UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION

COURSE	:	**BUSINESS MATHEMATICS**
COURSE CODE	:	**MAT402**
EXAMINATION	:	**JUNE 2016**
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 price of a share today is RM4. It is estimated to increase 2% every month in the coming year. Find the share price after 9 months.

(5 marks)

QUESTION 2

On 19 February 2015, Afina saved RM8,500 in a saving scheme which offered a simple interest rate of 12% per annum. At the end of the term, the balance of her account amounted to RM8,789. Using the Banker's Rule, find

a) the term of the saving scheme.

(3 marks)

b) the maturity date.

(4 marks)

QUESTION 3

a) A promissory note dated 4 April 2016 with face value RM20,000 will mature on 2 August 2016. If the interest rate is 5.5% per annum, find the maturity value of the note.

(7 marks)

b) Damia borrows RM5,000 for six months from Bank Q that charges a discount rate of 9%. Calculate the proceeds.

(4 marks)

QUESTION 4

An amount of money was invested 6 years ago at an interest rate of 4% compounded quarterly. Now, the investment is worth RM1,904.60 Find

a) the invested amount.

(5 marks)

b) the interest earned.

(3 marks)

QUESTION 5

a) RMZ is deposited every month for 3 years into an account with interest paid at 3% compounded monthly. If the amount in the account has accumulated to RM19,021.55, find the value of Z.

(5 marks)

b) Emma takes a loan that charged interest at 6% compounded monthly. She repays the loan in 7 years with monthly payment of RM758.

   i) Calculate the amount of the loan.

(4 marks)

   ii) If she missed the 25th and 26th payments, how much is the outstanding balance at the end of the 27th month?

(5 marks)

QUESTION 6

a) Joseph bought an acoustic drum set through an instalment plan with a down payment of RM500. He had to make 104 weekly payments of RM20 each to settle the instalment. The interest charged was 9.2% per annum on the original balance. Assuming that there are 52 weeks in a year, calculate the cash price of the acoustic drum.

(8 marks)

b) The cash price of a machine is RM 58,500. Under an instalment plan, no down payment is required. If the interest charged is 6% on the reducing balance for 5 years, calculate the monthly instalment payment using the Constant Ratio method.

(8 marks)

QUESTION 7

An invoice of RM35,000 including shipping cost of RM1,500 is offered a trade discount of 25% and cash discount terms of 8/10, 4/20, n/30. If the invoice was dated 31 December 2014, and the payment was settled 2 weeks later, find

a) the amount of trade discount.

(3 marks)

b) the total payment.

(5 marks)

QUESTION 8

The regular retail price of oven sold at an electrical store is RM600 each after a markup of 20% based on selling price.

a) Find the cost of each oven.

(4 marks)

b) The store sold 8 units of ovens at regular retail price and plans to sell the remaining 7 units at 15% discount.

   i) Calculate the new retail price for each oven.

(2 marks)

   ii) Find the total net profit if all the ovens are sold and the total operating expenses incurred are 5% based on cost.

(5 marks)

QUESTION 9

Wisely Publisher bought a printing machine at RM12,000. The useful life of the machine is 5 years and its scrap value is RM2,000. Using the reducing balance method, calculate

a) the book value at the end of the forth year.

(5 marks)

b) the accumulated depreciation at the end of the forth year.

(3 marks)

QUESTION 10

Mr Nordin and Madam Maimon have 2 children. The youngest child is studying in secondary school whereas the eldest child is studying in a local university. The table below shows their incomes (RM) and expenditures (RM) in year 2015.

	Mr Nordin	Madam Maimon
Annual Income	90,000	42,000
EPF Contributions	9,900	4,620
Life Insurance Premium	6,000	1,200
Medical Insurance Premium	-	2,400
Cash Donations to Approved Charitable Bodies	1,500	-
Parents' Medical Expenses	4,000	1,000
Books and Journals	1,200	-
SSPN	2,400	-
Zakat	400	100

Assess Mr. Nordin's tax payable if they choose separate assessment. Assume reliefs for both children are claimed by Mr. Nordin.

(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. $\text{Proceeds} = S(1 - dt)$
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. $OPB = (R \times k) - I\left(\dfrac{k(k+1)}{n(n+1)}\right)$	