

 KEMENTERIA PENDIDIKAN MALAYSIA  POLITEKNIK MALAYSIA		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		TUTORIAL 2	
JABATAN MATEMATIK, SAINS DAN KOMPUTER		SESSION		DECEMBER 2018	
NAME	Muhamad Audi Bin Pasha	DURATION	60 MINS	CLO1	20 MARKS
REGISTRATION NO.	05DDT18F1099			CLO2	10
PROGRAMME/ SECTION	DDT2A			CLO3	
		TOTAL MARKS		20 MARKS	

Instructions

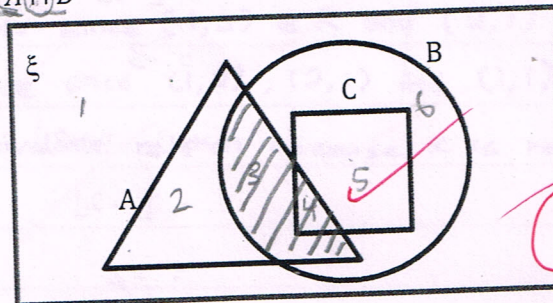
- Answer ALL questions. Write your answers in the spaces provided.
- Show your working to get marks. You may use a non-programmable scientific calculator.

Question 1

CLO1, C2

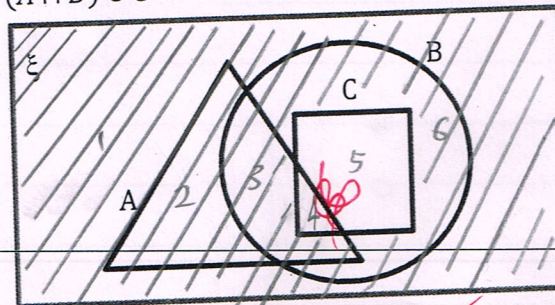
The Venn diagrams show the sets A, B and C such that the universal set, $\xi = A \cup B \cup C$. On the diagram, shade

(a) The set $A \cap B$



$\frac{A}{2, 3, 4}$ $\cap$ $\frac{B}{3, 4, 5, 6}$

(b) The set $(A \cap B) \cup C'$



$\frac{A \cap B}{3, 4} \cup \frac{C'}{1, 2, 3, 6}$
 $= 1, 2, 3, 6$

Question 2

CLO1, C2

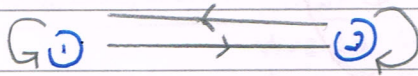
Given the relations $\{(1, 1), (1, 2), (2, 1), (2, 2), (3, 3), (4, 4)\}$ on the set $\{1, 2, 3, 4\}$. Identify whether the relations given are equivalence relations?

[6 marks]

Question 2

Relation = $\{(1,1), (1,2), (2,1), (2,2), (3,3), (4,4)\}$

on the set $\{1, 2, 3, 4\}$



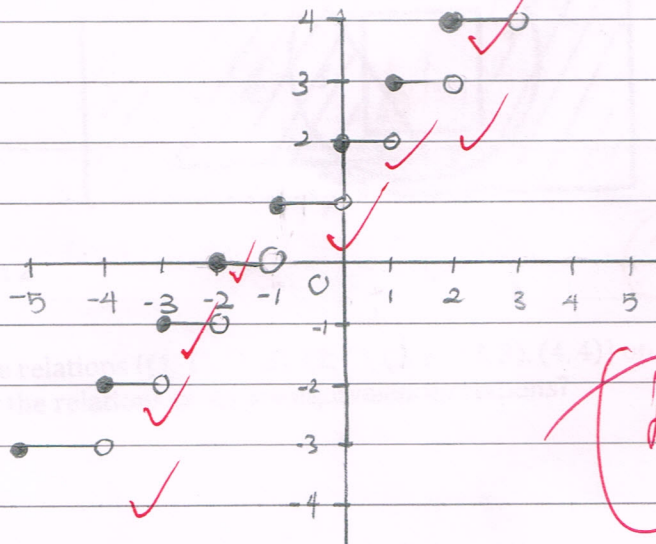
R is reflexive since all the elements loop to itself

R is symmetric since $(1,2) \in R$ and $(2,1) \in R$.

R is transitive since $(1,2)$, $(2,1)$ and $(1,1) \in R$

Thus R is equivalence relation because R is reflexive, symmetric and transitive.

Question 3



$$f(x) = \lfloor x+2 \rfloor$$

$$= \lfloor -5+2 \rfloor$$

$$= \lfloor -3 \rfloor$$

$$= -3$$

$$f(x) = \lfloor -4+2 \rfloor$$

$$= \lfloor -2 \rfloor$$

$$= -2$$

Question 4

$$f[g(x)] = f(2x^2 - 8)$$

$$= -3(2x^2 - 8) + 7$$

$$= -6x^2 + 24 + 7$$

$$fg(x) = -6x^2 + 31$$

$$fg(-2) = -6(-2)^2 + 31$$

$$= -24 + 31$$

$$= 7$$