UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION

COURSE	:	**BUSINESS MATHEMATICS**
COURSE CODE	:	**MAT402**
EXAMINATION	:	**JANUARY 2018**
TIME	:	**3 HOURS**

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of ten (10) questions.

2. Answer ALL questions in the Answer Booklet. Start each answer on a new page.

3. Do not bring any material into the examination room unless permission is given by the invigilator.

4. Please check to make sure that this examination pack consists of :

   i)   the Question Paper
   ii)   a one-page Appendix 1 (Tax Rate Schedule For Personal Income)
   iii) a one-page Appendix 2 (List of Formulae)
   iv)   an Answer Booklet – provided by the Faculty

5. 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

The rabies cases for each day were reported to increase geometrically as follows:

$$2, 6, 18,\ldots$$

Find the total cases reported after 7 days?

(5 marks)

QUESTION 2

Lily makes a loan of RMX on 12th August 2017 at a simple interest rate of 5.5% per annum. After 120 days, the amount of the loan is matured at RM12,000. Find

a) the value of X.

(4 marks)

b) the maturity date of the note.

(3 marks)

QUESTION 3

a) A promissory note dated 20 February 2016 stated that:

"I promise to pay RM2,000 with interest at 6.5% per annum "

The note was due on 30 May 2016. Using Banker's Rule, find the maturity value of the note.

(5 marks)

b) Find the present value of RM500 due in 92 days at

i)   a simple interest rate of 7%.

(3 marks)

ii) a simple discount rate of 7%.

(3 marks)

QUESTION 4

Sally wants to invest RM12,500 in an account for 5 years. She has two options to consider:

Bank A offers an interest rate of 4.9% compounded quarterly.
Bank B offers an interest rate of 4.5% compounded every two months.

Calculate the maturity amount for each bank. Hence, determine which bank she should invest in.

(7 marks)

QUESTION 5

Lisa borrowed RM50,000 from a bank that charged 3.8% interest compounded monthly for 7 years. She repaid the loan by making equal monthly payment.

a) Find the monthly payment.

(6 marks)

b) Find the amount of interest charged.

(3 marks)

c) If Lisa decided to settle the loan after paying for six years, calculate the total amount she needs to pay.

(6 marks)

QUESTION 6

a) Norliana bought a water filter costing RM5,690 by making 30 monthly payments. Interest was charged at 12% per annum on the reducing balance.

    i) Calculate the total interest charged.

(4 marks)

    ii) Find the monthly payment.

(3 marks)

    iii) Find the outstanding balance just after the 11th payment using the Rule of 78.

(4 marks)

b) A mobile phone priced at RM2,500 was purchased through 12 monthly instalment plan with a down payment of RM500. The interest charged was 10.68% based on original balance. Find the instalment price for the mobile phone.

(5 marks)

QUESTION 7

UTK Trading purchased 13 units of branded laptops at total cost of RM52,000. The manager plans to sell each laptop by making 12% net profit based on cost, meanwhile the operating expenses incurred is amounted to 15% based on the selling price. Find

a) the selling price of each laptop.

(5 marks)

b) the total gross profit.

(2 marks)

c) the lowest selling price that could be offered for each laptop without incurring any loss.

(4 marks)

QUESTION 8

On 3 January 2017, Mida Enterprise received an invoice of RM35,800. The trade discounts given were 15%, 10% and the cash discount terms were 7/10, 5/20, n/30. The transportation cost was RM600.

a) Find the single trade discount equivalent to the trade discounts given.

(3 marks)

b) If Mida Enterprise paid the invoice on 22nd January 2017, calculate the amount paid.

(5 marks)

QUESTION 9

Jason Transport Company bought a truck for RM85,000. The truck is expected to last for six years and its salvage value at the end of the 6th years is RM43,000. Find the book value of the truck at the end of the 5th year using the

a) straight line method.

(4 marks)

b) declining balance method.

(4 marks)

QUESTION 10

Ahmad is a single father having two children. Ahmad's children are still schooling in the primary and secondary school. His income and expenditure for the assessment year 2016 were as follows:

	Amount (RM)
Total Income	67,500
EPF	4,425
LIP	2,500
SSPN	4,800
Storm Bowling Ball (sport equipment)	550
Cash Donation	500
Parents' Medical Expenses	1,000
Computer	4,250
Zakat	2,300

Assess Ahmad's tax payable for year 2016.

(12 marks)

END OF QUESTION PAPER

TAX RATE SCHEDULE FOR PERSONAL INCOME

	Taxable Income (RM)	Rate	Tax (RM)
On the first	2,500	0	0
On the next	2,500	0	0
On the first	5,000		0
On the next	5,000	2	100
On the first	10,000		100
On the next	10,000	2	200
On the first	20,000		300
On the next	15,000	6	900
On the first	35,000		1,200
On the next	15,000	11	1,650
On the first	50,000		2,850
On the next	20,000	19	3,800
On the first	70,000		6,650
On the next	30,000	24	7,200
On the first	100,000		13,850
On the next	Every RM after	26	--------

LIST OF FORMULAE

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