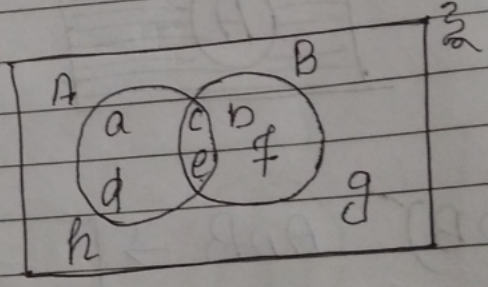
Ex-6.E



1) i) $A \cup B$

$A = \{a, c, d, f\}$
$B = \{b, c, e, f\}$

$A \cup B = \{a, c, d, f\} \cup \{b, c, e, f\}$
$= \{a, b, c, d, e, f\}$

ii) $A' \cup B$

$A = \{a, c, d, f\}$ $A' = \{b, f, g, h\}$
$B = \{b, c, e, f\}$
$A' \cup B = \{b, f\}$

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iii) $A-B$

$A = \{a, c, d, e\}$

$B = \{b, c, e, f\}$

$A-B = \{a, c, d, e\} - \{b, c, e, f\}$

$A-B = \{a, d\}$

iv) $B-A$

$A = \{a, c, d, e\}$

$B = \{b, c, e, f\}$

$B-A = \{b, c, e, f\} - \{a, c, d, e\}$

$= \{b, f\}$

v) $(A \cup B)'$

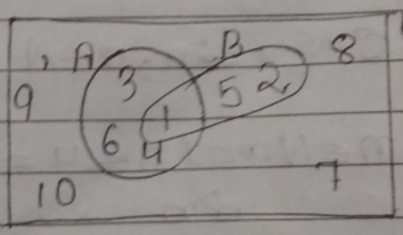
$A \cup B = \{a, b, c, d, e, f\}$

$(A \cup B)' = \{h, g\}$

2) i) A'

$A = \{3, 6, 4, 1\}$

$B = \{1, 5, 2\}$



i) $A' = \{2, 5, 7, 8, 9, 10\}$

ii) $B = \{1, 5, 2\}$

$B' = \{3, 4, 6, 7, 8, 9, 10\}$

iii) $A' \cup B'$

$A' \cup B' = \{2, 5, 7, 8, 9, 10\} \cup \{3, 4, 6, 7, 8, 9, 10\}$

$= \{2, 3, 4, 5, 6, 7, 8, 9, 10\}$

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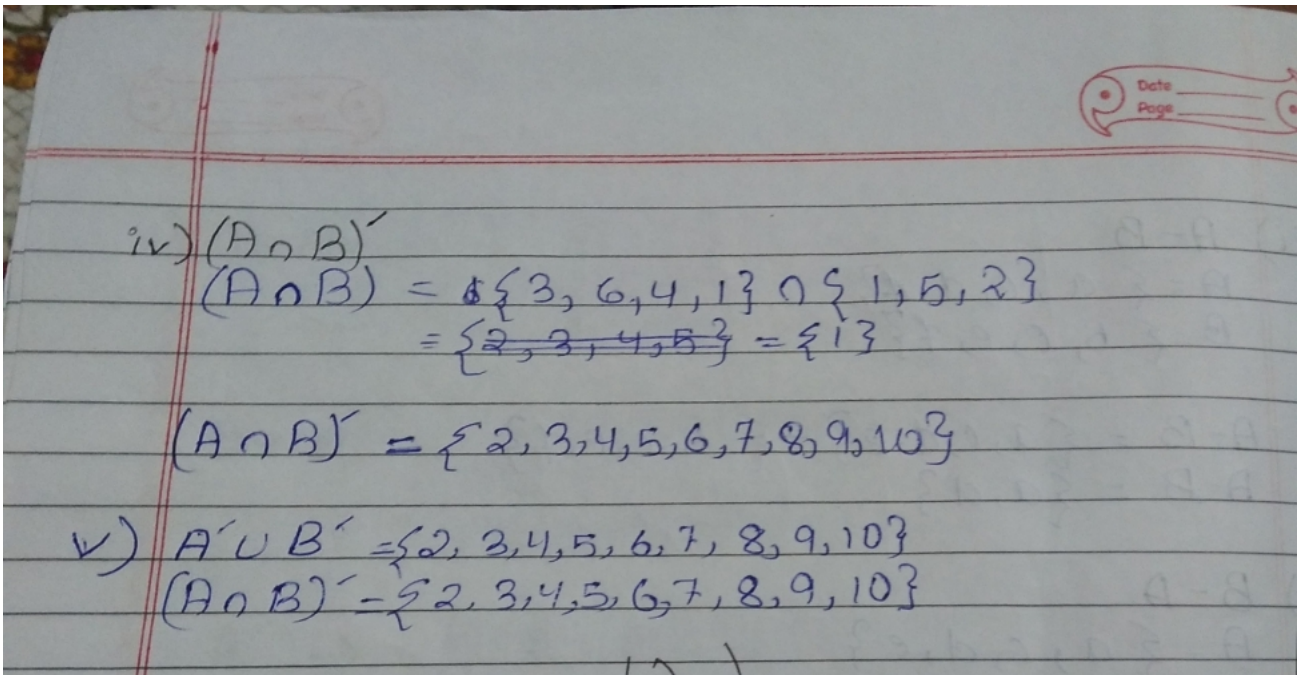
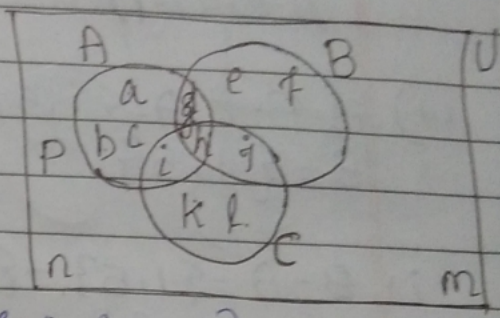

iv) $(A \cap B)'$
$(A \cap B) = \{3, 6, 4, 1\} \cap \{1, 5, 2\}$
$= \{2, 3, 4, 5\} = \{1\}$
$(A \cap B)' = \{2, 3, 4, 5, 6, 7, 8, 9, 10\}$
v) $A' \cup B' = \{2, 3, 4, 5, 6, 7, 8, 9, 10\}$
$(A \cap B)' = \{2, 3, 4, 5, 6, 7, 8, 9, 10\}$

Eau-6.(E)

Q) set A = {a, b, c, d, g, h, i}
B = {d, e, f, g, h, j}
C = {h, i, j, k, l}



i) A ∪ (B ∩ C)
B ∩ C = {d, e, f, g, h, j} ∩ {h, i, j, k, l}
= {h, j}

∴ A ∪ (B ∩ C) = {a, b, c, d, g, h, i} ∪ {h, j}
= {a, b, c, d, g, h, i, j}

ii) B − (A − C)
A − C = {a, b, c, d, g, h, i} − {h, i, j, k, l}
= {a, b, c, d, g}

B − (A − C) = {d, e, f, g, h, j} − {a, b, c, d, g}
= {e, f, h, j}

iii) A − B
{a, b, c, d, g, h, i} − {d, e, f, g, h, j}
= {a, b, c, i}

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iv) $A \cap B'$

$B' = \{a, b, c, i, k, l, m, n, p\}$

$A \cap B' = \{a, b, c, d, g, h, i\} \cap \{a, b, c, i, k, l, m, n, p\}$

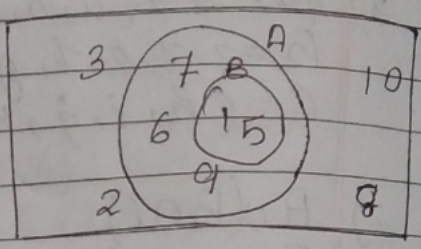
$= \{a, b, c, i\}$

From (iii) and (iv) we can conclude that

$A - B = A \cap B'$

4) ~~i) B-A~~ $A = \{1, 5, 6, 7, 9\}$

$B = \{1, 5\}$



i) $B - A = \{1, 5\} - \{1, 5, 6, 7, 9\}$

$= \{\}$

ii) $A = \{1, 5, 6, 7, 9\}$

(iii) $B' = \{2, 3, 6, 7, 8, 9, 10\}$

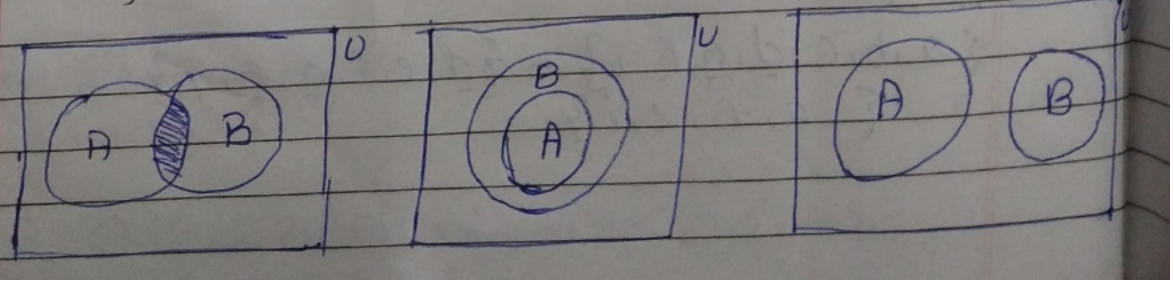
iv) $A \cap B = \{1, 5, 6, 7, 9\} \cap \{1, 5\}$

$= \{1, 5\}$

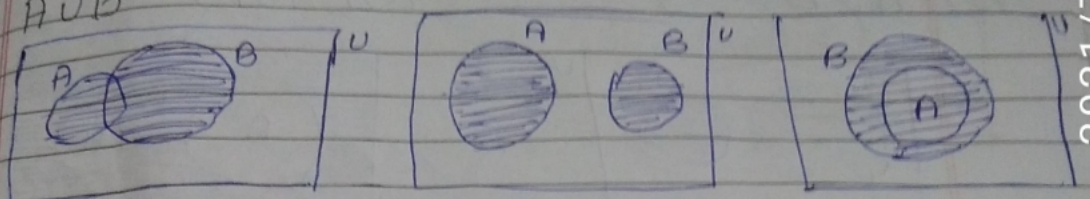
v) $A \cup B = \{1, 5\} \cup \{1, 5, 6, 7, 9\}$

$= \{1, 5, 6, 7, 9\}$

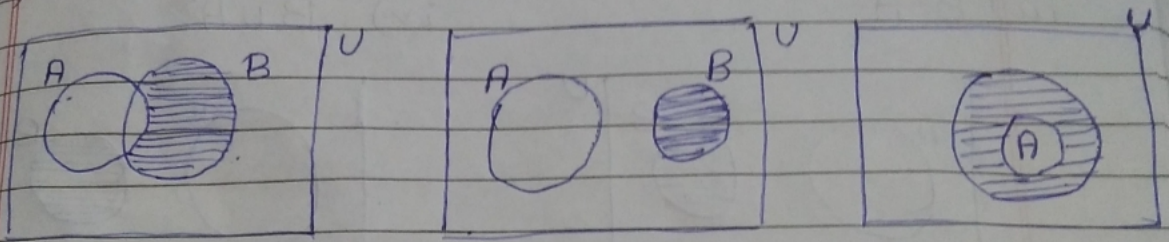
~~vi)~~ 5) i) $A \cap B$



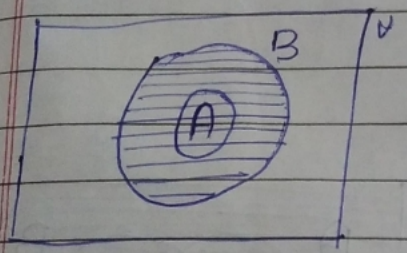
ii) $A \cup B$



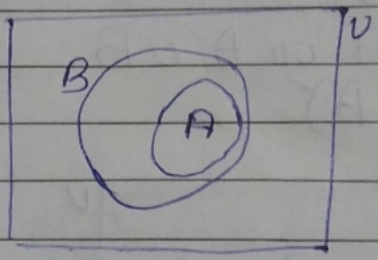
iii) $B - A$



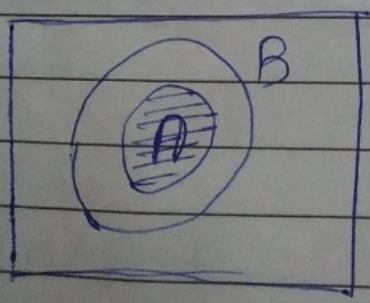
6) i) $A \cup B$



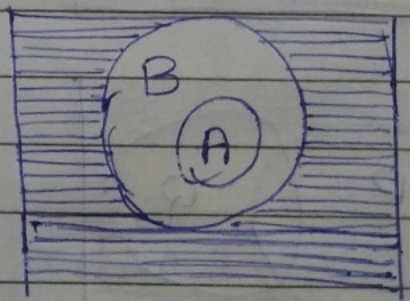
ii) $B' \cap A$



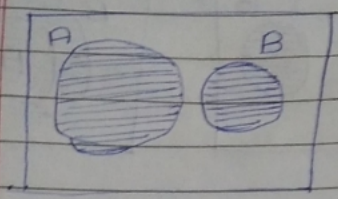
iii) $A \cap B$



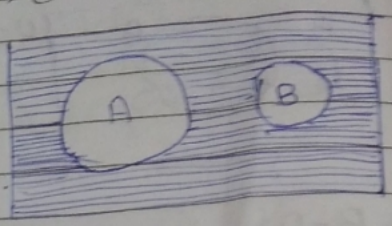
iv) $(A \cup B)'$



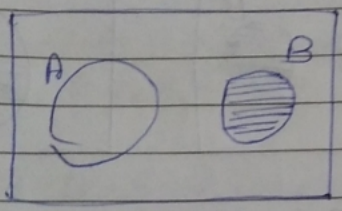
7) i) $A \cup B$



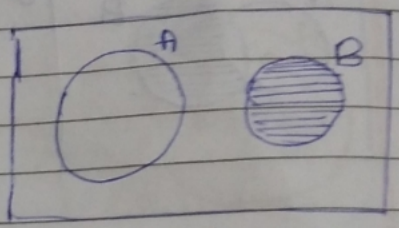
ii) $(A \cup B)'$



iii) $B - A$



iv) $B \cup A'$

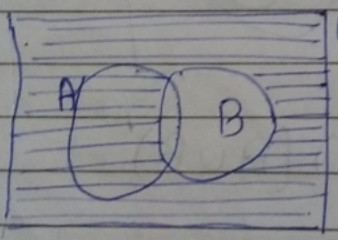


8) i) $(A \cup B)'$

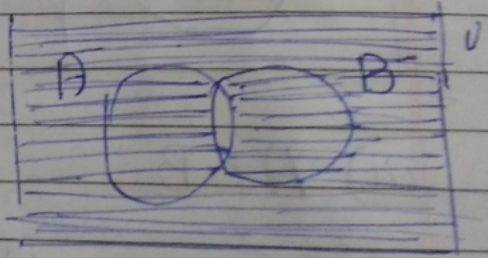
ii) $B - A$ or $A' \cup B$

iii) $(B - A)'$

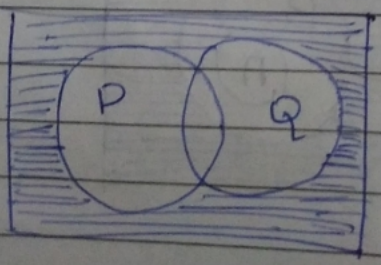
9) i)



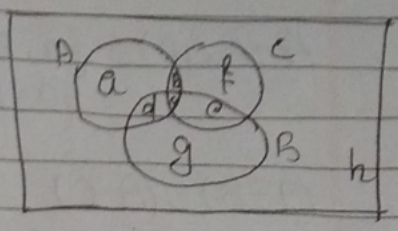
ii)



iii)



Q) $A = \{a, b, c, d\}$
$B = \{c, d, e, g\}$
$C = \{c, b, e, f\}$



i) $(A \cup B) \cup C$

$A \cup B = \{a, b, c, d\} \cup \{c, d, e, g\}$
$= \{a, b, c, d, e, g\}$

$(A \cup B) \cap C = \{a, b, c, d, e, g\} \cap \{c, b, e, f\}$
~~$= \{a, b, c, d, e, f, g\}$~~
$= \{a, d, g\}$

ii) $B - (A \cap C)$

$(A \cap C) = \{a, b, c, d\} \cap \{c, b, e, f\}$
$= \{b, c\}$

$B - (A \cap C) = \{c, d, e, g\} - \{b, c\}$
$= \{e, g\}$ $\{d, e, g\}$

iii) $(B \cap C) \cup A$

$B \cap C = \{c, d, e, g\} \cap \{c, b, e, f\}$
$= \{c, e\}$

$(B \cap C) \cup A = \{c, e\} \cup \{a, b, c, d\}$
$= \{a, b, c, d, e\}$

$A - (B \cap C)$
$B \cap C = \{c, d, e, g\} \cap \{c, b, e, f\}$
$= \{c, e\}$

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$A-(B \cap C) = \{a, b, c, d\} - \{c, e\}$
$= \{a, b, d\}$

$(A-B) \cup (A-C)$
$= A-B = \{a, b, c, d\} - \{c, d, e, g\}$
$= \{a, b\}$

$(A-C) = \{a, b, c, d\} - \{b, c, e, f\}$
$= \{a, d\}$

$(A-B) \cup (A-C) = \{a, b\} \cup \{a, d\}$
$= \{a, b, d\}$

v) i) $A-B$
ii) $(A \cup B) - (A \cap B)$ or $(A-B) \cup (B-A)$
iii) $(A \cap B)'$
iv) B'
v) $(A \cup B)'$