KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		TUTORIAL 2	
		SESSION		DECEMBER 2018	
NAME	Jong Thian Fu	DURATION	60 MINS	CLO1	20 MARKS
REGISTRATION NO.	053DT18F1076			CLO2	
PROGRAMME/ SECTION				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.

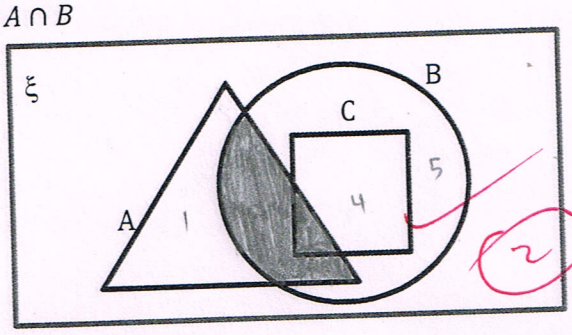
Question 1

[4 marks]

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

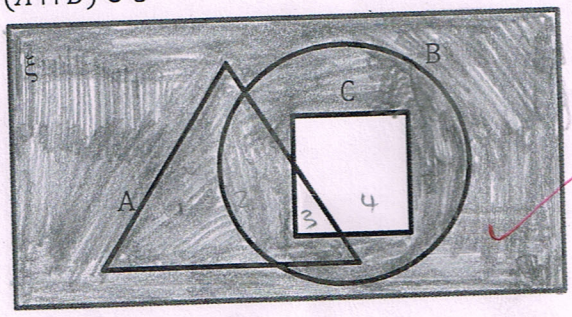
(a) The set $A \cap B$



A = 1,2,3
B = 2,3,4,5
C = 3,4

2

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



A = 1,2,3
B = 2,3,4,5
C = 3,4

2

Question 2

[6 marks]

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?

~~R is an~~ How?

It is an equivalence relation because it is reflexive ~~and~~, transitive and symmetric. ~~For~~ example for reflexive {(1,1), (2,2), (3,3), (4,4)}. ~~For~~ exap for transitive, ?

2

KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		TUTORIAL 2	
		SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	20 MARKS
				CLO2	
				CLO3	
NAME	Awang Nazzatul Nasrudin	TOTAL MARKS		20 MARKS	
REGISTRATION NO.	05DDT18F1032				
PROGRAMME/ SECTION	DDT				

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.

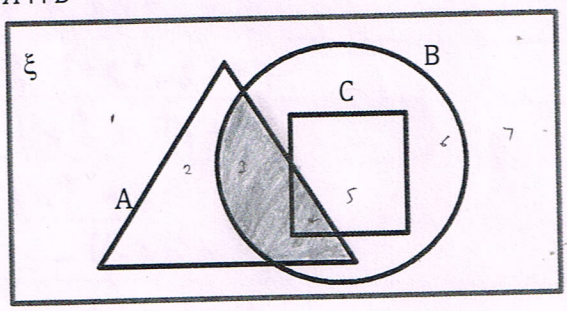
Question 1

[4 marks]

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 $A \cap B$



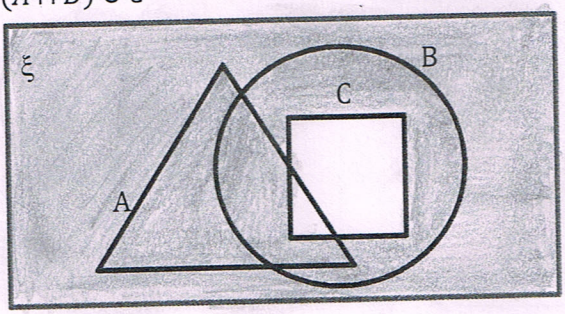
$\xi = 1\ 2\ 3\ 4\ 5\ 6\ 7$

$A = 2, 3, 4$

$B = 3, 4, 5, 6$

$C = 4, 5$

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



Question 2

[6 marks]

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?

Jong Thian Fu °5DDT18F1016
Awang Nazzatul Nasmdin °5DDT18F1032

NO: DATE:

Question 2

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

It is equivalence relation because it is reflexive, transitive and symmetric. Example for reflexive {(1,1), (2,2), (3,3), (4,4) Example for transitive {(1,1), (2,2), (3,3), (4,4)}. Example for symmetric {(1,2), (2,1)} ~~For example~~

4

Question 4

$$fg(x) = f[g(x)]$$
$$= f[2x^2 - 8]$$
$$= -3(2x^2 - 8) + 7$$
$$= -6x^2 + 24 + 7$$
$$= -6x^2 + 31$$
$$fg(-2) = -6(-2)^2 + 31$$
$$= 7$$

6

NO: DATE:

Question 3

$f(x) = \lceil x - 1 \rceil$ for the range $-4 \leq x \leq 4$

$x = 0 \quad F(x) = \lceil 0 - 1 \rceil = \lceil -1 \rceil = -1$

$x = 0.5 \quad F(x) = \lceil 0.5 - 1 \rceil = \lceil -0.5 \rceil = 0$

$x = 1 \quad f(x) = \lceil 1 - 1 \rceil = \lceil 0 \rceil = 0$

$x = 1.5 \quad F(x) = \lceil 1.5 - 1 \rceil = \lceil 0.5 \rceil = 1$

$x = 2 \quad F(x) = \lceil 2 - 1 \rceil = \lceil 1 \rceil = 1$

$x = 2.5 \quad F(x) = \lceil 2.5 - 1 \rceil = \lceil 1.5 \rceil = 2$

$x = 3 \quad F(x) = \lceil 3 - 1 \rceil = \lceil 2 \rceil = 2$

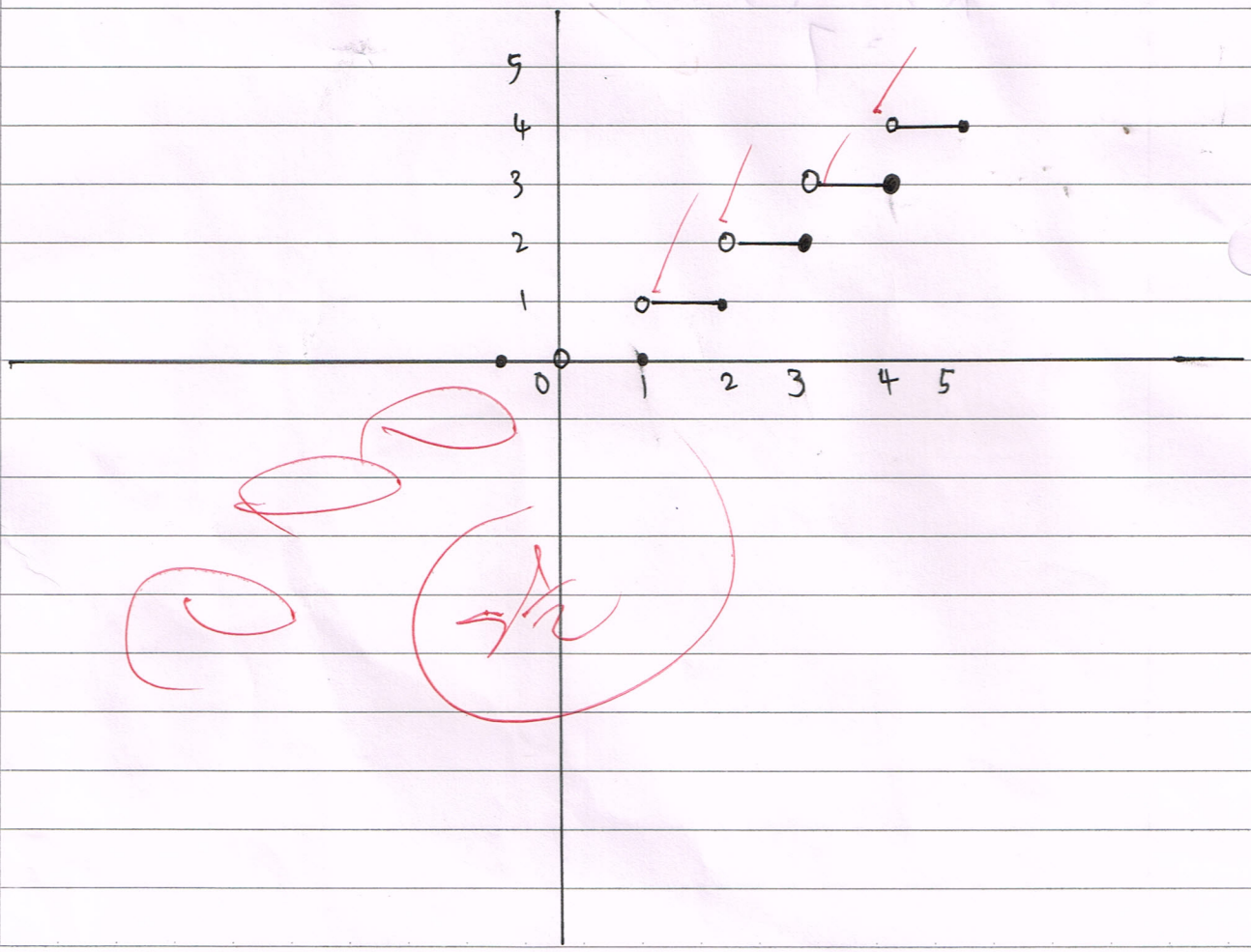
$x = 3.5 \quad F(x) = \lceil 3.5 - 1 \rceil = \lceil 2.5 \rceil = 3$

$x = 4 \quad F(x) = \lceil 4 - 1 \rceil = \lceil 3 \rceil = 3$

$x = 4.5 \quad F(x) = \lceil 4.5 - 1 \rceil = \lceil 3.5 \rceil = 4$

$x = -1.5 \quad f(x) = \lceil -0.5 - 1 \rceil = \lceil -1.5 \rceil = \lceil -1 \rceil$

$x = -1.9 \quad f(x) = \lceil -1.9 - 1 \rceil = \lceil -2.9 \rceil = \lceil -2 \rceil$



KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME	DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT	TUTORIAL 2	
		SESSION	DECEMBER 2018	
NAME	BECKHAM GILBERT JUING	DURATION 60 MINS	CLO1	20 MARKS
REGISTRATION NO.	05DDTRF1081		CLO2	12
PROGRAMME/ SECTION	DDT2B	TOTAL MARKS	CLO3	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.

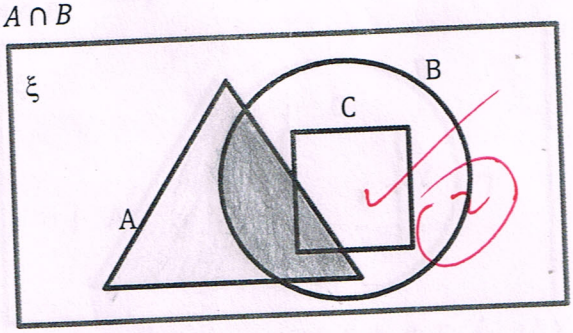
Question 1

[4 marks]

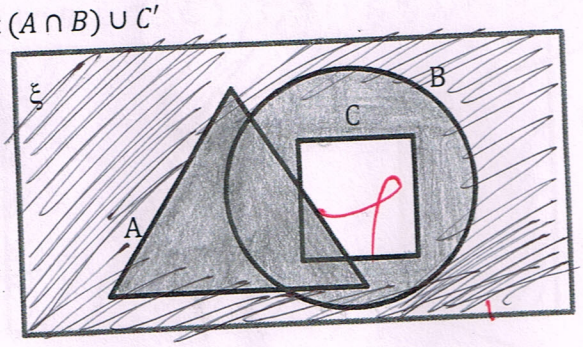
CLO1, C2

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 $A \cap B$



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



Question 2

[6 marks]

CLO1, C2

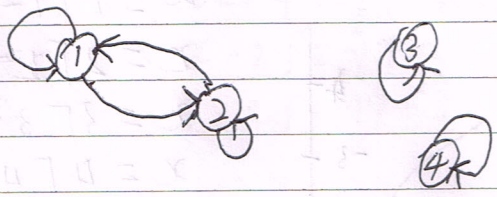
Given the relations $\{(1, 1), (1, 2), (2, 1), (2, 2), (3, 3), (4, 4)\}$ on the set $\{1, 2, 3, 4\}$. Identify whether the relations given are equivalence relations?

No: ..... Date: .....

R is symmetric since aRb and bRa for all (a, b) ∈ R

Question 2 R is Transitive since whenever aRb, bRc then aRc

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



5

- Given relations is reflexive because all element are related to itself since all the elements loop to itself
- Given relations is symmetric because $(1,2) \in R$ and $(2,1) \in R$
- Given relations is transitive ~~because if~~ for all $1,2,3,4 \in S$
- Given relation is an ~~equip~~ equivalence relation because it is symmetric, reflexive and transitive.

R is equivalence since R is reflexive, symmetric and transitive

Question 4

$f(x) = -3x + 7$

$g(x) = 2x^2 - 8$

$fg(x)$, $gf(x)$

$fg(x) = f \circ g(x)$

$= f(g(x))$

$= f(2x^2 - 8)$

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

$= -3x + 14x^2 - 56$

1

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

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

$= -6x^2 + 31$

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

$= -6(4) + 31$

$= -24 + 31$

$= 7$

Standard

No: ..... Date: .....

$f(x) = \lceil x - 1 \rceil$ for the range $-4 \leq x \leq 4$

$x = -4 \lceil -4 - 1 \rceil = -5$

$x = -3 \lceil -3 - 1 \rceil = -4$

$x = -2 \lceil -2 - 1 \rceil = -3$

$x = -1 \lceil -1 - 1 \rceil = -2$

$x = 0 \lceil 0 - 1 \rceil = -1$

$x = 1 \lceil 1 - 1 \rceil = 0$

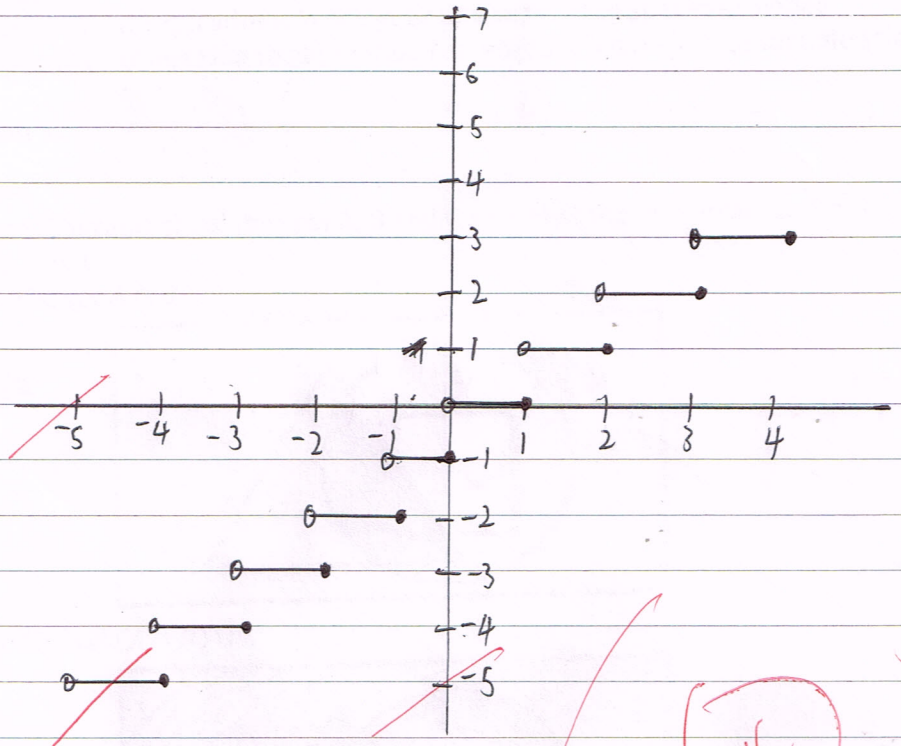
$x = 2 \lceil 2 - 1 \rceil = 1$

$x = 3 \lceil 3 - 1 \rceil = 2$

$x = 4 \lceil 4 - 1 \rceil = 3$

~~$x = -4.5 \lceil -4.5 - 1 \rceil =$~~

$x = -3.5 \lceil -3.5 - 1 \rceil = \lceil -4.5 \rceil = -4$



4

KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		TUTORIAL 2	
		SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	20 MARKS
				CLO2	
				CLO3	
NAME	NUR ALYSA ATHYRA	TOTAL MARKS		20 MARKS	
REGISTRATION NO.	0500TI8F1121				
PROGRAMME/ SECTION	DDT2B				

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.

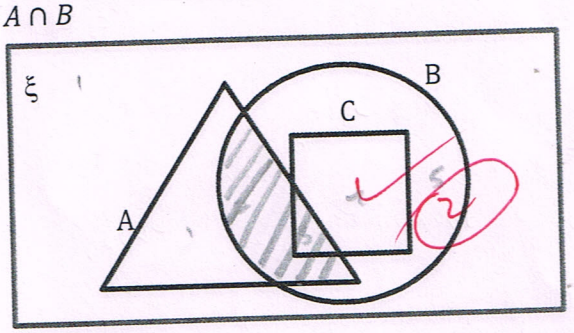
Question 1

[4 marks]

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 $A \cap B$

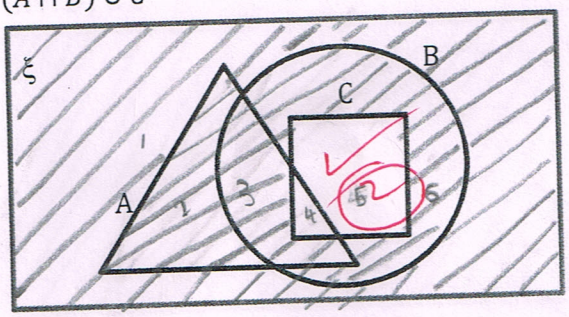


$A = \{1, 2, 3\}$

$B = \{2, 3, 4, 5\}$

$A \cap B = \{2, 3\}$

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



$A = \{2, 3, 4\}$

$B = \{3, 4, 5, 6\}$

$A \cap B$

$\{3, 4\}$

C' 1, 2, 3, 6

= 1, 2, 3, 6

Question 2

[6 marks]

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?

No: .... Date: ....

Question 2

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

so it is reflexive.

(i) Relation R is not irreflexive since), (1,1), (2,2), (3,3), (4,4 is in R ~~relation~~. 1/2

(ii) Relation R is symmetric since wherever since aRb, bRa.

(iii) Relation is transitive because relation (2,2).

(iv) R is not equivalence relation because R is symmetric, transitive but R is not reflexive.

$4\frac{1}{2}$

Question 4

Let $f(x) = -3x+7$ and $g(x) = 2x^2 - 8$. Compare $fg(-2)$

(1) $f(x) = -3x+7$

$g(x) = 2x^2 - 8$

$fg(-2) = f \circ g(-2)$

$= f[g(-2)]$

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

$= f[0]$

(2) $f[0] = -3(0)+7$

$= 7$? How?

x/o pencil.

(3) $fg(x) = f[g(x)]$

$= f[2x^2 - 8]$

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

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

$= -6x^2 + 31$ 3

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

$= 7$

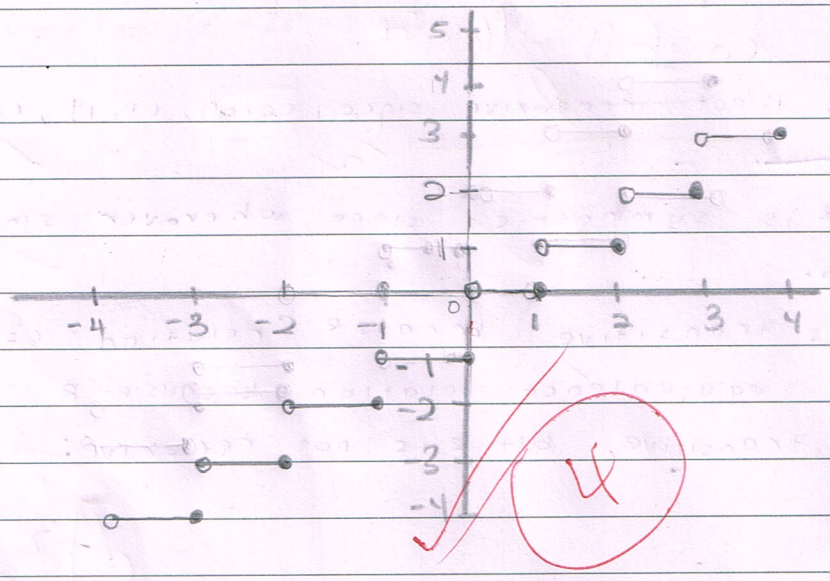
3

Step by Step®

No: Date:

3. ~~$f(x) = \lceil x-1 \rceil$~~

3. $f(x) = \lceil x-1 \rceil$ for the range $-4 \leq x \leq 4$



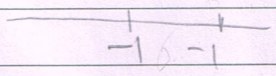
$f(x) \lceil x-1 \rceil$, $-4 \leq x \leq 4$

$x = 0 \quad \lceil 0 + (-1) \rceil = -1$

$x = 1 \quad \lceil 1 + (-1) \rceil = 0$

$x = 2 \quad \lceil 2 + (-1) \rceil = 1$

$x = 3 \quad \lceil 3 + (-1) \rceil = 2$



KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		TUTORIAL 2	
		SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	20 MARKS
				CLO2	
				CLO3	
NAME	NUR AFIQAH BT HABA	TOTAL MARKS		20 MARKS	
REGISTRATION NO.	050070871015				
PROGRAMME/ SECTION	DDT2B				

Instructions

- Answer ALL questions. Write your answers in the spaces provided.
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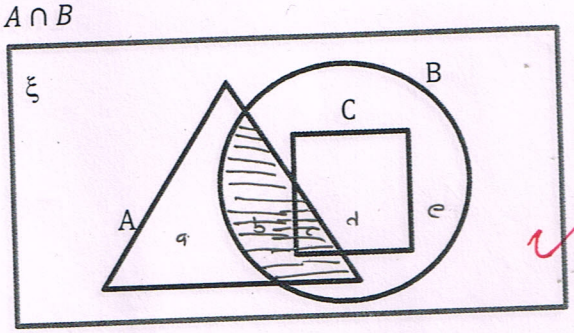
Question 1

[4 marks]

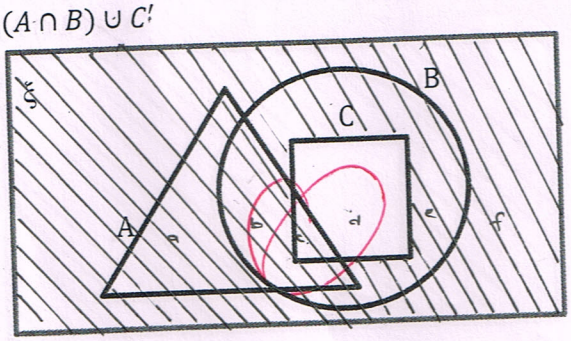
CLO1, C2

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 $A \cap B$



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



A = a, b, f

B = b, f, d, c

C = c, d

C' = a, b, e, f

A ∩ B = b, c

Question 2

[6 marks]

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?

Subject: No: Date:

Question 2

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

This relation are not equivalence since $(1,1),(2,2),(3,3),(4,4)$ are reflexive and $(1,2),(2,1)$ are symmetric but not all of the elements are transitive.

Question 4.

Let $f(x) = -3x+7$ and $g(x) = 2x^2-8$. Compare $fg(-2)$

$f(x) = -3x + 7$

$g(x) = 2x^2 - 8$

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

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

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

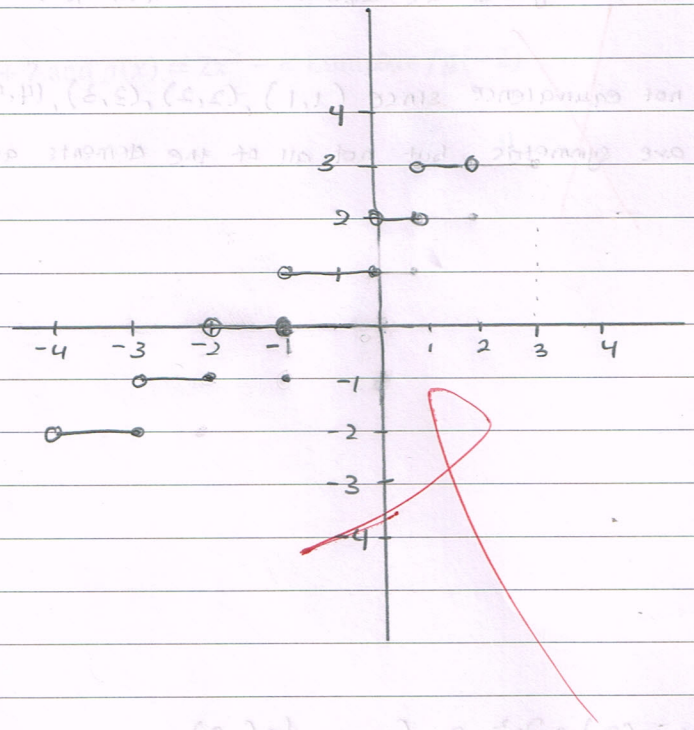
$= 7$

Subject:

No:

Date:

3. $f(x) = \lceil x - 1 \rceil$ for the range $-4 \leq x \leq 4$



KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS
		COURSEWORK ASSESSMENT		TUTORIAL 2
		SESSION		DECEMBER 2018
NAME	JONG JIA CHEE	DURATION	60 MINS	CLO1 20 MARKS
REGISTRATION NO.	05DDT18F1069			CLO2
PROGRAMME/ SECTION	DDT2B	TOTAL MARKS		CLO3 20 MARKS

Instructions
- Answer ALL questions. Write your answers in the spaces provided.
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Question 1

[4 marks]

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

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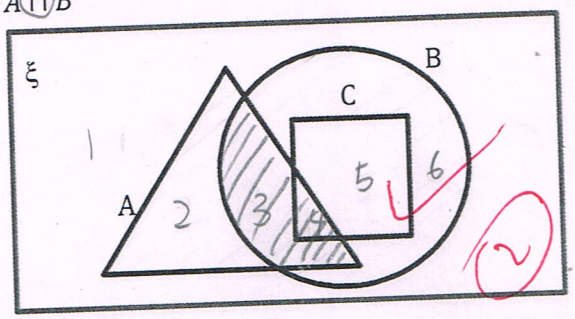
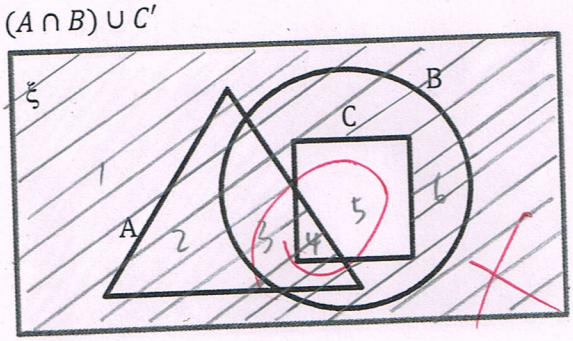


$A = \{2, 3, 4\}$
$B = \{3, 4, 5, 6\}$

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



$C = \{4, 5\}$
$C' = \{1, 2, 3, 6\}$

Question 2

[6 marks]

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?

reflexive ✓ It is reflexive bcz all the element loop to itself
symmetric ✓ It is symmetric since whenever aRb, bRa.
transitive ✗ ✓ It is transitive since all the element ∈ R.
It is an equivalence relations bcz it is reflexive, symmetric & transitive.

BM 2033 Discrete Math Name : Chai Siaw Hung
Jong Jia Chee

Subject:

No:

Date: 21/1/2019

Tutorial 2 :

Question 2 :

It is reflexive because all the element loop to itself.
It is symmetric since whenever aRb, bRa.
It is transitive since all the element $\in R$.
Conclusion : It is an equivalence relations because it is reflexive, symmetric and transitive.

→ It is transitive since whenever aRb, ~~bRc~~, the aRc.

Question 4 :

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

$fg(x) = f[g(x)]$
$= f[2x^2-8]$
$= -3(2x^2-8)+7$
$= -6x^2+24+7$
$= -6x^2+31$ (3)

$fg(-2) = -6(-2)^2+31$
$= 7$ (3)

6

Subject: No: Date:

$f(x) = \lceil x-1 \rceil \qquad -4 \le x \le 4$

$x=0 \quad \lceil 0-1 \rceil = \lceil -1 \rceil = 0$ ✓

$x=0.5 \quad \lceil 0.5-1 \rceil = \lceil -0.5 \rceil = 0$

$x=1 \quad \lceil 1-1 \rceil = \lceil 0 \rceil = 1$ ✓

$x=2 \quad \lceil 2-1 \rceil = \lceil 1 \rceil = 2$ ✓

$x=3 \quad \lceil 3-1 \rceil = \lceil 2 \rceil = 3$ ✓

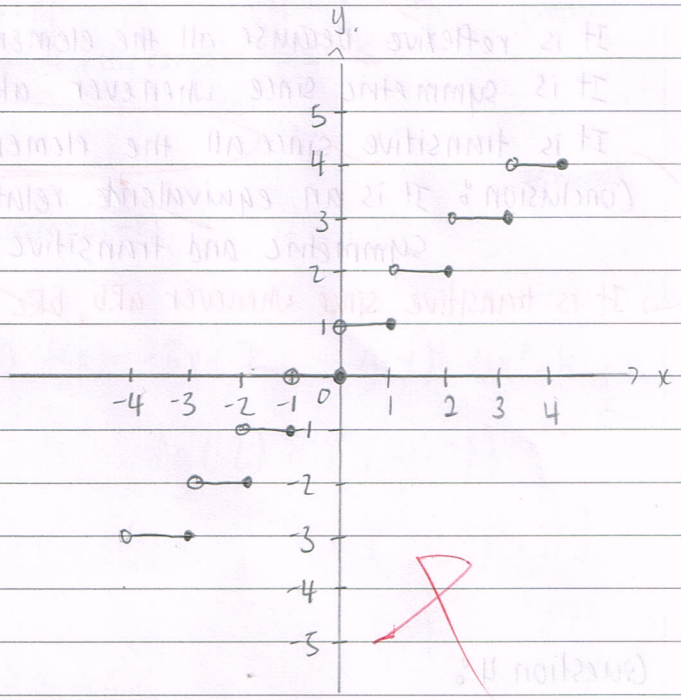
$x=4 \quad \lceil 4-1 \rceil = \lceil 3 \rceil = 4$ ✓

$x=-1 \quad \lceil -1-1 \rceil = \lceil -2 \rceil = -1$ ✓

$x=-2 \quad \lceil -2-1 \rceil = \lceil -3 \rceil = -2$ ✓

$x=-3 \quad \lceil -3-1 \rceil = \lceil -4 \rceil = -3$ ✓

$x=-4 \quad \lceil -4-1 \rceil = \lceil -5 \rceil = -4$ ✓

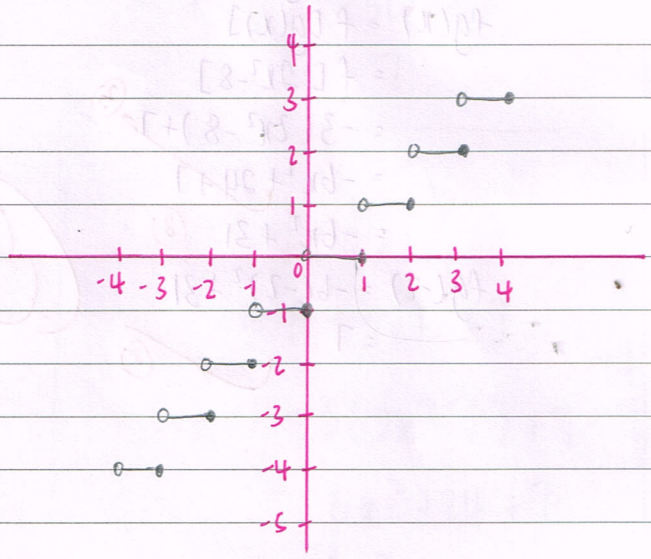


$\lceil 0-1 \rceil = -1$

$\lceil -1-1 \rceil = -2$

$\lceil -2-1 \rceil = -3$

$\lceil -3.5-1 \rceil = \lceil -4.5 \rceil =$



KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		TUTORIAL 2	
		SESSION		DECEMBER 2018	
NAME	Frederick Zhary11	DURATION	60 MINS	CLO1	20 MARKS
REGISTRATION NO.	05DDT18F1141			CLO2	
PROGRAMME/ SECTION	DD7 2B	TOTAL MARKS		CLO3	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.

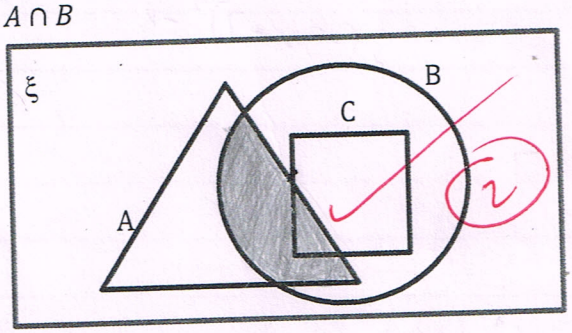
Question 1

[4 marks]

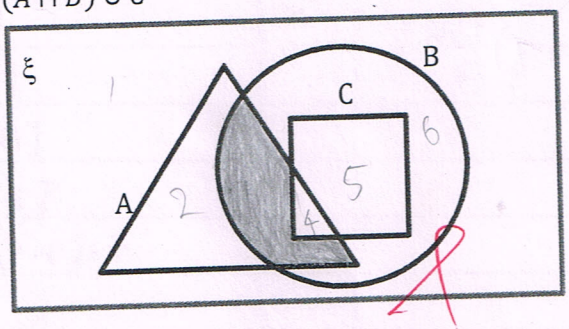
CLO1, C2

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 $A \cap B$



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



$\xi = \{1, 2, 3, 4, 5, 6\}$

$A = \{2, 3, 4\}$

$B = \{3, 4, 5, 6\}$

$C = \{4, 5\}$

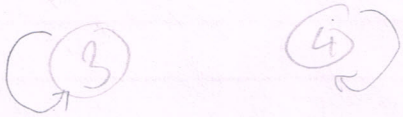
$A \cap B = \{3, 4\}$

Question 2

[6 marks]

CLO1, C2

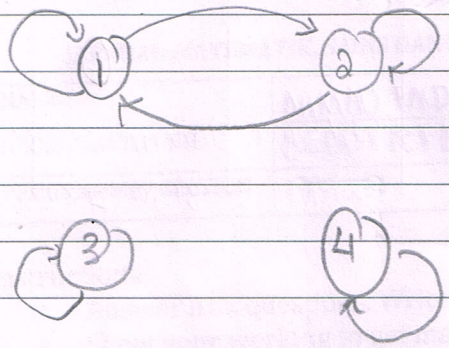
Given the relations {(1, 1), (1, 2), (2, 1), (2, 2), (3, 3), (4, 4)} on the set {1, 2, 3, 4}. Identify whether the relations given are equivalence relations?



Not an equivalence relation because we are missing the edges (1,3), (3,4), (3,4), (4,3), (2,4) and (4,2) for symmetrices, and

No: AHMAD FAUZI BIN SAREE 05DDT18F1005 Date:

Question 2.



- Not an equivalence relation because we are missing the edges (1,3), (3,1), (3,4), (4,3) (2,4) and (4,2) for symmetrices, and (1,4), (4,1), (2,3) and (3,2) for transitivity.

6

Questions 4.

$f(x) = -3x+7$

$g(x) = 2x^2 - 8$

$fg(x)$, $gf(x)$

$fg(x) = f \circ g(x)$

$= f[g(x)]$

$= f[2x^2 - 8]$

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

$= g \circ f(x)$

$= g(-3x+7)$

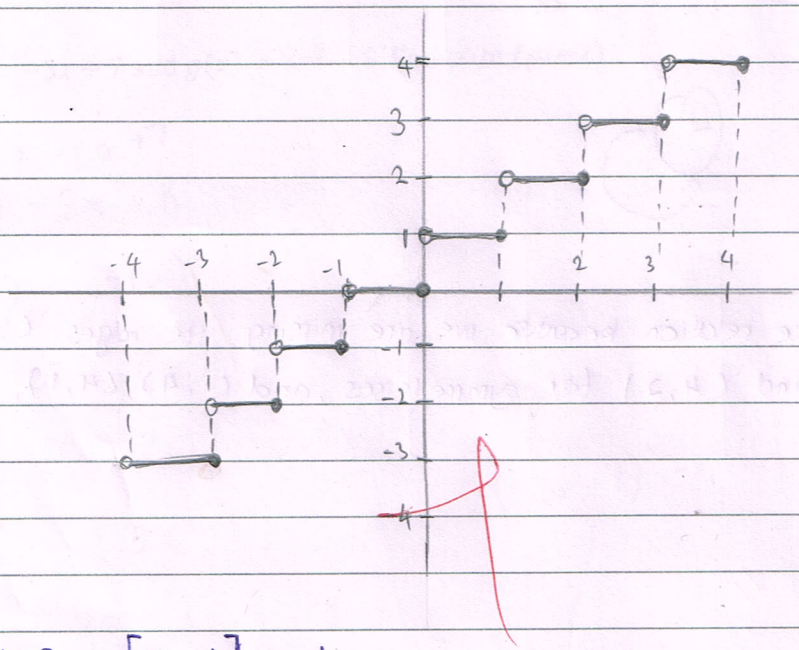
$= 2(-3x+7)^2 - 8$

3

No: ..... Date: .....

Question 3

$f(x) = \lceil x - 1 \rceil$ for the range $-4 \leq x \leq 4$.



$x = 0$ $\lceil 0 - 1 \rceil = -1$

$x = 0.5$ $\lceil 0.5 - 1 \rceil = \lceil -0.5 \rceil = 0$

$x = 0.9$ $\lceil 0.9 - 1 \rceil = \lceil -0.1 \rceil = 0$

$x = 1$ $\lceil 1 - 1 \rceil = 0$

$x = 2$ $\lceil 2 - 1 \rceil = 1$

KEMENTERIA PENDIDIKAN MALAYSIA

POLITEKNIK MALAYSIA

JABATAN MATEMATIK, SAINS DAN KOMPUTER

NAME	Vanessa ak Richard	COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
REGISTRATION NO.	050DT18F1050	COURSEWORK ASSESSMENT		TUTORIAL 2	
PROGRAMME/ SECTION	DDT2	SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	20 MARKS
				CLO2	
				CLO3	
		TOTAL MARKS		~~20~~ 23 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.

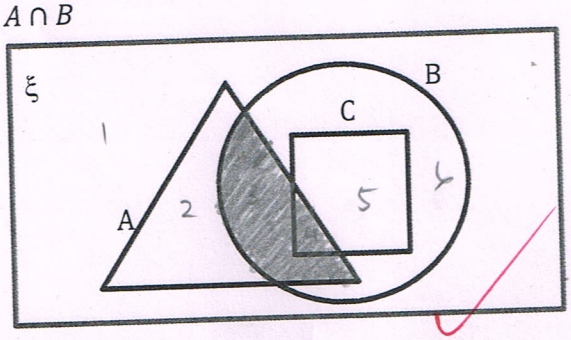
Question 1

[4 marks]

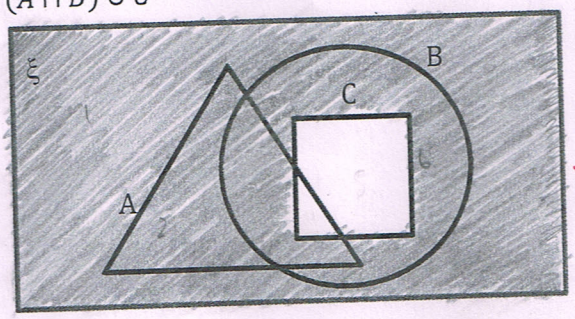
CLO1, C2

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 $A \cap B$



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



Question 2

[6 marks]

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?

Vanessa ak Richard (05DDT18F1050)
Linda Andrias (05DDT18F1003)

No:

Subject:

Date: 21 Jan 2019

Question 2.

$R = \{(1,1), (1,2), (2,1), (2,2), (3,3), (4,4)\}$ on the set $\{1, 2, 3, 4\}$

(i) R is reflexive since all the element loop to itself.

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

(iii) R is transitive because $(1,1) \in R$ and $(1,2) \in R$ then $(2,1) \in R$

$\therefore$ R is equivalence relations because R is reflexive, symmetric and transitive.

Question 4.

$$fg(x) = f[g(x)]$$
$$= f[2x^2 - 8]$$
$$= -3(2x^2 - 8) + 7$$
$$= -6x^2 + 24 + 7$$
$$= -6x^2 + 31$$

$$fg(-2) = -6(-2)^2 + 31$$
$$= 7$$

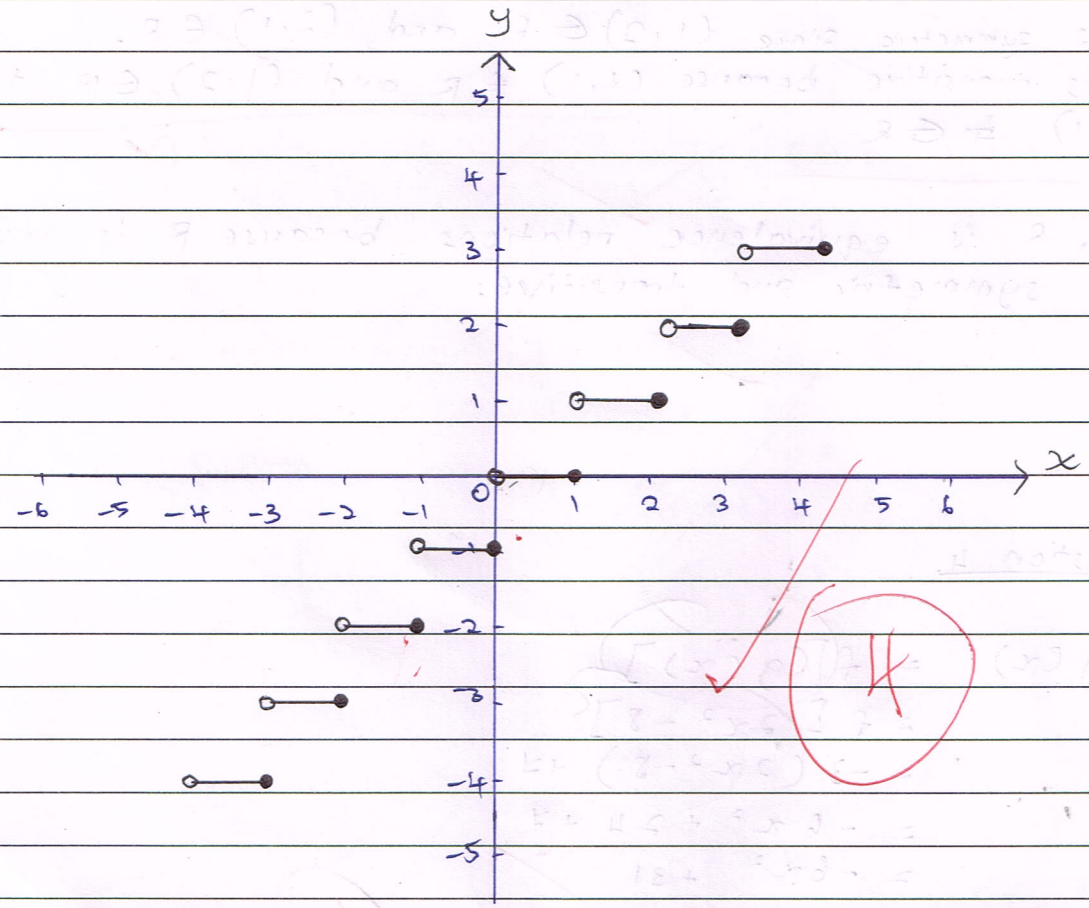
ii) R is symmetris since aRb and bRa for $(a\ b) \in R$

iii) R is transitive since whenever aRb, bRc, then aRc

No:.....

Subject:..... Date: . .

③ $f(x) = \lceil x - 1 \rceil$ for the range $-4 \leq x \leq 4$



4

$y = \lceil x \rceil$

$y = (x - 1)$

$\lceil 1 - 1 \rceil = 0$

$\lceil 1.7 - 1 \rceil = 0.7 = 1$

KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		TUTORIAL 2	
		SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	20 MARKS
				CLO2	
				CLO3	
NAME	NUR ATHIRAH SYAHIDA BINTI KHALIL	TOTAL MARKS		20 MARKS	
REGISTRATION NO.	06DDT18F1110				
PROGRAMME/ SECTION	DDT2B				

16

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.

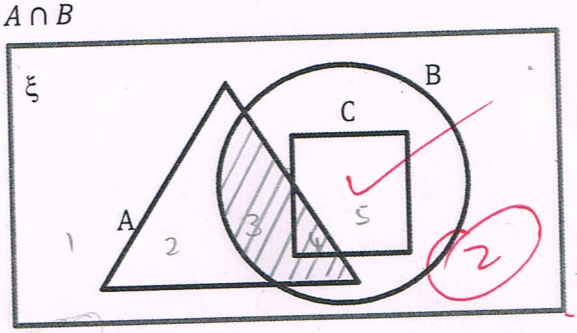
Question 1

[4 marks]

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

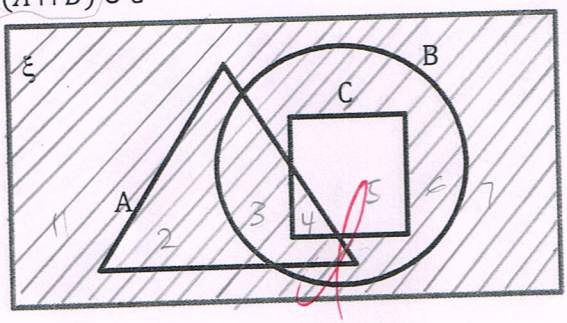
(a) The set $A \cap B$



A = {2, 3, 4}
B = {3, 4, 5}
A∩B = {3, 4}

2

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



~~A = ξ~~
A∩B = {3, 4}
C^{M} = {3, 4, 5, 6}
C' = {1, 2, 7}
= {1, 2, 3, 4, 7}

Question 2

[6 marks]

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?

NO.: Date:

Question 2

CLO1, C2

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

$x = \{1, 2, 3, 4\}$

- Reflexive = Relation R is reflexive because specifically (1,1), (2,2), (3,3) and (4,4) are in R.

- Symmetric = Relation R is symmetric since whenever aRb ∈ bRc

- Transitive = R is transitive since (1,2), (2,1) ∈ R and (1,1) ∈ R.

- R is equivalent relation because R is ~~symm~~ reflexive, Symmetric and transitive.

Question 4

Let $f(x) = -3x + 7$ and $g(x) = 2x^2 - 8$. Compare $fg(-2)$

$fg(x) = f\,g(x)$

$= f\,[g(x)]$

$= f(2x^2 - 8)$

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

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

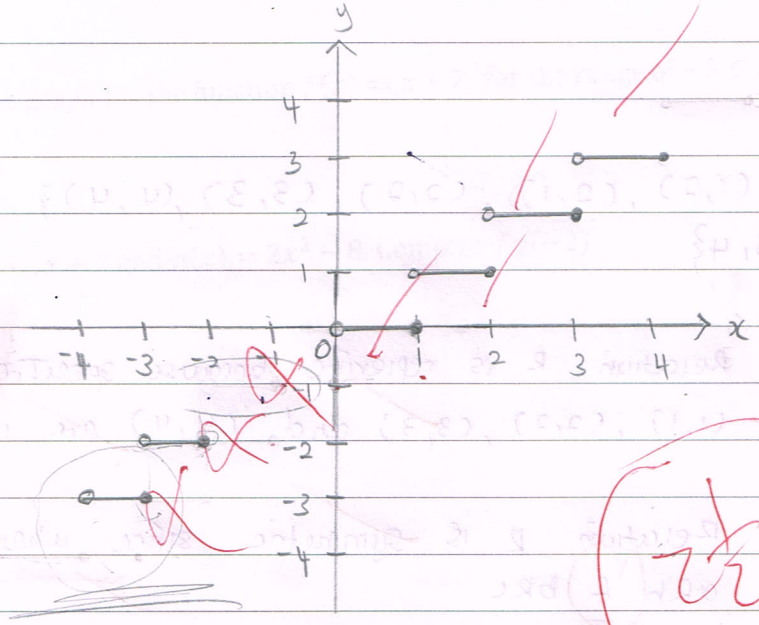
$= -6x^2 + 31$

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

$= 7$

NO.: Date:

Question 3.



$x=0 \quad [0-1]=[-1]=0$

$x=1 \quad [1-1]=[0]=1$

$x=2 \quad [2-1]=[1]=2$

$x=3 \quad [3-1]=[2]=3$

$x=4 \quad [4-1]=[3]=4$

$x=-2 \quad [-2-1]=[-3]=$

$x=-3 \quad [-3-1]=[-4]=$

$x=-4 \quad [-4-1]=[-5]=$

KEMENTERIA PENDIDIKAN MALAYSIA

POLITEKNIK MALAYSIA

JABATAN MATEMATIK, SAINS DAN KOMPUTER

NAME	ASMIRA SHAZLEENA	COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
REGISTRATION NO.	05DDT18F1010	COURSEWORK ASSESSMENT		TUTORIAL 2	
PROGRAMME/ SECTION	DDT2B - S2	SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	20 MARKS
				CLO2	
				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.

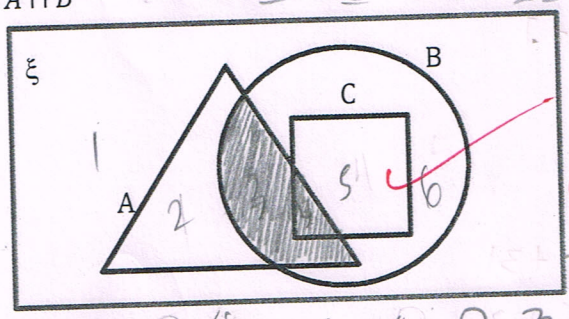
Question 1

[4 marks]

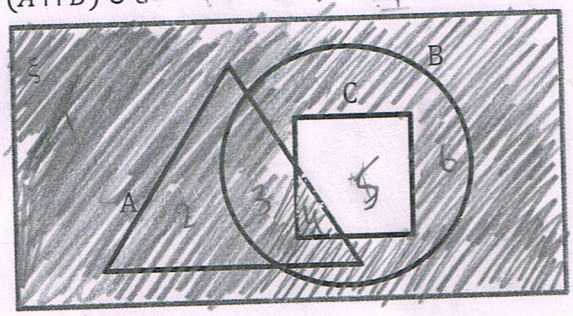
CLO1, C2

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 $A \cap B$



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

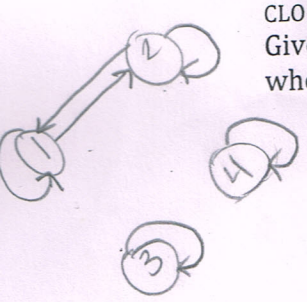


Question 2

[6 marks]

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?



reflexive

symmetric

transitive

R is reflexive since all the elements loop to itself

R is symmetric since (1,2), (2,1) ∈ R but (3,3) ∉ R.

No.: Date:

Question 1

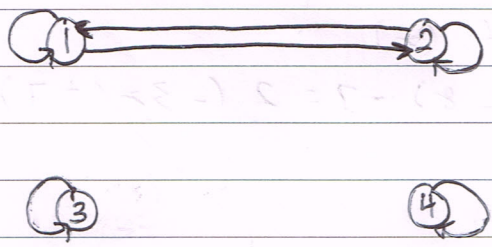
a) $A \cap B$

$$\{2, 3, 4\} \cap \{3, 4, 5, 6\} = \{3, 4\}$$

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

$$(\{2, 3, 4\} \cap \{3, 4, 5, 6\}) \cup \{4, 5\} = \{5\}$$

Question 2



a) R is reflexive since all the elements loop to itself

b) R is not assymetric since $(1,2), (2,1) \in R$.

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

d) R is not equivalance relations because R is not assymetric but R is reflexive and transitive.

2

3

No.: Date:

Question 4

$f(x) = -3x + 7$

$g(x) = 2x^2 - 8$

$fg(x)$ $gf(x)$

$fg(x) = fog(x)$

$= f[g(x)]$

$= f[-3x + 7]$

$= f[2x^2 - 8]$

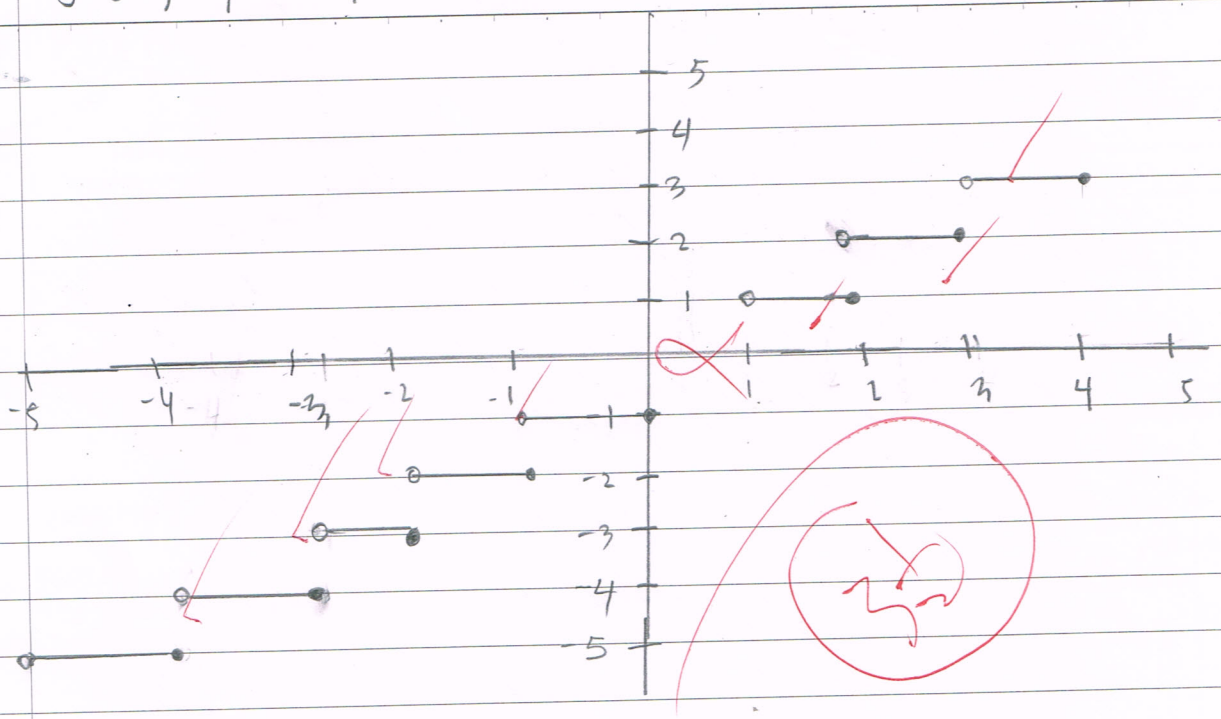
$= -3(2x^2 - 8) + 7$

$fg(x) = gf(x)$

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

No.: Date:

$f(x) = \lceil x - 1 \rceil$ for the range $-4 \leq x \leq 4$



$-4 - 1 = -5$
$-3 - 1 = -4$
$-2 - 1 = -3$
$-1 - 1 = -2$
$0 - 1 = -1$
$1 - 1 = 0$
$2 - 1 = 1$
$3 - 1 = 2$
$4 - 1 = 3$