UNIVERSITI TEKNOLOGI MARA
TEST (SET 2)

COURSE	**:**	**BUSINESS MATHEMATICS**
COURSE CODE	**:**	**MAT112**
DATE	**:**	**DECEMBER 2022**
TIME	**:**	**1 HOUR 30 MINUTES**

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of **THREE (3)** questions.
2. Answer **ALL** questions in English.
3. Calculator can be used.
4. Do not bring any material into the examination room unless permission is given by the invigilator.
5. Please write your answer on paper using a pen.
6. Make sure your answer papers are **readable**. Write your answers **clearly** with your full name, group and student ID.

NAME : _____

STUDENT NO. : _____

GROUP : _____

LECTURER : _____

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

This examination paper consists of 4 printed pages

QUESTION 1

a) Hakimi invested RM5,000 into an investment scheme that paid a 7.21% simple interest rate per annum. If the interest received was RM1,081.50 after t years, calculate

i) the term of investment, t.

(3 marks)

ii) the accumulated amount at the end of the term.

(2 marks)

b) On 26 January 2022, Iskandar took a bank loan that amounted to RM X from ACDC bank that charged him a 3.2% simple interest rate. He settled the bank loan by paying RM3,044 on 10 July 2022. By using Banker's rule, find

i) the duration of the loan (in days).

(3 marks)

ii) the value of X.

(4 marks)

iii) the interest paid.

(3 marks)

QUESTION 2

a) Aiman needs RM5,500 to buy a motorcycle. He then took a loan from a bank. If he was charged at a 5.5% discount rate for 36 months, calculate the amount he should borrow from the bank.

(5 marks)

b) On 15th March 2020, Alex received a promissory note from David with a 5.3% simple interest rate. The face value of the note was RM17,500 and the note matured on 9th August 2020. After keeping the note for 70 days, Alex then discounted the note and received the proceeds of RM17,658.08. Calculate

i) the maturity value of the note.

(5 marks)

ii) the bank discount rate.

(5 marks)

QUESTION 3

a) Six years after Daniel deposited RM8,000 in a saving account that earned interest of 4.5% compounded quarterly, the interest rate was raised to 6.5% compounded quarterly. How much was in the account 10 years after the change in the interest rate?

(7 marks)

b) Mikhail invests RM30,000 into an account at an interest rate of k% compounded semi-annually. After 5 years, the account balance is RM37,640.74. Determine

i) the interest rate k% compounded semi-annually.

(5 marks)

ii) the compound amount if the investment was extended for another 2 years.

(3 marks)

END OF QUESTION PAPER

APPENDIX 1

LIST OF FORMULAE

1. $S = P(1+rt)$	2. $\text{Proceeds} = S(1-dt)$
3. $r = \dfrac{d}{1-dt}$	4. $d = \dfrac{r}{1+rt}$
5. $S = P(1+i)^n$	6. $S = R\left(\dfrac{(1+i)^n - 1}{i}\right)$
7. $A = R\left(\dfrac{1-(1+i)^{-n}}{i}\right)$	8. $SP = C + M$
9. $GP = OE + NP$	10. $NP = LP(1-d_1)(1-d_2)...(1-d_n)$
11. $r = \dfrac{2mI}{B(n+1)}$	12. $r = 1 - \sqrt[n]{\dfrac{S}{C}}$
13. $BV_n = C(1-r)^n$	14. $OPB = Rk - I\left[\dfrac{k(k+1)}{n(n+1)}\right]$

