UNIVERSITI KUALA LUMPUR
BUSINESS SCHOOL

FINAL EXAMINATION
FEBRUARY 2025 SEMESTER

COURSE CODE	:	**ECP00304**
COURSE NAME	:	**INTRODUCTION TO BUSINESS MATHEMATICS**
PROGRAMME NAME	:	**FOUNDATION IN BUSINESS (FIB)**
DATE	:	**20 JUNE 2025**
TIME	:	**3.00 PM – 6.00 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. **This question paper must not be removed from the examination hall.**
8. **Formulas have been appended for your reference.**

THERE ARE FOUR (4) PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

(Total: 100 marks)

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

Question 1

(a) Express the conversion in the table below.

(2 marks)

NO	EXPONENTIAL	LOGARITHMS
i.	$n^2 = z$	_____
ii.	_____	$\log_5 125 = 3$

(b) Solve the following questions.

i. $5^x = 15625$

(1 mark)

ii. $5^y = 50$

(2 marks)

(c) Find the equation of the straight line that passes through the point (10, -1) and is perpendicular to the line $y = 2x + 10$.

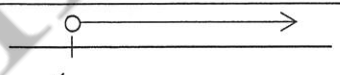
(3 marks)

(d) Sketch a graph for $x^2 + 4x - 12 = 0$.

(6 marks)

(e) Fill in the blanks with suitable answers.

(3 marks)

Real Number Line	Inequalities Notation	Interval Notation
	i) _____	ii) _____
iii)	$x \leq -1 \cup x > 4$	$(-\infty, -1] \cup (4, \infty)$

(f) Find the inverse of matrix

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

(3 marks)

Question 2

(a) By using a table, calculate

i. the **exact time** from 13th January 2025 to 2nd April 2025.

(2 marks)

ii. the **approximate time** from 10th March 2025 to 20th May 2025.

(2 marks)

(b) Hana deposited RM 6,500 in MDS Bank for 95 weeks at a simple interest rate of 1.8% per annum.

i. Calculate the simple interest she earned.

(3 marks)

ii. Determine the total amount in the account at the end of the savings period.

(2 marks)

(c) Imran borrowed RM 6,200 from Aiman at a rate of r% simple interest. After 5 years, Aiman receives RM 1,800 more than the amount he lent to Imran. What is the rate of interest?

(5 marks)

(d) Aisha deposited RM X into Nova Bank at a simple interest rate of 2.1% per annum. After 69 days, the total accumulated amount in her account was RM 12,938.70. Calculate the original amount by considering Banker's rule. Hence, determine the date the deposit was made if the accumulated amount was recorded on 3rd May 2025.

(6 marks)

Question 3

(a) Nadira invested RM 9,200 at an interest rate of 4.5% compounded semi-annually for the first 3 years, followed by 3.8% compounded every two months for the next 4 years and 6 months.

i. Calculate the accumulated amount at the end of the first 3 years.

(5 marks)

ii. Determine the total future value at the end of the entire investment period.

(5 marks)

(b) In the year 2025, Adam invested RM 17,800 into a trust account that pays 3.9% interest compounded daily. After some time, the investment grew to RM 39,240.75.

i. Calculate the total interest earned.

(3 marks)

ii. Determine the number of years it took for the investment to reach that amount. (Give your answer correct to 2 decimal places.)

(7 marks)

Question 4

(a) Nadia took a loan with an interest rate of 6.2% per annum, compounded monthly. She agreed to repay the loan over 7 years 12 months with fixed monthly payments of RM 720.

i. Calculate the original amount of the loan.

(6 marks)

ii. After making her 66th monthly payment, Nadia decided to fully settle the remaining balance of the loan. Determine the outstanding balance to be paid at that time.

(4 marks)

iii. Suppose Nadia did not make any payments for the first 3 months after taking the loan. Calculate the amount she would need to pay in the fourth payment to clear the outstanding arrears.

(4 marks)

(b) Ms. Hana deposited RM 200 every month into a Fixed Return Investment Account offered by Unity Bank. The account provides an annual interest rate of 4.2%, compounded monthly, for a period of 60 months. Calculate the future value at the end of the investment.

(6 marks)

Question 5

OceanTech Gear Hub specializes in selling premium snorkeling equipment at competitive prices. The cost of a full snorkeling kit is RM 1,580. When sold, the company earns a 30% net profit based on the cost. Operating expenses are 18% of the selling price.

(a) Determine the selling price of the snorkeling kit.

(5 marks)

(b) Calculate the breakeven price of the snorkeling kit.

(3 marks)

(c) Find the profit or loss if the snorkeling kit was sold for RM 2,500.

(3 marks)

(d) Determine the net profit or loss if the snorkeling kit was marked down by 20%. (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. $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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. $S = R\left[\dfrac{(1+i)^n - 1}{i}\right]$

8. $A = R\left[\dfrac{1-(1+i)^{-n}}{i}\right]$

9. $SP = C + M$

10. $M = OE + NP$

11. $SP_B = C + OE$

12. $\text{Maximum \% markdown} = \dfrac{SP - SP_B}{SP} \times 100\%$