UNIRAZAK
UNIVERSITI TUN ABDUL RAZAK

FINAL EXAMINATION

MARCH 2024

COURSE TITLE	**ELEMENTARY MATHEMATICS**
COURSE CODE	**UMAT1113**
DATE/DAY	**23 JUNE 2024 / SUNDAY**
TIME/DURATION	**09:00 AM - 11:00 AM / 02 Hour(s) 00 Minute(s)**

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 **5** 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 questions in the answer booklet provided.
[100 MARKS]

1. For each of the following:

   a) List all the integers of x that satisfy the inequalities $-2x \geq -6$ and $3x > x + 1$. (3 marks)

   b) Table 1 shows the values of variables a, b and c.

a	b	c
12	64	2
4.5	x	4

Table 1

Given that a varies directly as the square root of b and inversely as the square of c. Calculate the value of x. (4 marks)

c) D'zart bought a necktie as a birthday gift for his father. He paid RM315 at the payment counter after 15% discount. Find the original price of the necktie. (3 marks)

2. Table 2 shows the tax reliefs to be claimed by Mr.Izzat

Individual	RM9 000
Life insurance and EPF (limit RM7 000)	RM4 200
Lifestyle (limit RM2 500)	RM3 800
Self-education fees (limit RM7 000)	RM3 000

Table 2

Given that Mr.Izzat annual income is RM4 500.She contributed a donation of RM300 to a charity organization. Calculate the chargeable income of Mr.Izzat. (15 marks)

3. There are 9 blue buttons and a green button in a container. Sofea picks 2 buttons randomly one by one without replacement.

   a) Calculate the probability of getting both are blue buttons. (5 marks)

   b) Calculate the probability of getting 1 blue and 1 green button. (5 marks)

4.Table 3 shows the points obtained by 25 students in a sport activity.

Point	Number of students
41 – 50	3
51 – 60	7
61 – 70	4
71 – 80	6
81 - 90	5

Table 3

Find the mean point. (15 marks)

5. Find the following:

a) $\begin{pmatrix} 6 & 11 \\ 8 & y \end{pmatrix} - 2\begin{pmatrix} x & 2.5 \\ 14 & -7 \end{pmatrix} = \begin{pmatrix} 3 \\ 5 \end{pmatrix}(-4 \quad 2)$, find the value of $x + y$. (5 marks)

b) Syakila has a medical insurance policy with a deductible provision of RM700 and co-insurance percentage of 75/25. The medical costs covered in the policy is RM80 000.Calculate the cost borne by the insurance company and by Syakila. (10 marks)

6. For each of the following:

a) Given that $4(x - 2) = 5 - 5(x + 2)$, find the value of x. (3 marks)

b) Given that $n(\varepsilon) = 15, n(P) = 10, n(P \cap Q) = 6$ and $n(P \cup Q)' = 3$, find $n(Q)$. (3 marks)

c) Find the solution for $(p - 1)(2p + 3) = 3$. (4 marks)

7. For each of the following:

a) There are 130 male students in a group. Then 50 female students join the group. A student is chosen at random from the group. Find the probability of choosing a female student. (6 marks)

b) A box consists of 50 pens which are red and blue in color. A pen is picked at random from the box. The probability of picking a red pen is $\frac{12}{25}$.Calculate the number of blue pens that have been taken out so that the probability of red pen is picked becomes $\frac{3}{5}$. (9 marks)

8. For each of the following:

a) State whether the following sentences is a statement.

(i) Hexagon has 8 sides (2 marks)

(ii) $x^2 + 3x - 4$ (2 marks)

b) Complete the premise in the following argument.
Premise 1 : .....
Premise 2 : 8 is a multiple of 4.
Conclusion : 8 is a multiple of 2.

(6 marks)

*** END OF QUESTION PAPER ***