



**UNIVERSITI KUALA LUMPUR
BUSINESS SCHOOL**

**FINAL EXAMINATION
JULY 2025 SEMESTER**

COURSE CODE	: ECP 00304
COURSE NAME	: INTRODUCTION TO BUSINESS MATHEMATICS
PROGRAMME NAME	: FOUNDATION IN BUSINESS
DATE	: 17 DECEMBER 2025
TIME	: 9.00 AM – 12.00 PM
DURATION	: 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please **CAREFULLY** read the instructions given in the question paper.
2. This question paper has information printed on both sides of the paper.
3. This question paper consists of **FIVE (5)** Questions.
4. Answer **ALL** questions.
5. Please write your answers on the answer booklet provided.
6. **All** questions must be answered in English (any other language is not allowed).
7. The formulas have been appended for your reference.
8. This question paper must not be removed from the examination hall.

THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

(Total: 100 marks)

INSTRUCTION: Answer All questions.
Please use the answer booklet provided.

Question 1

(a) Simplify the following questions by using the law of exponents or logarithms.

i. $(2^3 \times 2^2)^2 \div 2^5$ (2 marks)

ii. $2\log_3 27 + \log_3 9 - \log_3 81 + \log_3 3$ (2 marks)

(b) Obtain the slope and the y-intercept for each of the following linear equations.

i. $7y + 14x = 21$ (2 marks)

ii. $5y - 15x + 20 = 10y - 25$ (3 marks)

(c) Solve the following questions.

$3x^2 - 12x + 9 = 0$ (2 marks)

(d) Fill in the blanks with the correct symbol of greater than (>) or less than (<).

(1 mark)

i. $4 \begin{matrix} \square \\ \square \end{matrix} - 10$

ii. $-4 \begin{matrix} \square \\ \square \end{matrix} - 8$

(e) Based on the matrix below,

$$A = \begin{bmatrix} -1 & -2 & -9 & -7 \\ 2 & 5 & 4 & 7 \\ 3 & 1 & -5 & -8 \\ 9 & -3 & 8 & -4 \end{bmatrix}$$

find the element of:

(1 mark)

i. a_{12}

ii. a_{54}

(f) Given the matrices below.

$$A = \begin{bmatrix} 2 & 4 & 1 \\ 5 & 3 & 6 \end{bmatrix} \quad B = \begin{bmatrix} 3 \\ -2 \\ 4 \end{bmatrix} \quad C = \begin{bmatrix} 1 & 5 \\ -3 & 2 \\ 4 & 0 \end{bmatrix} \quad D = \begin{bmatrix} 2 & -1 \\ 3 & 5 \end{bmatrix}$$

Find,

i. $A + C^T$

(2 marks)

ii. $B + D$

(1 mark)

iii. CD

(2 marks)

iv. $A^T C$

(1 mark)

(g) Find determinant for the matrix

$$\begin{bmatrix} 3 & 9 \\ -2 & 8 \end{bmatrix}$$

(1 mark)

Question 2

(a) Ms. Lina deposited RM 8,000 in a savings account and received RM 2,160 simple interest after 54 months. Find the simple interest rate that is offered.

(4 marks)

(b) Aiman invested RM 12,000 in two different accounts. One part at 9% per annum and the rest at 6% per annum. After two years, his total simple interest was RM 1,930. Find the amount invested at each rate.

(6 marks)

(c) Four years ago, RMY was invested at a simple interest rate of 6% per annum. Today, RM 3,000 is withdrawn, leaving a balance of RM 3,480 in the account. Calculate the initial amount (Y) invested.

(4 marks)

(d) Aina deposited RM4,500 in a savings account that offered $r\%$ simple interest per annum on 15 February 2025. If the interest earned on 10 May 2025 was RM67.50, find the value of r using Banker's Rule.

(6 marks)

Question 3

- (a) RM15,000 is deposited into a savings account that earns interest at a rate of 5% compounded annually for 8 years.
- Calculate the total compound amount.
(5 marks)
 - Determine the total interest earned.
(2 marks)
- (b) Aiman invested RM Y into a savings account for 10 years. The account offered 3.5% interest compounded quarterly during the first 6 years and 4.5% interest compounded every two months for the remaining 4 years. At the end of the 10-year period, the total accumulated balance in the account was RM12,845.20.
- Calculate the initial principal amount (Y).
(11 marks)
 - Find the total interest earned by Aiman.
(2 marks)

Question 4

- (a) Amira deposits RM120 every quarter into a savings account for 8 years. Determine the total accumulated amount if the account earns 4.5% interest compounded quarterly.
(5 marks)
- (b) Amir purchased a laptop through a four-year instalment plan. He made a 15% down payment, and the remaining balance was financed with an annual interest rate of 4% compounded monthly. His monthly instalment payment is RM210.40.
- Determine the original price of the laptop.
(7 marks)
 - If Amir misses the first two monthly payments, calculate the amount he must pay in the third month to clear all outstanding arrears.
(4 marks)
 - If Amir decides to settle his loan immediately after the 36th payment, calculate the total balance to be paid at that time.
(4 marks)

Question 5

Outdoor Pro Shop sells a variety of camping gear at competitive prices. The cost of a tent set is RM1,680. When sold, the shop earns a net profit of 30% based on the selling price. The operating expenses are 12% of the cost.

- (a) Determine the selling price of the tent set. (5 marks)
- (b) Calculate the breakeven price of the tent set. (3 marks)
- (c) Find the profit or loss if the tent was sold for RM 2,800. (3 marks)
- (d) Determine the net profit or loss if the tent was marked down by 15%.
(Hint: use the original selling price) (6 marks)
- (e) Find the maximum percentage markdown that can be given without incurring any loss based on the original selling price. (3 marks)

END OF EXAMINATION PAPER

FORMULA LIST

1. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
2. $m_1 = m_2$
3. $m_1 \times m_2 = -1$
4. $I = Prt$
5. $S = P(1+rt)$
6. $S = P(1+i)^n$
7. $S = R \left[\frac{(1+i)^n - 1}{i} \right]$
8. $A = R \left[\frac{1 - (1+i)^{-n}}{i} \right]$
9. $SP = C + M$
10. $M = OE + NP$
11. $SP_B = C + OE$
12. Maximum % markdown = $\frac{SP - SP_B}{SP} \times 100\%$