UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION

COURSE	:	**BUSINESS MATHEMATICS**
COURSE CODE	:	**MAT112**
EXAMINATION	:	**JANUARY 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 1 (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 (40 MARKS)

QUESTION 1

A loan of RM300 will become RM333.75 after a certain period of time. If the loan is charged a simple interest rate of 7.5% per annum, find the number of days using Banker's Rule.

(5 marks)

QUESTION 2

A 90-days promissory notes dated 15 March 2017 with a maturity value of RM1,545 was charged a simple interest rate of 12% per annum. Find the face value.

(5 marks)

QUESTION 3

David deposited RM5,128.83 in a saving account at 8% compounded semiannually. After X years the amount is RM6,000. Find X.

(5 marks)

QUESTION 4

Qiang invests RM255 every month in an account that pays 6.75% interest compounded monthly. Find the amount in the account after 60 months.

(5 marks)

QUESTION 5

A newly married couple bought a stove by paying 30 monthly instalments of RM60. The cash price of the stove is RM1,230. However, the couple decides to settle the balance immediately after paying for 2 years. How much should the couple pay using the Rule of 78?

(5 marks)

QUESTION 6

The net price of a smart phone after trade discounts of 10% and 5% is RM1,999. Find the list price.

(5 marks)

QUESTION 7

A dining set was originally sold at RM5,450. During a sale, the retailer decided to mark down the price by 15%. Calculate the new selling price and the amount of mark down.

(5 marks)

QUESTION 8

A car costing RM98,000 depreciates at a rate of r%. Its scrap value at the end of 7 years is RM20,000. Using the reducing balance method, find r and the accumulated depreciation at the end of 6 years.

(5 marks)

PART B (60 MARKS)

QUESTION 1

a) An invoice dated 21 February 2016 for RM2,500 (including RM200 handling charges) was offered trade discounts of 15%, 7% and cash discount terms of 5/10, 2/20 and n/60. Find:

i) the net price after trade discount.

(3 marks)

ii) the amount paid on 3 March 2016.

(5 marks)

b) A retailer bought 15 electronic devices at a list price of RM19,500. He sold all the electronic devices at a net profit of 20% based on cost. If the operating expenses is 5% based on selling price, compute:

i) the selling price for each electronic device.

(6 marks)

ii) the maximum markdown percentage that could be offered so that there is no loss.

(6 marks)

QUESTION 2

a) On 20 March 2017, Fuad received a 120 days promissory note with a face value of RM6,000 at an interest rate of 12%. He then sold the note to a bank at a discount rate of 10% and received a proceed of RM6,188. Compute the maturity value and the discount term.

(6 marks)

b) Keisha had a fund of RM30,000 and plans to invest her money in two different schemes. She invested 60% of her money in Scheme A that pays 7% compounded semiannually. The balance was invested in Scheme B that pays k% compounded quarterly. After 8 years, the accumulated amount for the both of her investments was RM60,000. Find k.

(8 marks)

c) The book value for an asset at the end of the second year and the third year were RM16,000 and RM12,000 respectively. Using declining balance method, calculate the rate of depreciation.

(6 marks)

QUESTION 3

a) The cash price for a juicer is RM3,800. A buyer paid RM500 as a down payment followed by 18 monthly instalments. If the interest charged is 6% based on the reducing balance, find:

    i)   the total interest and the monthly payment.

(5 marks)

    ii) the instalment price.

(3 marks)

b) Suerina bought a land for RM250,000. She made a 10% down payment and financed the balance through a bank for 10 years. The interest rate charged was 12% compounded monthly.

    i)   Calculate the monthly payment and total interest charged.

(6 marks)

    ii) Immediately after paying for 7 years, Suerina wanted to settle the loan in full amount. How much was the amount paid?

(6 marks)

END OF QUESTION PAPER

LIST OF FORMULA

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