



**KOLEJ YAYASAN PELAJARAN JOHOR
ONLINE FINAL EXAMINATION**

COURSE NAME : BUSINESS MATHEMATICS
COURSE CODE : MAT1013
EXAMINATION : DECEMBER 2021
DURATION : 3 HOURS

INSTRUCTION TO CANDIDATES

1. This examination paper consists of **TWO (2)** parts: PART A (30 Marks)
PART B (20 Marks)
2. Please refer to the detailed instructions in this question paper.
3. Answer ALL questions in the answer sheet which is A4 size paper (or other paper with the consent of the relevant lecturer).
4. Write your details as follows in the upper left corner for each answer sheet:
 - i. Student Full Name
 - ii. Identification Card (I/C) No.
 - iii. Class Section
 - iv. Course Code
 - v. Course Name
 - vi. Lecturer Name
5. Each answer sheet must have a page number written at the bottom right corner.
6. Answers should be **neat and clear in handwritten form**.

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

*This examination paper consists of **7** printed pages including front page*

PART A

This part contains of **TEN (10)** question.

Answer ALL questions in Answer Booklet.

QUESTION 1

Given a sequence: 176, 172, 168, ..., 20. Find the number of terms in the sequence.

(3 marks)

QUESTION 2

A loan of RMY is made on 20th April 2020 at a simple interest rate of 6% per annum. The accumulated amount on 23rd December 2020 is RM3,000. Using the exact time and exact simple interest, find the value of Y.

(3 marks)

QUESTION 3

Debby wants to borrow RM3,500 for 6 months from Bank XYZ that charges a 6% discount rate. Find the discount amount and the proceeds she receives.

(3 marks)

QUESTION 4

Alma invested a certain sum of money on 1st October 2015 in an account that pays 5% compounded every two months. The account will amount to RM5,000 in 1st December 2021. Calculate the original principal that was invested.

(3 marks)

QUESTION 5

Chan deposited RM200 every year into ASB account for 5 years at 4.7% compounded annually. Calculate the total interest earned at the end of 5 years.

(3 marks)

QUESTION 6

Dambi bought a second-hand car through an instalment plan in which she paid RM6,000 as a down payment. She made 60 monthly payments of RM480 each to settle the unpaid balance. If the bank charged her an interest of RM4,500, find the cash price of the car.

(3 marks)

QUESTION 7

The net price of a bracelet after chain discounts of 8% and $x\%$ is RM3,473. Find the value of x if the total discount is RM817.

(3 marks)

QUESTION 8

The markdown percent of a pair of pants is 30%. If the new retail price is RM250, find the old retail price and how much is the markdown price?

(3 marks)

QUESTION 9

A company bought a machine which costs RM36,000 and has a useful life of 10 years. At the end of its useful life, the machine is estimated to have a salvage value of RM18,000. Calculate the book value of the machine after six years using the straight line method.

(3 marks)

QUESTION 10

It is estimated that the total cost of constructing a condominium x floors high is $C(x) = x^2 + 500x + 600$ (RM'000). If $x=20$, find the average cost per floor.

(3 marks)

[30 MARKS]

PART B

This part contains of **FOUR (4)** questions.

Answer ALL questions in Answer Booklet.

QUESTION 1

Soraya bought a water filter unit with a cash price of RM6,900. It can be purchased through an instalment plan. The customer has to pay 10% down payment and the balance was settled on a monthly basis for 7 years. The dealer charges an interest of 10% per annum based on original balance. Hence, find the outstanding balance she needed to pay if she decided to settle the payment after 80th payment.

(5 marks)

QUESTION 2

An owner of an electrical shop received an invoice for the purchase of 100 plugs at RM2 each and 150 bulbs at RM1 each. The invoice was dated 8th July 2021. He was offered trade discounts of 12% and 9%, and cash discount terms of 8/10, 5/20 and n/30. The dealer paid the invoice on 20th July 2021. Find the amount of payment made on 20th July 2021.

(5 marks)

QUESTION 3

Ammara Boutique bought 50 meters of silk fabric for RM3,000. They wanted to sell the fabric by making a gross profit of 45% based on the selling price. If the operating expenses were 14% of the cost, find for every one meter the selling price and total net profit or loss if the new retail price was RM100.

(5 marks)

QUESTION 4

Anuar wants to sell his car that has been used for 5 years. The car was bought for RM165,000. The scrap value after 20 years is estimated to be RM30,000. Two secondhand car dealers A and B offered to buy his car. Dealer A used reducing balance method while Dealer B used the sum of years digit method to calculate the depreciation. Find the book value at the end of 5th year for both dealers. Hence, state which car dealer offering the better deal?

(5 marks)

[20 MARKS]**END OF QUESTION PAPER**

APPENDIX 1

LIST OF FORMULA

1. $T_n = a + (n-1)d$	2. $S_n = \frac{n}{2}[2a + (n-1)d]$
3. $T_n = ar^{(n-1)}$	4. $S_n = \frac{a(1-r^n)}{1-r}, r < 1$
5. $S = P(1+rt)$	6. $H = S(1-dt)$
7. $r = \frac{d}{1-dt}$	8. $d = \frac{r}{1+rt}$
9. $S = P(1+i)^n$	10. $S = R \left[\frac{(1+i)^n - 1}{i} \right]$
11. $A = R \left[\frac{1-(1+i)^{-n}}{i} \right]$	12. $SP = C + M$
13. $GP = OE + NP$	14. $NP = LP(1-d_1)(1-d_2)\dots(1-d_n)$
15. $r = \frac{2mI}{B(n+1)}$	16. $r = 1 - \frac{UL}{\sqrt{\frac{S}{C}}}$
17. $BV_n = C(1-r)^n$	18. $B = RN - I \left[\frac{N(N+1)}{n(n+1)} \right]$