



## FINAL EXAMINATION

**COURSE : BUSINESS MATHEMATICS**

**COURSE CODE : TBM1063**

**DURATION : 2 HOURS**

### INSTRUCTIONS TO CANDIDATES :

1. This question paper consists of **NINE (9)** questions.
2. Answer ALL questions in the Answer Booklet provided.
3. Please check to make sure that this examination pack consists of :
  - i. The Question Paper
  - ii. An Answer Booklet
  - iii. A Graph paper
  - iv. Appendix 1
4. Do not bring any material into the examination hall unless permission is given by the invigilator.
5. Please write your answer using a ball-point pen.
6. Electronic calculator is allowed.

**MYKAD NO :** \_\_\_\_\_

**ID. NO. :** \_\_\_\_\_

**LECTURER :** \_\_\_\_\_

**SECTION :** \_\_\_\_\_

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**DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO**

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*The question paper consists of 3 printed pages*

**2024/C/TBM1063**

MAR2024/C/TBM1063

Short Answer

1. (20 points)

a. Shade the region that satisfies the given inequalities

i.  $x \geq 2$  (2 points)

ii.  $2x - y \geq -8$  (3 points)

b. A cottage industry manufactures pedestal lamps and wooden shades, each requiring the use of cutting machine, assembling machine and a sprayer. Each day, the cutting machine is available for 40 hours, the assembling machine for 18 hours and the sprayer for 60 hours. The complete processes in manufacture pedestal lamps and wooden shades are given in the table below:

Process	Pedestal Lamps (x)	Wooden Shades (y)	Time available
Cutting	4 hours	8 hours	40
Assembling	3 hours	3 hours	18
Spray	15 hours	5 hours	60
Profit	RM5	RM3	

Table 1

By using the linear programming model,

- state the objective function, P. (1 point)
- write the problem constraints and non - negative constraint. (4 points)
- graph and shade the feasible region. (5 points)
- what is the maximum profit, and how many pedestal lamps and wooden shades should be manufactured to maximize their profit? (5 points)

2. (5 points)

On 20 July 2023, Andy borrowed RM10,250 at a simple interest rate of 3.7% per annum. He settled the loan on 31 December 2023.

- Find the period of the loan (in days). (2 points)
- How much did he pay at the end of the term of the loan? (3 points)

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3. **(2 points)**  
Naim invested RM7,000 in an account with a simple interest rate of 5.3% per annum. Find the interest earned at the end of 2 years.
4. **(3 points)**  
En. Hanif deposited a sum of money in a saving account for 48 months at a simple interest rate of 9% per annum. If the account is now worth RM25,000, find the amount of the original savings.
5. **(3 points)**  
Daniel invested RM8,500 in a trust fund with an interest rate of 9.4% compounded quarterly. How much money will be accumulated in the account after 5 years?
6. **(3 points)**  
Atirah wishes to buy a tablet that costed RM2,750 in two years' time. How much should she save now in an account that pays 15% interest compounded monthly?
7. **(4 points)**  
Fariz plans to get a loan to buy a new scooter. Bank A offers 3.95% compounded monthly, while Bank B offers 4.12% compounded quarterly. Which bank offers the better deal?
8. **(5 points)**  
Mr. Seeva saved RM300 at the end of every three months in a savings account with a 7% interest rate compounded quarterly.
- a. Calculate the value of the money at the end of 8 years. (3 points)
- b. How much is the total interest earned? (2 points)
9. **(5 points)**  
Zarif purchased a new house for RM360,000. He made an initial down payment of 12%, and the balance will be financed through a bank loan with an interest rate of 4.5% compounded monthly. Zarif intends to settle the loan in equal monthly payment for 25 years.
- a. Find the loan amount of the house. (1 point)
- b. Calculate the monthly payment that Zarif should pay to the bank. (4 points)

**END OF QUESTION PAPER**

APPENDIX 1  
LIST OF FORMULA

1.  $S = P(1 + rt)$

2.  $I = Prt$  ,  $S = P + I$

3.  $S = P(1 + i)^n$

4.  $r = \left(1 + \frac{k}{m}\right)^m - 1$

5.  $S = R \left[ \frac{(1 + i)^n - 1}{i} \right]$  ,  $I = S - Rn$

6.  $A = R \left[ \frac{1 - (1 + i)^{-n}}{i} \right]$  ,  $I = Rn - A$