



**UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION**

COURSE	:	BUSINESS MATHEMATICS
COURSE CODE	:	MAT402
EXAMINATION	:	JUNE 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 4 printed pages

QUESTION 1

The current price of an item is RM600. The price of the item increases by 8% each month. What will be the price of the item after 20 months.

(5 marks)

QUESTION 2

Micheal invested RM14,500 at 13.25% per annum simple interest on 23 July 2017. Find the interest earned on 28 December 2017 using the Banker's rule.

(7 marks)

QUESTION 3

- a) The proceeds and the discount rate offered for a short term loan of RM5,000 are RM4,880 and 9%, respectively. Find
- i) the term of the loan (in days). (4 marks)
 - ii) the simple interest rate that is equivalent to the discount rate. (2 marks)
- b) A promissory note with a face value of RM3,750 was signed on 12 March 2017. The maturity date was 29 June 2017 and the simple interest charged was 8%. Calculate
- i) the term of the note (in days). (2 marks)
 - ii) the maturity value of the note. (3 marks)

QUESTION 4

Veronica's father invested RM5,000 in Veronica's account when she was 6 years old. The account offered interest at 5% compounded monthly. Determine Veronica's age when her account accumulated to RM11,677.60.

(7 marks)

QUESTION 5

Zainal took a loan from AZ Finance Company at 4% compounded monthly. He has to pay RM1,000 every month for 15 years to settle the loan. Find the

- a) amount of loan taken by Zainal. (6 marks)
- b) total interest charged. (3 marks)
- c) If Zainal failed to pay the 60th until the 63rd payment, how much he should pay on the 64th payment to settle the outstanding arrears? (6 marks)

QUESTION 6

Syazwani wants to buy an antique table through an installment plan for 2 years. She has two options to consider.

	Option A	Option B
Cash price	RM8,000	RM8,000
Down payment	25%	RM1,500
Interest rate	11% based on original balance	15% based on reducing balance
Mode of payment	monthly	monthly

- a) For each option, calculate
- i) the total interest charged. (8 marks)
- ii) the monthly payment. (4 marks)
- b) Compute the outstanding balance for option A if she wants to settle all the payments immediately after making the 16th payment using the Rule of 78. (4 marks)

QUESTION 7

Intan Jewellery bought 10 necklaces that cost RM57,250. The necklaces were sold with operating expenses and net profit of 20% and 8% based on the cost, respectively. Calculate the

- a) total gross profit made. (4 marks)
- b) selling price of each necklace. (2 marks)

- c) net profit if the company managed to sell 6 necklaces at the above selling price and sold the remaining at 30% markdown.

(5 marks)

QUESTION 8

La Zatt Bakery received an invoice dated 27 June 2016 for RM3,500 (including handling charges of RM135). The trade discount given was 12% and the cash discount terms were 9/12, 5/20, n/30. Compute the

- a) last payment date to receive the 9% cash discount.

(3 marks)

- b) amount of payment made on 13 July 2016.

(5 marks)

QUESTION 9

A car which costs RM50,500 has a useful life of 10 years and a scrap value of RM10,000. Find book value of the car at the end of the 7th year using the

- a) straight line method.

(4 marks)

- b) declining balance method.

(4 marks)

QUESTION 10

Encik Fahmi and his wife Puan Fatimah have 5 children. The eldest child is studying at a local university, the second child is studying in pre-university program and the other three are still schooling. Their income and expenditure (RM) for the year 2016 are as follows:

	Encik Fahmi	Puan Fatimah
Income	60,000	38,400
EPF	4,300	3,500
Life Insurance Premium	2,400	1,200
Cash Donations	500	-
Parent Medical Expenses	2,000	-
Books and Journals	1,300	-
Computer	2,500	2,200
Zakat	1,500	1,200

Assess their amount of income tax if they choose a 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. $NP = LP(1 - d_1)(1 - d_2) \dots (1 - d_n)$	16. $r = \frac{2ml}{B(n + 1)}$
17. $r = 1 - \sqrt[n]{\frac{S}{C}}$	18. $BV_n = C(1 - r)^n$
19. $OPB = (R \times k) - \left(\frac{k(k + 1)}{n(n + 1)} \right)$	