UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION

COURSE	:	BUSINESS MATHEMATICS
COURSE CODE	:	MAT402
EXAMINATION	:	JULY 2017
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 4 printed pages

QUESTION 1

Lucy bought a sewing machine and settled the price by making a series of monthly payments for twelve months; RM88, RM85, RM82 and so on. What is the total payment for the sewing machine?

(5 marks)

QUESTION 2

Harraz had saved an amount of money in an account that offered 2.5% simple interest per annum. If the interest earned after three years was RM553.80, what is the accumulated amount if he leaves the money in the account for another 7 years?

(7 marks)

QUESTION 3

a) Natasya received a promissory note of RM9,400 with a simple interest rate of 4.3% per annum. She received the note on 26 February 2016 and the note will be matured in 90 days.

i)   Find the maturity date of the note.

ii) Calculate the maturity value of the note.

(7 marks)

b) Mr Ramesh wants to take a loan of RM4,073.33 from a bank which offer a discount rate of 7.1%. If the date of repayment is 9 June 2017 and the amount of discount is RM48.34, find the date of the loan.

(5 marks)

QUESTION 4

Two years ago, an amount of Y was deposited in a savings account that paid interest at 4.8% compounded monthly. Today, another RM3,000 is deposited into the same account. If the accumulated amount in the account three years from now is RM10,128.53, find the value of Y.

(7 marks)

QUESTION 5

Danial buys a new car that costs RM85,000 and pays a down payment of RM10,000. The balance of the car is settled through a loan from a bank which charges interest of 3.5% compounded monthly. The repayment of the loan is made through monthly payment for nine years.

a) Find the monthly payment.

(6 marks)

b) Find the total interest charged for the loan.

(3 marks)

c) Find the amount of down payment Danial should pay if he intends to pay RM500 for monthly payment.

(6 marks)

QUESTION 6

Syukri wishes to buy a motorcycle for RM24,300 through instalment purchase. Two schemes are available as shown below:

	Scheme A	Scheme B
Down payment	RM X	RM3000
Interest rate	8% on the original balance	9% on the reducing balance
Instalment payment	RM573.21 monthly	RM Y monthly
Duration of instalment	48 months	48 months

a) Find the values of X and Y.

(11 marks)

b) Calculate the outstanding balance just after paying the 36th payment using the Rule of 78 for scheme B.

(4 marks)

QUESTION 7

A health care shop purchased 10 bottles of nutritional supplements that cost RM1,000 each. The operating expenses were 5% based on cost. The shop made a gross profit of 30% based on the selling price.

a) Find the selling price and breakeven price for each bottle of the nutritional supplements.

(7 marks)

b) After selling 8 bottles at the above selling price, the expired bottles are removed from the shelves. Calculate the profit for the supplements sold.

(4 marks)

QUESTION 8

The amount shown in an invoice dated 28 January 2017 was RM890 inclusive of insurance charges of RM89. The invoice offered 6%, 4% trade discounts and cash discount terms of 3/15, n/30. The invoice was settled on 11 February 2017.

a) Find the net price.

(3 marks)

b) Find the total payment made on the settlement date.

(5 marks)

QUESTION 9

The cost of a machine is RM70,000 and it has a scrap value of RM15,000 at the end of 10 years. Using reducing balance method,

a) find the book value of the machine at the end of three years.

(4 marks)

b) how long does it take for the machine to have a book value of RM27770.97.

(4 marks)

QUESTION 10

Mr and Mrs Thomas have three children aged between 8 and 22 years old. The youngest child was studying in a primary school, the middle child was studying full time at pre-university level, while the eldest was studying at a local university. In year 2015, the incomes of Mr and Mrs Thomas were RM60,000 and RM18,000 respectively. Their expenses (RM) for the year were as follows.

	Mr Thomas	Mrs Thomas
EPF	6600	1980
Life Insurance premium	5000	3000
Health Insurance	2500	1000
Sport equipment	850	-
Parents Medical Bills	-	4000
Books	1000	500
Zakat	1400	950

Assess their tax payable for year 2015 if they chose joint assessment.

(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		1200
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 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. $Proceeds = S(1 - dt)$
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. $NP = LP(1 - d_1)(1 - d_2).....(1 - d_n)$	16. $r = \dfrac{2mI}{B(n + 1)}$
17. $r = 1 - \sqrt[n]{\dfrac{S}{C}}$	18. $BV_n = C(1 - r)^n$
19. $OPB = (R \times k) - I\left(\dfrac{k(k+1)}{n(n+1)}\right)$	