UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION

COURSE	:	**BUSINESS MATHEMATICS**
COURSE CODE	:	**MAT402**
EXAMINATION	:	**DECEMBER 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 two–page Appendix
   iii) 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

Given the 5th term of a geometric sequence is 3,240 with a common ratio of 3. Find the sum of the first 10 terms.

(5 marks)

QUESTION 2

Iman had saved RM10,000 in an account that offered r % simple interest per annum on 24 March 2017. If the interest on 19 August 2017 is RM75, find the maturity value after 10 years using the Banker's Rule.

(7 marks)

QUESTION 3

a) A 120-day promissory note will mature on 28 May 2016 with a simple interest rate of 8.5% per annum. If the maturity value is RM5,141.67, find the

i) date of the note issued.

ii) face value of the note.

(8 marks)

b) John needs RM3,500 now. Find the amount that he should borrow for 180 days from a bank that charges 6% discount rate.

(4 marks)

QUESTION 4

RMX was deposited in a saving account at an interest rate of 5% compounded monthly for 5 years. After 3 years, RM3,000 was withdrawn from the account. If the balance at the end of the investment was RM7,093.85, find the value of X.

(7 marks)

QUESTION 5

The price of a car is RM48,950. Yulie bought the car by making equal monthly payment for 7 years at an interest rate of 3.2% compounded monthly.

a) Find the monthly payment.

(6 marks)

b) If Yulie missed the first 4 monthly payments, how much should she pay on the 5th payment to settle all the outstanding arrears?

(4 marks)

c) After paying for 43 months, Yulie decided to settle all the outstanding balance with a single payment. Find the single payment.

(5 marks)

QUESTION 6

a) A laptop was bought through an instalment plan with a down payment of RM650. She had to make 18 monthly payments of RM120 each to settle the outstanding balance. The interest charged was 8% per annum on the original balance. Calculate the cash price of the laptop.

(8 marks)

b) The cash price of a motorcycle is RM25,500. An interest rate of 6.5% on the reducing balance is charged for 3 years under an instalment plan. Calculate the monthly payment using the Constant Ratio Formula.

(7 marks)

QUESTION 7

A total of 30 shirts was bought by a retailer for RM5,550. The total operating expenses incurred in selling the shirts was 40% of the cost. The retailer made a net profit of 18% based on the cost.

a) Find the selling price for each shirt.

(4 marks)

b) The retailer only managed to sell 25 shirts and the remaining 5 shirts were sold at 15% discount. Calculate the total net profit earned.

(7 marks)

QUESTION 8

An invoice dated 26 October 2016 amounted to RM9,250 was offered trade discounts of 7%, 2% and cash discount terms of 3/15, 2/30, n/60.

a) Find the net price.

(3 marks)

b) Find the amount paid on 17 November 2016.

(5 marks)

QUESTION 9

A machine costs RM11,776 has a useful life of 7 years. The book value of the machine at the end of 3 years is RM9,780.96. Using the reducing balance method, find

a) the rate of depreciation.

(5 marks)

b) the salvage value.

(3 marks)

QUESTION 10

Mr. Ramli and his wife have 4 children. The eldest child is studying full time at a local university while the second child is in pre-university program. The rest are in secondary school. Their incomes and expenditures (RM) in 2016 are as follows:

	Mr Ramli	Wife
Annual Income	60,000	40,000
EPF	4,730	3,894
Life Insurance Premium	3,250	3,000
Books	800	700
Health Insurance	2,500	1,000
Parents Medical Bills	4,500	-
Zakat	1,800	700

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