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 <u>7</u> printed pages including front page

PART A

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

Answer ALL questions in Answer Booklet.

QUESTION 1

A cleaning company charges RM100 to clean the first floor and an extra RM50 for each floor above the preceding floor. Find which floor is worth RM1,300.

(3 marks)

QUESTION 2

RMZ is deposited on 23rd March 2021 at a simple interest rate of 6% per annum. The accumulated amount on 31st July 2021 is RM4,500. Using the approximate time and exact simple interest, find Z.

(3 marks)

QUESTION 3

The maturity value of a promissory note is RM8,700 with an interest rate of 5.5% per annum. The note will mature on 28 May 2020. The note was then sold on 8 April 2020 and the proceeds received are RM8,600. Find the bank discount rate charged.

(3 marks)

QUESTION 4

Izz invested a certain sum of money on 1st January 2016 in an account that pays 5.4% compounded every month. The account will amount to RM5,700 in 1st December 2021. Calculate the original principal that was invested.

(3 marks)

QUESTION 5

Roxy needs to pay RM270 every month into an account for 10 years at 3.7% compounded monthly. If she wants to settle the entire loan immediately after 100th monthly payments, how much additional payment does she have to make to settle all outstanding arrears?

(3 marks)

QUESTION 6

Bimbo bought a car through an instalment plan in which she paid RM6,000 as a down payment. She made 96 monthly payments of RM540 each to settle the unpaid balance. If the bank charged her an interest of RM14,500, find the cash price of the car.

(3 marks)

QUESTION 7

The net price of a necklace after chain discounts of 5% 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 wedding dresses is 70%. If the new retail price is RM390, find the old retail price and how much is the markdown price?

(3 marks)

QUESTION 9

A company bought a grinding machine which costs RM45,000 and has a useful life of 14 years. At the end of its useful life, the machine is estimated to have a salvage value of RM17,000. Calculate the book value of the machine after 10 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 $C(x) = x^3 - 12x^2 - 315x + 5000$ (RM'000). If $x=35$, 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

Melur bought an air purifier unit with a cash price of RM8,900. 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 9 years. The dealer charges an interest of 9% per annum based on the reducing balance. Hence, find the outstanding balance she needed to pay if she decided to settle the payment after the 80th payment.

(5 marks)

QUESTION 2

An owner of an electrical shop received an invoice for the purchase of 200 plugs at RM1.50 each and 250 bulbs at RM0.90 each. The invoice was dated 8th October 2021. He was offered trade discounts of 11% and 9%, and cash discount terms of 7/10, 5/25 and n/30. The dealer paid the invoice on 1st November 2021. Find the amount of payment made on 1st November 2021.

(5 marks)

QUESTION 3

AS Boutique bought 60 meters of Korean chiffon fabric for RM6,000. They wanted to sell the fabric by making a gross profit of 35% 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 RM110.

(5 marks)

QUESTION 4

Awang wants to sell his lorry that has been used for 5 years. The lorry was bought for RM125,000. The scrap value after 15 years is estimated to be RM20,000. Two secondhand lorry dealers A and B offered to buy his lorry. Dealer A used the 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 6th year for both dealers. Hence, state which 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. $S_n = \dfrac{n}{2}\left[2a + (n-1)d\right]$
3. $T_n = ar^{(n-1)}$	4. $S_n = \dfrac{a(1-r^n)}{1-r}, r < 1$
5. $S = P(1 + rt)$	6. $H = S(1 - dt)$
7. $r = \dfrac{d}{1 - dt}$	8. $d = \dfrac{r}{1 + rt}$
9. $S = P(1 + i)^n$	10. $S = R\left[\dfrac{(1+i)^n - 1}{i}\right]$
11. $A = R\left[\dfrac{1 - (1+i)^{-n}}{i}\right]$	12. $SP = C + M$
13. $GP = OE + NP$	14. $NP = LP(1-d_1)(1-d_2)\ldots(1-d_n)$
15. $r = \dfrac{2mI}{B(n+1)}$	16. $r = 1 - \sqrt[UL]{\dfrac{S}{C}}$
17. $BV_n = C(1-r)^n$	18. $B = RN - I\left[\dfrac{N(N+1)}{n(n+1)}\right]$