40 marks) : TWO (2) short answer questions. Answers are to be written in the Answer Booklet provided.
PART B (60 marks) : THREE (3) structure type questions. Answers are to be written in the Answer Booklet provided.
2. Candidates are not allowed to bring any unauthorized materials except writing equipment into the Examination Hall. Electronic dictionaries are strictly prohibited.
3. This question paper must be submitted along with all used and/or unused rough papers and/or graph paper (if any). Candidates are NOT allowed to take any examination materials out of the Examination hall.
4. Only ballpoint pens are allowed to be used in answering the questions, with the exception of multiple-choice questions, where 2B pencils are to be used.

WARNING:

The University Examination Board (UEB) of BERJAYA University College regards cheating as a most serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from BERJAYA University College.

Total Number of pages = 5 (Including the cover page)

PART A : SHORT ANSWER QUESTIONS (40 MARKS)

INSTRUCTION(S) : TWO (2) short answer questions. Answer ALL questions in the Answer Booklet(s) provided.

Question 1

- a) Find the **future value** and **interest earned** for the following investment with n investment of P ringgit at $r\%$.

| P | r | n |
|-----------|-------------------------|-----|
| RM 10,500 | 12% compounded annually | 11 |
| RM 3,000 | 8% compounded quarterly | 16 |
| RM 6,500 | 15% compounded monthly | 24 |

(9 marks)

- b) Calculate the periodic payments, R that have to be made to settle the following loans.

| Value of the loan (RM) | Interest | Period | Payment |
|------------------------|-----------------------------|-----------|-----------|
| RM 5,000 | 8% compounded quarterly | 4 years | Quarterly |
| RM 60,000 | 6% compounded monthly | 10 years | monthly |
| RM 8,000 | 4% compounded semi-annually | 18 months | Monthly |

(6 marks)

- c) Rosman wants to have RM 2,000 at the end of each semester during the three years he is in the college. This money comes with withdrawals from an account which earns an interest of 12% compounded semi-annually. How much should the account be worth when Rosman opens it at the stars of his course?

(5 marks)

[Total 20 marks]

Question 2

- a) Solve the following system of equation using Cramer's rule:

$$\begin{bmatrix} 4 & 1 & 0 \\ 1 & 0 & 2 \\ 2 & 2 & -2 \end{bmatrix} \begin{bmatrix} p \\ q \\ r \end{bmatrix} = \begin{bmatrix} 8 \\ -3 \\ 14 \end{bmatrix}$$

(10 marks)

- b) Firdaus pays RM200 for 2 pair of shirts and 2 pair of trousers while Nawal pays RM 500 for 1 shirt and 6 trousers for Hari Raya. If x and y represents the price of a shirt and a trouser respectively, write a system of linear equation in matrix form based on the information given. Using inverse matrix, $X = A^{-1}b$, determine the price of a shirt and a trouser.

(10 marks)

[Total 20 marks]

END OF PART A

PART B : STRUCTURE TYPE QUESTIONS (60 MARKS)
INSTRUCTION(S) : THREE (3) structure type questions. Answer ALL questions in the Answer Booklet(s) provided.

Question 1

- a) Shade the region that satisfies the following inequalities. (5 marks)
- b) A hardware shop receives 25 dustbins that cost RM12 each. After delivery, the proprietor of the shop discovers that 4 of the dustbins are defective. He decides to sell these defective dustbins at cost price. If he wishes to markup the selling price by 35%, what should be the selling price of the remaining non-defective dustbins?
(5 marks)
- c) A co-operative bought 5 dozen cans lychees at a total list price of RM 180. A discount of 5% was given on the purchase. The co-operative aims to make a 40% gross profit of the selling price on the sale of the lychees
- Find the selling price of each can of the lychees
 - After selling 38 cans, the co-operative marked down the price of the remaining cans by 10%. If the co-operative managed to sell all the cans of lychees, find the total gross profit made.

(10 marks)

[Total: 20 marks]

QUESTION 2

- a) An invoice for the amount of RM 3,150 is given a 10% discount. The cash discount is 5/15, n/30. The date of the invoice is September 22. How much must be paid if the invoice is paid on October 6?
(5 marks)
- b) The list price of a television is RM 2,600. A chain discount of 12%, 6% and x% was given and the discount is RM 556.82. Find x and the single discount rate that is equivalent to the chain discount.
(8 marks)

- c) A retailer receives an invoice dated 20 February 2017 for RM 3,500. This amount includes a handling charge of RM 23. The trade discount offered are 10% and 5% and the cash discount terms are 4/10, 2/20 and $n/60$. If the invoice is paid on 28 February 2017, find the amount paid?

(7 marks)

[Total: 20 marks]

QUESTION 3

- a) Five years ago Nouman bought a machine. Currently the value of the machine is RM 60,000. The machine has a life expectancy of 15 years. At the end of its useful life, the machine will have a value of RM 10,000. By using a straight line method, calculate

- i. The cost of the machine.
- ii. The annual depreciation

(5 marks)

- b) Husna wants to sell her machine, which was purchased for RM 120,000, after using for four years. The residual value after eight years is estimated to be RM 40,000. Two dealers are offering her machines based on the book value. X- factory is using the declining balance method while Y-factory is using sum of year digits methods to calculate the depreciation.

- i. Find the book value of the car after four years for the two factories. (2 marks)
- ii. Which dealer is offering the better deal, state your reason? (13 marks)

[Total: 20 marks]

END OF QUESTIONS