UNIVERSITI TEKNOLOGI MARA
FINAL ASSESSMENT

COURSE	**:**	**BUSINESS MATHEMATICS**
COURSE CODE	**:**	**MAT402**
EXAMINATION	**:**	**JULY 2021**
TIME	**:**	**1.5 HOURS**

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of **6 QUESTIONS** and **AN APPENDIX (LIST OF FORMULAE)**.

2. Answer ALL questions in English.

3. Please write your **name, student ID and class group** on **every page** of your answer sheets.

4. Take pictures of your answer sheets using any apps in Android or iOS that can save your pictures in **one pdf** file. (Example: CamScanner, Scanbot, Open note Scanner and NoteBloc).

5. Rename your pdf file as Course_Group_Name. For example, **MAT402_AM2251B_Abu bin Ali**.

6. Please scan your answers clearly (**Avoid landscape formatting**).

7. Recheck your file after submitting. Make sure the cover assessment and all answers are attached.

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

This examination paper consists of 4 printed pages

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QUESTION 1

a) Adam deposited RM2,700 on 7 March 2019 in an account which offers 5% simple interest. Find the approximate time (in days) and exact simple amount obtained by 15 July 2019.

(5 marks)

a) Saufi deposited RM***X*** in an account that gave 8% simple interest. After 6 months, Saufi received RM11,960, find the value of ***X***.

(4 marks)

QUESTION 2

Suhaila deposited RM12,000 into a saving account that offered interest 6% compounded semi-annually. Two years later, she deposited another RM2,500. Find the amount in the account 3 years after her initial deposit.

(5 marks)

QUESTION 3

Salina buys a shop lot for RM200,000 and pays a 20% deposit. She then takes out a loan with equal monthly payments for 15 years at a rate of 12% compounded monthly. She wants to pay off the loan in full immediately as the 90^{th} payment is made. Calculate how much this payment worth.

(8 marks)

QUESTION 4

Daniel used an instalment plan to purchase a drone for RM8,000 cash. He put down RM900 as a down payment. The remaining balance was to be paid in 20 monthly instalments. If the interest rate charged was 3.5% per annum on the reducing balance, find

a) the monthly payment using Constant Ratio Formula.

(6 marks)

b) the outstanding balance just after the 12^{th} payment using Rule of 78.

(4 marks)

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QUESTION 5

Trade discounts of 20% and 15% were offered in the invoice dated 1 December 2019 with listed price of RM5,000 and the cash discount terms of 5/10, n/30. The invoice was paid on 20 December 2019 with an addition of delivery charge RM70. Calculate

a) the total amount paid.

(4 marks)

b) the total amount of discount received.

(4 marks)

QUESTION 6

Amy sold 1000 clothes with a total cost of RM50,000 per year and the operating expenses incurred was 15% based on cost. At the end of each year, she made a gross profit of RM15,000. Amid 2020, she decided to reduce the original selling price of the clothes due to the economic condition. Find

a) the minimum selling price for each cloth that can be offered without incurring losses.

(4 marks)

b) the total net profit gained in 2020 if 600 units of clothes were sold at the minimum selling price obtained in a) and the excess at the original selling price.

(6 marks)

END OF QUESTION PAPER

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APPENDIX
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. $OPB = (R \times k) - I\left(\frac{k(k + 1)}{n(n + 1)}\right)$	

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