
 KEMENTERI/ PENDIDIKAN MALAYSIA  JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		QUIZ 1	
		SESSION		DECEMBER 2018	
		DURATION	15 MINS	CLO1	10 MARKS
CLO2					
CLO3					
NAME					
REGISTRATION NO.					
PROGRAMME/ SECTION		TOTAL MARKS		10 MARKS	

Instructions

- Answer ALL questions. Write your answers in the spaces provided.
- Show your working to get marks. You may use a non-programmable scientific calculator.

Question 1

CLO2, C2

[5 marks]

If $X = \{a, e, i, o, u\}$ and $Y = \{a, b, c, d, e\}$.

(a) Identify $Y - X$.

$$Y - X = \{b, c, d\}$$

(b) Given the universal set $U = \{a, b, c, d, e, f, g, i, o, u, z\}$. What is the complement of $X \cup Y$?

$$X \cup Y = \{a, b, c, d, e, i, o, u\}$$

So, the complement of $X \cup U$ is $\{f, g, u, z\}$.

(c) Is set X and Y disjoint sets? Explain your answer.

No. Because these two sets have the common elements $\{a, e\}$.

Question 2

CLO2, C3

[5 marks]

Given function $f(x) = 4x - 1$. The domain for the function is $\{-1, 0, 1\}$.

(a) Identify the range for $f(x)$.

$$\text{Range for } f(x) \text{ is } \{-5, -1, 3\}$$

(b) Is the function f one-to-one? Explain your answer.

Yes, it is one-to-one. Because every element in the domain is assigned to only one element in the codomain.

(c) What is the inverse function for the function above?

$$\text{Let } y = 4x - 1$$

$$4x = y + 1$$

$$x = \frac{y + 1}{4}$$

$$\text{So, the inverse function is } f^{-1}(x) = \frac{x+1}{4}.$$