



**UNIVERSITI TEKNOLOGI MARA
FINAL ASSESSMENT**

COURSE	:	BUSINESS MATHEMATICS
COURSE CODE	:	MAT112
EXAMINATION	:	JULY 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) On 21 March 2021, Ahmad deposited RM5,050 into a bank that offered 8.75% by using exact time and exact simple interest. On 23 July 2021, he decided to withdraw all his money from the account. How much did he withdraw?
(5 marks)
- b) Caroline's initial investment of RM15,565 in a mutual fund accumulates to RM34,398.65 after t years at 5.5% interest per annum. Determine the term of the investment.
(3 marks)
- c) Ani held a promissory note dated 10 July 2022 with interest at 5% per annum from Shafiq. She then sold the note to Bank of ICE 60 days before maturity date at a discount rate of 6% and received RM2,970 from the bank.
- i) Determine the maker of the note.
(1 mark)
- ii) Find the maturity value and bank discount amount.
(5 marks)
- iii) Determine the term of the note if Ani kept the note for 20 days.
(2 marks)
- iv) Find the face value of the note.
(2 marks)
- v) Calculate the amount of interest earned by Ani.
(2 marks)

QUESTION 2

- a) Nadia invested RM4,273.89 in a saving account that offers $k\%$ interest compounded every two months. After 11 years, the amount accumulated was RM9,872.50. Find the interest rate, k .
(6 marks)
- b) Dany deposited RM35,500 in an account that pays 4.5% compounded quarterly. Find the accumulated amount at the end of 9 years.
(4 marks)

- c) KP Jaya Enterprise received an invoice of RM7,500 dated 30 March 2022 for the purchase of 200 wallets. The transportation cost was RM150 and RM70 for the insurance. The trade discounts given were 15% and 10% and cash discount terms of 6/10, 4/20 and n/30. Find
- i) the last day to receive a 4% cash discount. (2 marks)
 - ii) the single discount equivalent rate to the trade discounts given. (3 marks)
 - iii) the amount to be paid if the payment was made on 9 April 2022. (5 marks)

QUESTION 3

- a) Suzana deposited RMX every month into an account that paid interest 5.5% compounded monthly. She wanted to have RM50,000 in 5 years time for her kitchen renovation. How much the equal monthly payment that she should make? (4 marks)
- b) Adlina Rose took a housing loan that charged 6.25% compounded monthly to buy a new bungalow. She paid the down payment of RM115,000 and needs to repay the loan in 25 years' time with monthly payment RM5,500. Determine the amount borrowed. (4 marks)
- c) Chempaka bought an apartment by making a down payment of RM33,500 and had to settled monthly payments of RM1,467.50 for 336 months. If the interest charged was 3.85% compounded monthly, find
- i) the cash price of the apartment. (6 marks)
 - ii) the outstanding balance if she decided to settle the loan immediately after 20 years. (6 marks)

QUESTION 4

- a) A boutique sold 10 batik dresses for RMY. The cost for a batik dress is RM275 and the markup was 30% based on cost. Find the total selling price, Y. (4 marks)

- b) The markdown percent of furniture is 20%. If the new selling price is RM2050, find the old selling price.
(4 marks)
- c) Exel Company bought 25 units of air purifier for RM2500 each. The company wanted to sell the air purifier 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 company managed to sell all units of air purifier.
(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 house is RM300,000. Humaira paid 10% down payment and equal monthly payments for 20 years. She was charged an interest of 3.8% per annum based on reducing balance. Find the total interest charged.
(4 marks)
- b) Jessi bought a high-end kitchen cabinet worth RM25,000 by paying a 10% down payment and the balance was settled through 36 monthly installments. If the interest charged was 3.5% per annum on the original balance, calculate
- i) the total interest incurred by Jessi.
(2 marks)
- ii) the monthly payment of the kitchen cabinet.
(2 marks)
- iii) the installment price of the kitchen cabinet.
(2 marks)
- c) Dalila bought a new Mitsubishi Xpander for RM95,000. The useful life of the car is nine years. If the salvage value of the car is RM58,000, find the book value of the car at the end of the sixth year using the declining balance method.
(5 marks)
- d) Afham bought a machine for his workshop two years ago. Currently, the value of the machine is RM8,000. The machine has a life expectancy of 4 years and a salvage value of RM4,500. Using the straight line method, calculate cost of the machine.
(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\ $