



BERJAYA BUSINESS SCHOOL

FINAL EXAMINATION

Student ID (in Figures) :

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Student ID (in Words) : _____

Subject Code & Name : **MAT1513 MATHEMATICS FOR BUSINESS**
Trimester & Year : January – April 2021
Lecturer/Examiner : Suhada Binti Ishak
Duration : 3 Hours

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of 2 parts:
PART A (30 marks) : THIRTY (30) multiple choice questions. Answer ALL questions. Write the answer in the separate sheet.
PART B (70 marks) : FOUR (4) problem solving questions. Answer ALL questions. Answers are to be written in the separate sheet.
2. Only ballpoint pens are allowed to be used in answering the questions.
3. Students must SCAN and UPLOAD the answers in CN by using PDF format.
4. All answers must be submitted in ONE file only.

WARNING: The University Examination Board (UEB) of BERJAYA University College regards cheating as a most serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from BERJAYA University College of Hospitality.

Total Number of pages = 10 (Including the cover page)

PART B : PROBLEM SOLVING QUESTIONS (70 MARKS)

INSTRUCTION(S) : FOUR (4) problem solving questions. Answer ALL questions. Answers are to be written in the Answer Booklet provided.

Question 1

- a) Explain the following terms:
- i. Interest (1 mark)
 - ii. Annuity (1 mark)
 - iii. Present Value (1 mark)
 - iv. Amortization (1 mark)
- b) Ben invested RM 5,000 into an account that pays an interest of 5% compounded semi-annually. Initially, he intended to keep the account untouched for 5 years. However, after 3 years, he had to withdraw RM 3,000. Find the amount left in the account five years from the time he made the investment. (5 marks)
- c) Mei Ling borrowed RM 100,000 at an interest rate of 12% compounded monthly. Determine how many monthly payments of RM 2,000 should Mei Ling make? (6 marks)

[Total 15 marks]

Question 2

- a) Nouman pays RM200 for 2 pair of shirts and 2 pair of trousers while Nawal pays RM 500 for 1 shirt and 6 trousers for Hari Raya. If x and y represents the price of a shirt and a trouser respectively, write a system of linear equation in matrix form based on the information given. Using inverse matrix, $X = A^{-1}b$, determine the price of a shirt and a trouser. (7 marks)
- b) Solve the following system of equation using Cramer's rule:

$$\begin{aligned}x + z &= 0 \\3x + 2y + z &= 2 \\2x + 3y + 2z &= 2\end{aligned}$$

(13 marks)

[Total 20 marks]

Question 3

a) Differentiate the following with respect to x

i. $y = \sqrt{2x^2 + 1}$ (2 marks)

ii. $f(x) = (5x^3 + 2)(\sqrt{x} + 1)$ (4marks)

iii. $f(x) = \frac{(3x + 1)^5}{(2 - x)^8}$ (4marks)

b) Find the second and third derivatives for the following function

$$f(x) = \frac{-2x}{3x - 1}$$
 (5marks)

[Total 15 marks]**Question 4**

a) Using basic rules of integration, find

i. $\int \frac{3}{x^5} dx$ (1 mark)

ii. $\int \sqrt[3]{x^5} dx$ (1 mark)

iii. $\int \frac{2x^5 - 3}{x^2} dx$ (2 mark)

iv. $\int (3x + 2)x^2 dx$ (2 mark)

b) Integrate $\int x^{-2} \ln x dx$ by using integration by part (4 marks)

c) By using integration by partial fraction, evaluate the following integral

$$\int \frac{2x^3 + 7x^2 + 11x + 6}{2x^2 + 7x + 6} dx$$
 (10 marks)

[20 marks]**END OF EXAM PAPER**