UNIVERSITI TEKNOLOGI MARA
FINAL ASSESSMENT

COURSE	**:**	**BUSINESS MATHEMATICS**
COURSE CODE	**:**	**MAT402**
EXAMINATION	**:**	**FEBRUARY 2022**
TIME	**:**	**3 HOURS**

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of ten (10) questions.

2. Answer ALL questions. 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)

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

A high-rise building provides shop-lots to be rented. Rent is cheaper on the upper floors of shop space. The ground, first, and second floors rent for RM4,925 , RM4,625 , and RM4,325 per month, respectively. How much is the rent on the eleventh floor?

(5 marks)

QUESTION 2

Mary invested in an investment fund that offered a simple interest rate of 6% per annum. After 5 months, the investment was worth RM8,200. Find the principal amount of the investment.

(5 marks)

QUESTION 3

a) Sara needs RM45,500 now. Find the amount that she should borrow from a bank if a bank discount of 2.5% is charged for 2 months' repayment.

(5 marks)

b) A promissory note of RM15,800 was issued on 15 January 2021 with a simple interest rate of 6% per annum. The note matured on 20 March 2021. Find the maturity value of the note.

(6 marks)

QUESTION 4

An amount of RM5,000 was deposited 4 years ago in a savings account that paid interest at 5% compounded every 2 months. Today, another RM2,500 is deposited into the account. Find the accumulated amount at the end of 7 years from the initial deposit.

(8 marks)

QUESTION 5

A bank received equal monthly payments for giving a loan of RM80,000 to its customer. The term of the loan is 10 years and the interest rate charged is 7.65% compounded monthly. Every month, the bank immediately deposits the same amount of monthly payments received from the loan into an account that pays 7% compounded monthly. Find the total interest earned at the end of 10 years of deposits.

(10 marks)

QUESTION 6

a) Shahmi bought a washing machine with a cash price of RM4,500. He paid a 5% down payment and the balance was settled by making 24 monthly installments. If the interest rate charged was 3% per annum based on the original balance, find the monthly payment and the installment price.

(8 marks)

b) Malik purchased a used car with a cost of RM25,000 under an installment plan. The purchase was settled in 4 years with equal monthly installments and the interest charged is 3.5% per annum based on the reducing balance. Find the outstanding balance if Malik decides to settle the loan immediately after the 18^{th} payment by using the Rule of 78.

(8 marks)

QUESTION 7

a) The trade discounts of 15% and 8% and the cash discount terms of 3/15, 2/20, n/30 were given on an invoice dated 15 July 2021. If the total amount paid on 4 August 2021 is RM7,450, find the list price of the items.

(5 marks)

b) A retailer bought wood stoves at a listed price of RM850 per unit with trade discounts of 25% and 5%. Calculate the amount of trade discounts received.

(5 marks)

QUESTION 8

a) A retailer bought 60 units of books at RM50 each and sold all at a mark up of 30% based on cost. The operating expenses were 10% based on cost. Calculate the selling price for each book and the total net profit obtained.

(7 marks)

b) The cost of a pack of chocolates was RM90. SS Mart wanted to sell 30 packs for a gross profit of 40% based on the selling price. However, only 7 packs were sold. The remaining of chocolates were sold after 25% marked down. Find the total sales of selling 30 packs of chocolates.

(8 marks)

QUESTION 9

a) The cost of a machine is RM65,000. If the book value of the machine at the end of the 2^{nd} year is RM41,600, calculate the rate of depreciation using the reducing balance method.

(5 marks)

b) AMD Company bought an excavator for RM72,000. The useful life of the excavator is 8 years. If the book value of the excavator at the end of 4 years is RM42,000, find its scrap value using the straight line method.

(5 marks)

QUESTION 10

Encik Imran and his wife with 3 children had a combined annual income of RM110,000 in 2020. The eldest child is studying at the local university and the other two are at secondary school. Their expenditures (in RM) for the year are as follows.

	Imran	Wife
EPF Contributions	6,500	3,700
Life Insurance Premium	2,200	1,800
Parents Medical Bill	3,500	1,200
Cash Donations	500	-
Books and Magazines	1,000	-
Sports equipment	200	-
Zakat	1,200	600

Assess their tax payable for the assessment year 2020 if they choose joint assessment.

(10 marks)

END OF QUESTION PAPER

APPENDIX 1

TAX RATE SCHEDULE FOR PERSONAL INCOME

	Taxable Income (RM)	Rate	Tax (RM)
On the first	5,000	0	0
On the first On the next	5,000 15,000	1	0 150
On the first On the next	20,000 15,000	3	150 450
On the first On the next	35,000 15,000	8	600 1,200
On the first On the next	50,000 20,000	14	1,800 2,800
On the first On the next	70,000 30,000	21	4,600 6,300
On the first On the next	100,000 150,000	24	10,900 36,000
On the first On the next	250,000 150,000	24.5	46,900 36,750
On the first On the next	400,000 200,000	25	83,650 50,000
On the first On the next	600,000 400,000	26	133,650 104,000
On the first On the next	1,000,000 1,000,000	28	237,650 280,000
On the first On the next	2,000,000 Every RM after	30	517,650 --------

APPENDIX 2

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.	$\text{Proceeds} = S(1 - dt)$
7.	$r = \frac{d}{1 - dt}$	8.	$d = \frac{r}{1 + rt}$
9.	$S = P(1 + i)^n$	10.	$r_e = (1 + i)^m - 1$
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.	$OPB = (R \times k) - I\left(\frac{k(k + 1)}{n(n + 1)}\right)$		