UNIVERSITI KUALA LUMPUR
KAMPUS CAWANGAN MALAYSIAN SPANISH INSTITUTE

FINAL EXAMINATION

OCTOBER 2025 SEMESTER

COURSE CODE	:	SIB12203 (V2)
COURSE TITLE	:	BUSINESS MATHEMATICS
PROGRAMME NAME	:	BACHELOR OF BUSINESS TECHNOLOGY (HONOURS) IN AUTOMOTIVE MANAGEMENT
DATE	:	23 JANUARY 2026
TIME	:	9:00AM - 12:00PM
DURATION	:	3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Answer ALL questions for Section A.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet. ☐ *Tick if applicable*
9. Refer to the attached Formula/ Appendies. ☑ *Tick if applicable*

SECTION A (Total: 40 marks)

Answer ALL questions.

Please use the answer booklet provided.

Question 1

Answer all questions.

(a) Solve the following linear equations.

i. $2x + 3 = 5 + 4(6x - 7)$

(3 marks)

ii. $\frac{5}{(8 - 6y)} = \frac{10}{3y}$

(3 marks)

iii. $\frac{4k}{3} + \frac{(7k - 4)}{5} = 10$

(4 marks)

(b) Solve the following equation by using the quadratic formula.

$$4x^2 + 5(2x - 6) = 0$$

(5 marks)

(c) Determine the value x and y that satisfy the following equation using the substitution method.

$$3x - 2y = 25.5$$
$$4x + y = 12$$

(5 marks)

Question 2

Answer all questions.

(a) Simplify.

i. $(3g^2h^3)^2 \times (2g^{-1}h^2)^{-3} \div (4g^4h^{-2})^{\frac{3}{2}}$

(5 marks)

ii. $2log_3(4x^2) + \frac{1}{4}log_3(x^6)$

(4 marks)

(b) Solve the following equations.

i. $4log_3\left(\frac{7x}{6x+5}\right) = 12$

(5 marks)

ii. $6^{-7.5y} = 5^{6y+3}$

(6 marks)

SECTION B (Total: 60 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

Answer all questions.

(a) Rashid deposits RM8,600 in a bank at a simple interest rate of 6.5% per annum for 6 years and 9 months. Determine

i. the simple interest earned by the investment.

(3 marks)

ii. the total amount at the end of the investment period.

(2 marks)

iii. the time in days using Banker's Rule, if the simple interest earned is RM2000.

(4 marks)

(b) On 12 April 2024, Amir deposited RM P in a bank savings account at a rate of 8.7% per annum. The total amount in the account on 26 September 2024 was RM5,200. Calculate:

i. the exact time of investment in days.

(3 marks)

ii. the amount P using Banker's Rule.

(4 marks)

(c) The total amount in a saving account was obtained on 25 November 2023, after being invested for 187 days. Determine the starting date of the investment.

(4 marks)

Question 2

Answer all questions.

(a) Lina deposited RM8,500 in a savings account that pays 6% per annum compounded quarterly.

i. Determine the total savings in the account at the end of 4 years.

(3 marks)

ii. After 4 years, Lina deposited an additional RM1,500 into the same account. Calculate the total amount in the account 10 years after the first deposit.

(4 marks)

iii. Compute the total interest earned in the account at the end of 10 years.

(2 marks)

(b) Ali invests RM7,000 in an account paying 7.2% annual interest compounded monthly. Determine the time required for the balance to grow to RM9,230.

(6 marks)

(c) Determine the nominal rate per annum, compounded quarterly, if the effective annual rate is 6.8%.

$$\left[\text{Hint} : 1 + r = \left(1 + \frac{k}{m}\right)^{m}\right]$$

(5 marks)

Question 3

Answer all questions.

(a) Hafiz obtained a housing loan from a bank. The bank charged 6.24% per annum interest, compounded monthly. Hafiz repaid the loan by monthly instalments of RM812.50 for 18 years. Determine

i. the amount of the loan.

(4 marks)

ii. the total interest paid.

(2 marks)

(b) Farah purchased a new electric scooter for RM65,000. She made a 10% down payment, and the remaining amount was financed by Bank Sejahtera at an annual interest rate of 5.4% compounded monthly. The loan term is 5 years. Determine

i. the monthly installment for the loan.

(7 marks)

ii. the settlement amount immediately after the 20th payment.

(4 marks)

iii. the total amount due immediately after the 6th month, if Farah missed the first 5 payments.

(3 marks)

Question 4

Answer all questions.

(a) Aisha invested RM9,200 in two accounts, some at 4.5% per annum and the rest at 5.5% per annum. Her total interest for 2.5 years was RM1129. Calculate the amount invested at each rate.

(9 marks)

(b) Faiz deposits RM1,200 every 3 months into an account earning 7.2% annual interest, compounded quarterly. He aims to save RM50,000. Determine the number of deposits required to reach his goal.

(8 marks)

(c) Determine the equivalent effective annual rate (EAR) for the nominal interest rate of 6.28% compounded semiannually.

(3 marks)

END OF EXAMINATION PAPER

LIST OF FORMULA FOR BUSINESS MATHEMATICS

1)	**Quadratic Formula** $x = \frac{-b \pm \sqrt{b^2 - (4ac)}}{2a}$	
2)	**Law of exponent** a) $a^m \times a^n = a^{m+n}$ b) $\frac{a^m}{a^n} = a^{m-n}$ c) $(a^m)^n = a^{m \times n}$ d) $(ab)^n = a^n b^n$	e) $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$ f) $\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$ g) $a^{-n} = \frac{1}{b^n}$ h) $a^0 = 1$
3.	**Simple Interest**	**4. Compound Interest**
	a) Interest : $I = Prt$	a) Compound Amount : $S = P\left(1 + \frac{r}{m}\right)^{mt}$
	Simple Amount : $S = P + I$ $S = P(1 + rt)$	b) Relationship Effective rate and Nominal Rates $1 + r = \left(1 + \frac{k}{m}\right)^m$
5.	**Annuity**	
	a) Future value of ordinary annuity Certain : $S = R\left[\frac{(1+i)^n - 1}{i}\right]$	b) Present value of ordinary annuity Certain : $A = R\left[\frac{1-(1+i)^{-n}}{i}\right]$