



**UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION**

COURSE	:	BUSINESS MATHEMATICS
COURSE CODE	:	MAT112
EXAMINATION	:	DECEMBER 2018
TIME	:	3 HOURS

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of two (2) parts :
PART A (8 Questions)
PART B (3 Questions)
2. Answer ALL questions in the Answer Booklet. Start each answer on a new page.
3. Students are allowed to bring calculator.
4. Do not bring any material into the examination room unless permission is given by the invigilator.
5. Please check to make sure that this examination pack consists of :
 - i) the Question Paper
 - ii) a one – page Appendix (List of Formula)
 - iii) an Answer Booklet – provided by the Faculty
6. 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

PART A**QUESTION 1**

On 27 June 2018, Arianna deposited RM3,000 in a savings account that offered a simple interest rate of 3.5% per annum. Find the amount in her account on 10 October 2018 using Banker's Rule.

(5 marks)

QUESTION 2

Thomas received a 120-day promissory note with a simple interest of 4% per annum. The maturity value of the note is RM1,560. Find the face value of the note.

(5 marks)

QUESTION 3

Marissa took a loan of RMY from Bank Perpaduan at an interest rate of 6.5% compounded every two months. After 8 years, the amount to be paid is RM8,386.65. Find Y.

(5 marks)

QUESTION 4

Hakimi deposits RM215 every month in an account that pays 6% interest compounded monthly. Find the amount in the account after 5 years 6 months.

(5 marks)

QUESTION 5

A refrigerator was bought for RM3,000 through an installment plan by making a down payment of RM500 and monthly payment for 2 years. The interest rate of 5% per annum is charged based on original balance. Calculate the monthly payment.

(5 marks)

QUESTION 6

Anita purchased goods with a net price of RM3,700 and the transportation charge was RM150. The invoice was dated 20 July 2018 with cash discount terms of 4/10, 2/27 and n/30. If the invoice is paid on 15 August 2018, determine the amount needed to be paid.

(5 marks)

QUESTION 7

A retailer sold 30 pairs of shoes for RM2,550. The shoes were sold with a markup of 25% on cost for each pair of shoes. Find the total cost of the shoes.

(5 marks)

QUESTION 8

Jojo Enterprise bought a furniture at RM38,000 which has an expected life of 16 years. If the salvage value is RM4,000, find the book value of the furniture after 6 years by using the declining balance method.

(5 marks)

PART B**QUESTION 1**

- a) An invoice dated 23 April 2017 was received by Anna Scarves for the purchase of 120 shawls at RM10 each. The owner was offered trade discounts of 10% and 8% and cash discount terms of 5/15, 3/20 and n/30. Find:
- i) the single discount equivalent to the trade discounts given. (3 marks)
 - ii) the last day to receive the 3% cash discount. (2 marks)
 - iii) the amount due if the owner pays the invoice on 10 May 2017. (4 marks)
- b) Elegant Watch Sdn. Bhd. bought 40 smartwatches for RM150 each. If the operating expenses estimated are 20% based on cost and the net profit is 10% based on selling price, calculate
- i) the total selling price if all smartwatches are sold. (6 marks)
 - ii) the maximum percentage of markdown that could be offered to customers so that there is no profit or loss. (5 marks)

QUESTION 2

- a) Haris received a 110-day promissory note on 16 June 2018 with a simple interest rate of 5% per annum. He discounted the note after 58 days at a discount rate of 3% and the proceeds received was RM10,000. Find the maturity value of the note. (6 marks)
- b) Three years ago, an amount of RM3,000 was deposited in a savings account that paid interest at 4.5% compounded quarterly. Today, another RM1,500 is deposited into the account. Find the accumulated amount at the end of eight years from the initial deposit. (8 marks)
- c) A factory purchased a machine at RM50,000. The useful life of the machine is 12 years with a scrap value of RM9,000. Find the book value after 6 years using the straight-line method. (6 marks)

QUESTION 3

- a) Mansor purchased a RM25,000 car on an installment payment. The purchase was settled by a down payment of RM5,000 and the balance was repaid with 30 monthly installments. If the interest charged is 4% per annum on the reducing balance, find:
- i) the total interest charged (4 marks)
 - ii) the monthly payment. (3 marks)
 - iii) the outstanding balance if Mansor decides to settle the loan immediately after the 20th payment by using the Rule of 78. (5 marks)
- b) Alyah bought a bedroom set for RM6,500 and paid RM500 as a down payment. The balance was to be paid by monthly payments for four years. The interest rate charged was 5.5% compounded monthly.
- i) Calculate the monthly payment. (4 marks)
 - ii) If Alyah fails to pay the first six monthly payments, find the amount she had to pay on the 7th payment to settle the outstanding arrears. (4 marks)

END OF QUESTION PAPER

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. $OPB = (R \times k) - I \left(\frac{k(k+1)}{n(n+1)} \right)$