# FINAL EXAMINATION

# JULY 2021

| | |
|---|---|
| **COURSE TITLE** | **MATHEMATICS FOR SOCIAL SCIENCE** |
| **COURSE CODE DATE/DAY** | **BMAT1223/RMAT2223** |
| | **23 October 2021 / SATURDAY** |
| **TIME/DURATION**   01:00 PM - 03:00 PM | **/ 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  3  Printed Pages including front page)

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

# UNIRAZAK
## UNIVERSITI TUN ABDUL RAZAK

# FINAL EXAMINATION

# JULY 2021

| COURSE TITLE | BUSINESS MATHEMATICS |
|---|---|
| COURSE CODE | BMAT1223/RMAT2223 |
| DATE/DAY<br>TIME/DURATION | 23 OCTOBER 2021/THURSDAY<br>1.00 PM – 3.00 PM/ 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 **4** Printed Pages including front page)

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

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

**(50 marks)**

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

   (4 marks)

   b. Hence solve the equation $x^2 + 6x - 1 = 0$ leaving answers in 4 significant figure.

   (4 marks)

   (8 marks)

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

   (4 marks)

3. Solve the equation $3x^3 - 8x^2 + 3x + 2 = 0$

   (7 marks)

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

   (7 marks)

5.  Find the intersection point of the straight line $3x - 5y = 11$ and $2x + y = 3$

(5 marks)

6. If $x - a$ is a factor of the expression $ax^3 - 3x^2 - 5ax - 9$ .Find the possible values of a.

(5 marks)

7. Given that $\frac{(25\,x^4)^2}{5x^2} = 5^a\,x^b$ find the value of a and b.

(5 marks)

8.

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

(4 marks)

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

(5 marks)

(9 marks)

*** END OF QUESTION PAPER ***

*List of Formulas*

# Differentiation

## Product Rule

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

## Quotient Rule

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