



**UNIVERSITI TEKNOLOGI MARA
SUPPLEMENTARY EXAMINATION**

COURSE	:	BUSINESS MATHEMATICS
COURSE CODE	:	MAT112
EXAMINATION	:	SEPTEMBER 2022
TIME	:	3 HOURS

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of five (5) questions.
2. Answer ALL questions. Start each answer on a new page.
3. Please check to make sure that this assessment pack consists of :
 - i) the Question Paper
 - ii) a one – page Appendix (List of Formula)
4. Answer ALL questions in English.

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

This examination paper consists of 5 printed pages

QUESTION 1

- a) Ammar plans to make a loan on 17 April 2022 from Bank Mubibbah that charges a simple interest of 11% per annum. Find the amount of the loan if he decides to pay RM52,004.11 on 30 August 2022 using approximate time and exact interest. (5 marks)
- b) RM7,000 is invested for 3 years 5 months at a simple interest rate of 6.3% per annum. Find the interest earned from this investment. (3 marks)
- c) A 90-day, 9% promissory note with a face value of RM4,550 was discounted before the maturity date at 8% discount rate and received proceeds of RM4,619.30. If the date of the note was 7 September 2022, find
- i) the maturity date of the note. (2 mark)
 - ii) the maturity value of the note. (4 marks)
 - iii) the bank discount amount. (2 marks)
 - iv) the discount period. (2 marks)
 - v) the simple interest rate that is equivalent to the bank discount rate. (2 marks)

QUESTION 2

- a) Hazmi deposited RM2,000 into his savings account at an interest rate of 6% compounded quarterly. Two years later, he deposited another RM2,000. Find the accumulated amount in his account five years after the first deposit. (6 marks)
- b) Ahmad has to pay RM44,783.83 at the end of 7 years for a loan of RM X from Bank Bahagia at an interest rate of 5.5% compounded monthly. Find X. (4 marks)

- c) Serina received an invoice dated 25 March 2022 with trade discounts of 16%, 10%, and 8% and cash discount terms of 4/10, 3/15, n/30. After deduction on trade discounts, the net price was RM1,580. The transportation cost is RM120. Find
- i) the single trade discount equivalent to the trade discounts given. (2 marks)
 - ii) the list price. (3 marks)
 - iii) the total payment if the payment was made on 9th April 2022. (5 marks)

QUESTION 3

- a) Nurul borrows RM29,635 for 5 years at 15% compounded monthly. Calculate Nurul's monthly payment. (4 marks)
- b) Rafael invested RM643 every three months for 8 years. He was offered 4.2% compounded quarterly. Determine the accumulated amount at the end of the investment period. (4 marks)
- c) Mr. Aryan bought a new car. He made a down payment of RM11,000 and the balance was borrowed at 12% compounded monthly. He must pay RM1,500 every month for 7 years to settle the loan.
- i) Calculate the cash price of the car. (6 marks)
 - ii) Immediately after paying the first 31 monthly payments, he intended to settle the loan. Calculate the total amount paid to discharge the loan. (6 marks)

QUESTION 4

- a) A retailer bought 10 ceiling fans by paying RM3,500 and then sold each of them at RM555.56. Calculate the markup percent based on cost. (4 marks)
- b) The markdown percent of kitchen cabinet is 20%. If the new selling price is RM20,500, find the old selling price. (4 marks)

- c) NunHa Pharmacy bought 25 units of electric wheelchair for RM2500 each. The pharmacy wanted to sell the electric wheelchair by making a net profit of 20% based on the selling price. If the operating expenses were 15% based on cost, find
- i) the total selling price if the pharmacy managed to sell all units of electric wheelchair. (6 marks)
 - ii) the maximum percent of markdown that can be offered without incurring any loss. (6 marks)

QUESTION 5

- a) The cash price of a refrigerator is RM3,000. Nellisa paid 10% down payment and equal monthly payments for 2 years. She was charged an interest of 3.8% per annum based on reducing balance. Find the total interest charged. (4 marks)
- b) A dining table is selling for RM3,800 cash. Hariz purchased a dining table by making a down payment of RM400 followed by 18 monthly installments. If the interest charged is 6% based on original balance, find
- i) the total interest incurred by Hariz. (2 marks)
 - ii) the monthly payment of the dining table. (2 marks)
 - iii) the instalment price of the dining table. (2 marks)
- c) Rizqi Technology bought a machine at RM48,000. The machine is estimated to last for 3 years and has a salvage value of RM9,000. Using the straight line method, prepare a depreciation schedule. (5 marks)
- d) The cost of a multi-purpose vehicle is RM150,000 and its useful life is 9 years. Its scrap value is RM20,000. Calculate the book value at the end of the 3 years using the declining balance method. (5 marks)

END OF QUESTION PAPER

APPENDIX
LIST OF FORMULA

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