



**UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION**

COURSE	:	BUSINESS MATHEMATICS
COURSE CODE	:	MAT112
EXAMINATION	:	MARCH 2017
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. Calculator can be used.
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**

Kevin invested RM4,000 in an investment scheme on 18th October 2016. The investment offered a simple interest rate of 5% per annum. By using approximate time and exact simple interest, find the total interest received on 20th December 2016.

(5 marks)

QUESTION 2

Zafri decides to borrow RM25,000 from a bank that charges 4.7% discount rate for 6 years to set up his business. Calculate the proceeds he receives from the bank.

(5 marks)

QUESTION 3

Three years ago, Johnson deposited RM6,700 into an account that paid an interest rate of 6% compounded quarterly. Calculate the interest earned.

(5 marks)

QUESTION 4

Shiela deposited RM1,000 every month into an account at 8% compounded monthly. Find the amount in the account at the end of 6 years.

(5 marks)

QUESTION 5

The cash price of a sofa set is RM3,500. The sofa set can be purchased through an installment plan by making 15 monthly payments. If the interest rate is 10% per annum on the reducing balance, find the total interest charged using the Constant Ratio formula.

(5 marks)

QUESTION 6

The net price of an item after trade discounts of X% and 8% is RM4,350. Find the value of X if the list price is RM4,943.

(5 marks)

QUESTION 7

FNC Furniture purchases 5 units of bedroom set at a total cost of RM22,500. If the total operating expenses for all units is RM750 and the seller sets a net profit of 25% based on the selling price, find the selling price for each bedroom set.

(5 marks)

QUESTION 8

A vehicle that costs RM70,000 has a life span of five years. If the salvage value is RM45,000, find the book value of this vehicle at the end of the third year using the straight line method.

(5 marks)

PART B**QUESTION 1**

- a) An invoice dated 19th November 2016 was received by Syahirah for the purchase of an item. The price after trade discounts of 12%, 9% and 6% including the transportation cost of RM500 is RM7,895. The cash discount term offered was 5/9, 2/15, n/30. Find:
- i) the list price of the item. (3 marks)
 - ii) the total amount paid if the payment was made on 4th December 2016. (5 marks)
- b) The cost price for 35 pairs of sports shoes was RM350 per pair. YG Sports Center planned to sell all the shoes for a gross profit of 25% based on cost and the operating expenses were 15% based on cost. Compute:
- i) the total selling price if YG Sports Center managed to sell all the shoes. (6 marks)
 - ii) the maximum percentage of markdown that can be offered so that YG Sports Center would not suffer any loss. (6 marks)

QUESTION 2

- a) A 90-day promissory note was discounted at a rate of 8.5% and the proceeds received was RM12,000. Compute the maturity value of the note using the Banker's Rule. (6 marks)
- b) RM27,000 was invested for 5 years. The interest rate offered was 6% compounded every 2 months for the first 2 years and 5% compounded monthly for the rest of the period. Find the future value of this investment. (8 marks)
- c) Carlo Bakery bought an oven at the cost of RM11,122.40. It is estimated to last for eight years and has a salvage value of RM4,000. Calculate the book value of the oven after four years using the declining balance method. (6 marks)

QUESTION 3

- a) Mr. Lim bought a computer by making a down payment of RM500 and the balance was settled by making 36 equal monthly payments. The interest charged was 4% based on the original balance. If the cash price of the computer was RM 6,000, find:
- i) the monthly payment. (5 marks)
 - ii) the installment price of the computer. (3 marks)
- b) Isaac borrowed RM25,000 for his college expenses and he agreed to settle the loan in 108 monthly payments at 5.5% compounded monthly.
- i) Calculate the monthly payment. (6 marks)
 - ii) If Isaac decided to pay off his loan immediately after making the 84th payment, calculate the amount to be settled. (6 marks)

END OF QUESTION PAPER

LIST OF FORMULA

1. $T_n = a + (n-1)d$	2. $S_n = \frac{n}{2}[2a + (n-1)d]$
3. $T_n = ar^{n-1}$	4. $S_n = \frac{a(r^n - 1)}{r - 1}$
5. $S = P(1+rt)$	6. Proceeds = $S(1-dt)$
7. $r = \frac{d}{1-dt}$	8. $d = \frac{r}{1+rt}$
9. $S = P(1+i)^n$	10. $S = R \left[\frac{(1+i)^n - 1}{i} \right]$
11. $A = R \left[\frac{1 - (1+i)^{-n}}{i} \right]$	12. $SP = C + M$
13. $GP = OE + NP$	14. $NP = LP(1-d_1)(1-d_2)\dots(1-d_n)$
15. $r = \frac{2mI}{B(n+1)}$	16. $r = 1 - \sqrt[n]{\frac{S}{C}}$
17. $BV_n = C(1-r)^n$	18. $OPB = (R \times k) - I \left[\frac{k(k+1)}{n(n+1)} \right]$