



FINAL EXAMINATION

COURSE : BUSINESS MATHEMATICS

COURSE CODE : TBM1063

DURATION : 2 HOURS

INSTRUCTIONS TO CANDIDATES :

1. This question paper consists of **FOURTEEN (14)** 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 : _____

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

The question paper consists of 4 printed pages

SEPT2019/B/TBM1063

Short Answer

1. (1 point)

Identify the slope and y-intercept of a straight line $y = -\frac{1}{5}x + 9$.

2. (2 points)

Convert linear equation of $2x = 4 - 3y$ into general form and identify its constants (a, b and c).

(Hint: $ax + by + c = 0$)

3. (2 points)

Find the equation of a straight line that has slope $m = 3$ and passes through the point $(-6, 5)$.

4. (3 points)

Find the equation of a straight line which is passing through point $(1, -4)$ and $(-2, -7)$.

5. (4 points)

Find the intersection point between line $C: -x + 7y = 3$ and line $D: 2x + 7y = 15$.

6. (5 points)

Suppose the demand per week for a musical baby toy is 150 sets when the price is RM32 per set and 200 sets when the price is RM30 per set. Find the demand equation for the musical baby toy assuming that it is linear for p , price and q , quantity.

7. (5 points)

Given the supply and demand equations of a certain product where p is the price per unit and q is the quantity.

$$\text{Supply : } p = \frac{3}{4}q - 20$$

$$\text{Demand : } p = -\frac{1}{4}q + 60$$

Determine the equilibrium price and quantity of the product.

8. (17 points)

- a. Sketch the inequalities $y \geq 10$. (2 points)
- b. A workshop has three types of machines R, S and T. These machines can manufacture two products. The following table gives the information requires processing time on the machines for each product.

Types of machine	Product 1, x	Product 2, y	Available hours per week
R	3	2	120
S	1	1	45
T	1	2	80
Profit per unit	RM 40	RM 30	

By using the linear programming model,

- Write the objective function, Z. (1 point)
- Write the problem constraints and the non-negative constraints. (4 points)
- Graph the feasible region. (5 points)
- What is the maximum profit and how many of each product should be produced? (5 points)

9. (3 points)

How much should be invested in order to earn interest of RM250 at 5% simple interest rate per annum for 20 months?

10. (4 points)

How long does it take for RM6,000 to accumulate to RM9,000 at a simple interest rate of 4% per annum?

11. (3 points)

If Amjad invest RM3,600 at 6% compounded semi-annually for eight years, find the amount at the end of eight years.

12. (4 points)

A trust fund for education is being set up so that at the end of 20 years there will be RM50,000. If the fund earns interest of 7% compounded quarterly, how much money should be deposited into the fund?

13. (3 points)

Syifa has to pay RM200 every month for 36 months to settle a loan at 3% compounded monthly. What is the original value of the loan?

14. (4 points)

Find the amount to be invested every six months at 8% compounded semi-annually to accumulate RM70,000 in ten years.

APPENDIX

LIST OF FORMULA

$$1. \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$2. \quad y = mx + c$$

$$3. \quad S = P(1 + rt)$$

$$4. \quad I = Prt, \quad S = P + I$$

$$5. \quad S = P(1 + i)^n$$

$$6. \quad r = \left(1 + \frac{k}{m}\right)^m - 1$$

$$7. \quad S = R \left[\frac{(1 + i)^n - 1}{i} \right]$$

$$8. \quad A = R \left[\frac{1 - (1 + i)^{-n}}{i} \right]$$