BERJAYA BUSINESS SCHOOL
FINAL EXAMINATION

Student ID (inFigures)   :

Student ID (in Words)   :

Subject Code & Name : **MAT1114 ESSENTIAL MATHEMATICS FOR BUSINESS**
Trimester& Year   : January – April 2024
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:

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 investments 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	Semi-annually

(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 starts 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 represent 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)

$$5x + 3y < -15$$

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

            i.   Find the selling price of each can of the lychees

            ii.   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