UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION

COURSE	:	**BUSINESS MATHEMATICS**
COURSE CODE	:	**MAT112**
EXAMINATION	:	**JUNE 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. 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

On 11 January 2016, Iqbal deposited RM5,000 in an account that offered r% simple interest per annum. If the interest earned on 16 April 2016 was RM45.38, find the value of r by using exact time and exact simple interest.

(5 marks)

QUESTION 2

Bellina borrowed RM7,500 from Bank Z for 2 years to pay off some bills and catch up on car payments. If the proceeds received were RM6,375, find the discount rate that was charged.

(5 marks)

QUESTION 3

RM23,500 was invested in a bank for 3 years 7 months. If the interest rate offered was 9.6% compounded every two months, find the accumulated amount at the end of the investment period.

(5 marks)

QUESTION 4

Joshua deposited RM200 every month into XYZ account for 5 years at 12% interest compounded monthly. Calculate the total amount at the end of 5 years.

(5 marks)

QUESTION 5

Elena purchased a bedroom set at RM3,700 cash by installment. She was charged an interest of 15% based on reducing balance. She has to pay a down payment of RM500 and equal weekly payments for 1.5 years. Find the amount of interest charged by using the Constant Ratio Formula.

(5 marks)

QUESTION 6

A washing machine is listed at RM2,069 with a discount of 25%. What additional discount must be offered to the customer to bring the net price to RM1,429.90?

(5 marks)

QUESTION 7

The markdown percent of a TV set is 15%. If the new retail price is RM1,700, find the old retail price.

(5 marks)

QUESTION 8

NS Company bought an excavator for RM72,000. The useful life of the excavator is 8 years. If the book value of the excavator at the end of 4 years is RM42,000, find its scrap value at the end of 8 years using the straight line method.

(5 marks)

PART B

QUESTION 1

a) An owner of a stationary shop received an invoice for the purchase of 100 pens at RM2 each and 150 rulers at RM1 each. The invoice was dated 8 July 2017. He was offered trade discounts of 12% and 9%, and cash discount terms of 15/10, 5/20 and n/30. The dealer paid the invoice on 20 July 2017. Find:

i) the single discount equivalent to the given trade discounts.

(3 marks)

ii) the amount of payment made on 20 July 2017.

(5 marks)

b) Rose Company bought an air conditioner for RM3,000. The company wanted to sell the air conditioner by making a gross profit of 45% based on selling price. If the operating expenses were 14% of the cost, find:

i) the selling price of the air conditioner.

(6 marks)

ii) the maximum percent of markdown that can be offered without incurring any loss.

(6 marks)

QUESTION 2

a) Mellisa received a 160-days promissory note and the note was discounted at a rate of 6%. The proceeds received were RM25,000. Compute the maturity value of the note by using the Banker's Rule.

(6 marks)

b) RM10,000 was invested by Sarah for 7 years. The interest rate offered was 6% compounded monthly. After 3 years, Sarah invested another RM5,000. Find the accumulated amount of her investment after 7 years.

(8 marks)

c) Rajoo bought a lorry at RM250,000. It is estimated to last for 10 years and with the scrap value of RM165,000. Find the book value of the lorry after 5 years by using the declining balance method.

(6 marks)

QUESTION 3

a) Suraya bought a machine with a cash price of RM8,000. She paid a 10% down payment and the balance was settled by making 36 monthly installments. If the interest rate charged was 6% per annum based on the original balance, find:

   i)   the installment price of the machine.

(5 marks)

   ii) the monthly payment.

(3 marks)

b) Johan bought a house for RM200,000. He paid a down payment of 20% and took a loan that charged 6.5% interest compounded monthly to finance the balance. The loan is to be repaid over 20 years by monthly installments.

   i)   Calculate the monthly payment.

(6 marks)

   ii) If Johan missed the first 5 monthly payments, how much should he pay on the 6th installment to keep his payments up-to-date?

(6 marks)

END OF QUESTION PAPER

LIST OF FORMULA

1. $S = P(1 + rt)$	2. 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. $NP = LP(1 - d_1)(1 - d_2) \ldots (1 - d_n)$
11. $r = \dfrac{2ml}{B(n + 1)}$	12. $r = 1 - \sqrt[n]{\dfrac{S}{C}}$
13. $BV_n = C(1 - r)^n$	14. $OPB = (R \times k) - I\left(\dfrac{k(k+1)}{n(n+1)}\right)$