



**UNIVERSITI TEKNOLOGI MARA
FINAL EXAMINATION**

COURSE	:	BUSINESS MATHEMATICS
COURSE CODE	:	MAT402
EXAMINATION	:	JUNE 2014
TIME	:	3 HOURS

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of five (5) 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

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

This examination paper consists of 5 printed pages

QUESTION 1

- a) Ah Meng deposited RM5,500 four years ago in an account that gave 5.5% simple interest per annum. Find
- the total interest earned today
 - the accumulated amount today.
- (4 marks)
- b) Maniam borrowed RM50,000 at 9.20% simple interest per annum on 15 October 2013. If he was charged RM1,725 simple interest, find the date he settled the loan.
- (5 marks)
- c) Suzy received a 120-day note with a simple interest rate of 11.5% per year. The face value of the note was RM15,000 and the maturity date was on 23 March 2014. Find
- the date of the note
 - the maturity value.
- (6 marks)
- d) Mariam borrowed RM3,000 for 6 months at the discount rate of 6% from a bank. Find the bank discount and the proceeds she received.
- (5 marks)

QUESTION 2

- a) Azliah invested RM50,000 in a fund at 5% compounded quarterly. After t years, the value of the investment is RM74,406.53. Determine the value of t .
- (5 marks)
- b) Zalina bought a house for RM480,850 and she paid 10% down payment. The balance was to be paid in equal monthly installments for 23 years. The first installment was due one month after the date of the purchase and the interest rate was 3.15% compounded monthly.
- Calculate the monthly payment.
 - If Zalina failed to make the first 6 monthly payments, how much should she pay on the 7th payment to settle all the outstanding arrears?
- (7 marks)

- c) Sally makes regular monthly deposits of RM250 at the end of every month in an account that pays interest at the rate of 4% compounded monthly. The first deposit was made when she was 25 years old and the last deposit is when she is 60 years old.
- i) Determine the accumulated value in her account when she reaches the age of 60.
 - ii) Immediately after her last deposit, Sally plans to withdraw 40% of the accumulated value from the account. Then, monthly amount of RMX will be withdrawn from the balance for 10 years. Find X.
- (8 marks)

QUESTION 3

- a) A two-hectare land is advertised at RM75,000 cash or 20% down payment and 30 equal monthly payments. If the interest charged is 4% on the original balance, calculate the monthly payment.
- (5 marks)
- b) The cash price of a television set is RM6,200. Farah bought the television by paying 10% down payment and equal monthly payments for 15 months. If the interest charged is 7% based on the reducing balance, calculate the
- i) monthly payment
 - ii) installment price
 - iii) outstanding balance just after the 8th payment, using the rule of 78.
- (10 marks)
- c) The price of a house is expected to increase by 5% every year. If a house is now offered at RM165,000, find the estimated price of the house after 20 years.
- (5 marks)

QUESTION 4

- a) The list price of a smart phone is RM2,800. A chain discount of 17%, 15% and X % was given and the total discount is RM1022.14. Find X and a single discount rate that is equivalent to the chain discount.

(5 marks)

- b) A stationary shop received an invoice for RM12,000, dated 15 February 2014, with cash terms of 5/10, n/30. If the company settled the invoice on 25 February 2014, find the amount paid for the invoice.

(4 marks)

- c) A cosmetic dealer purchased 10 sets of cosmetics at the price of RM450 per set. The estimated operating expenses are 15% based on cost and the net profit is 30% based on cost. The dealer managed to sell 6 sets and the remaining sets were sold at 25% markdown. Find the

- i) original selling price for the first six sets
- ii) new selling price of each remaining set
- iii) break even price
- iv) total net profit.

(11 marks)

QUESTION 5

- a) A factory purchased a machine for RM32,400. The machine has an expected life of 12 years. If the scrap value is RM4,500, find the book value after 7 years using the
- straight-line method
 - declining balance method.

(8 marks)

- b) The table below shows the annual income (RM) and expenses (RM) for Encik Rahim and his wife for the year 2013. They have five children aged between 5 and 20 years old. The eldest son is studying at a local university.

Particular	Encik Rahim	Wife
Annual Income	68,750	75,800
EPF	6,875	7,580
Life Insurance Premium	3,750	5,660
Parents Medical Bills	6,150	3,750
Zakat	3,250	4,075
Donation	1,000	550
Computer	2,250	1,870

Calculate their tax liability for the assessment year 2013 if they choose separate assessment.

(12 marks)

END OF QUESTION PAPER

TAX RATE SCHEDULE FOR PERSONAL INCOME

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

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. $S_n = a\left(\frac{r^n - 1}{r - 1}\right), r > 1$
5. $S = P(1+rt)$	6. $\text{Proceeds} = S(1-dt)$
7. $r = \frac{d}{1-dt}$	8. $d = \frac{r}{1+rt}$
9. $S = P(1+i)^n$	10. $r = (1+i)^m - 1$
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. $M = GP = OE + NP$
15. $NP = LP(1-d_1)(1-d_2)\dots(1-d_n)$	16. $r = \frac{2mI}{B(n+1)}$
17. $r = 1 - \sqrt[n]{\frac{s}{c}}$	18. $BV_n = C(1-r)^n$
19. $OPB = (R \times k) - I\left(\frac{k(k+1)}{n(n+1)}\right)$	