UNIRAZAK
UNIVERSITI TUN ABDUL RAZAK

FINAL EXAMINATION

SEMESTER

NOV 2021

COURSE TITLE **MATHEMATICS FOR SOSIAL SCIENCE**

COURSE CODE **RMAT 2223**

DATE/DAY **FEBRUARY 2022**

TIME/DURATION **2 HOURS**

INSTRUCTIONS TO CANDIDATES :

1. Please read the instruction under each section carefully.
2. Candidates are reminded not to bring into examination hall/room any form of written materials or electronic gadget except for stationery that is permitted by the Invigilator.
3. Students who are caught breaching the Examination Rules and Regulation will be charged with an academic dishonesty and if found guilty of the offence, the maximum penalty is expulsion from the University.

(This Question Paper consists of Printed Pages including front page)

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

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FINAL EXAMINATION

NOVEMBER 2021

COURSE TITLE	**BUSINESS MATHEMATICS**
COURSE CODE	**RMAT2223**
DATE/DAY **TIME/DURATION**	**17 FEBRUARY 2022** **THURSDAY** **9.00 AM – 11.00 AM/ 2 HOURS**

INSTRUCTIONS TO CANDIDATES:

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There are EIGHT(8) questions. Answer all the questions.

(55 marks)

1.

a. Express $f(x) = x^2 + 6x - 1$ in the form $f(x) = (x + p)^2 + q$

(4 marks)

b. Factorise $f(x) = x^3 - x^2 - 14x + 24$.

(5 marks)

(9 marks)

2. Find the remainder and quotient when $3x^3 - 2x^2 - 4x + 3$ divided by $x^2 - x - 1$

(4 marks)

3. The cubic polynomial $f(x) = 6x^3 - 7x^2 - 11x + d$ has a factor $(x - 1)$.Find the value of d.

(7 marks)

4. Express in partial fraction $\frac{x^2-5x+6}{(x+1)(x-1)^2}$

(8 marks)

5. Find the nature of the roots

a. $x^2 - 2x - 5 = 0$

(3 marks)

b. $x(1 - 3x) = 2$

(3 marks)

(6 marks)

6.Given $f(x) = 3x - 7$ and $g(x) = x - 3$,find

a. $fg(4)$

(3 marks)

b. $gf(-2)$

(3 marks)

(6 marks)

7. Given $u = \log_4 x$ find in its simplest form

a. x

(2 marks)

b. $\log_4 \frac{16}{x}$

(3 marks)

(5 marks)

8.

a. Find the gradient of the curve $y = \frac{2x-5}{x-3}$ at the point $(2,1)$

(5 marks)

b. Find the $\frac{dy}{dx}$ of $y = \sqrt{x}\,(3-x)^2$

(5 marks)

(10 marks)

*** END OF QUESTION PAPER **

List of Formulas

Differentiation

Product Rule

$$\frac{dy}{dx} = u\,\frac{dv}{dx} + v\frac{du}{dx}$$

Quotient Rule

$$\frac{dy}{dx} = \frac{v\,\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$$