Exercise 6(E)

1. From the given diagram find:

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

ii) $A' \cap B$
$= \{b, f\}$

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

iv) $B - A$
$= \{b, f\}$

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

2. From the given digram, find:

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

ii) B'
$= \{3, 4, 5, 6, 7, 8, 9, 10\}$

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

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

3. Use the given diagram to find:

i) $A \cup (B \cap C)$
$= \{a, b, c, d, g, h, i, j\}$

ii) $B - (A - C)$
$= \{e, f, h, j\}$

iii) $A - B$
$= \{a, b, c, i\}$

iv) $A \cap B'$
Is $A \cap B' = A - B$?
$= \{a, b, c, i\}$
yes

4. Use the given Venn-diagram to find:

i) B-A
$= \{\emptyset\}$

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

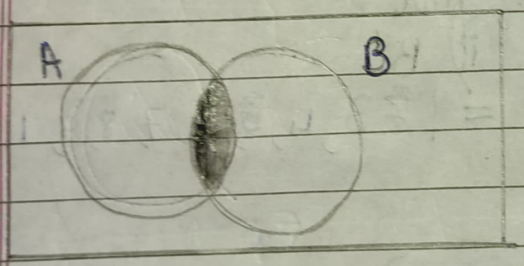
iii) B'
$= \{6, 7, 9, 2, 3, 4, 8, 10\}$

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

v) $A \cup B$
$= \{6, 7, 9, 15\}$

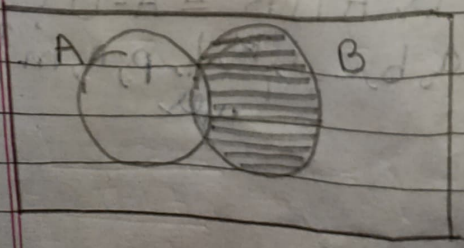
5. Draw a Venn diagram to show the relationship between two overlapping sets A and B. Now shade the region representing:

i) $A \cap B$



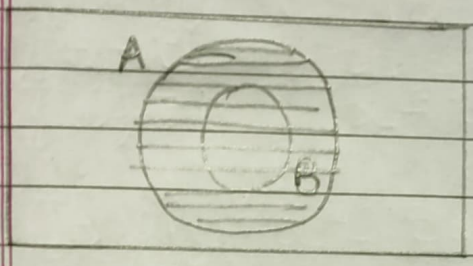
ii) $A \cup B$

iii) B-A

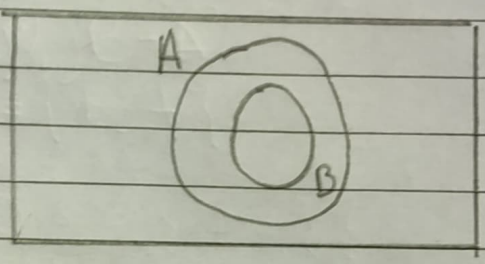


6. i) Draw a Venn-diagram to show the relationship between sets A and B; such that $A \subseteq B$. Now ~~show~~ shade the region representing.

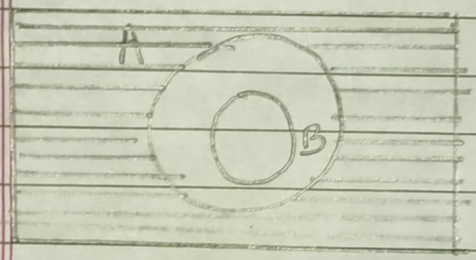
i) $A \cup B$



ii) $B' \cap A$

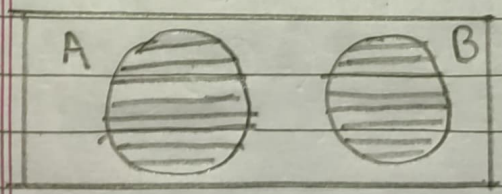


iii) $(A \cup B)'$

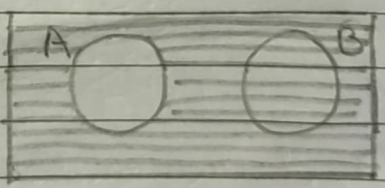


7. Two sets A and B are such that $A \cap B = \emptyset$. Draw a Venn-diagram to show the relationship between A and B. Shade the region representing:

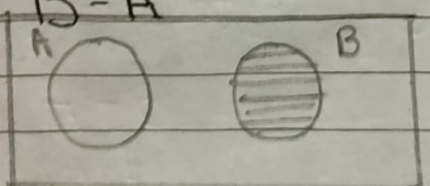
i) $A \cup B$



iv) $B' \cap A'$



iii) $B - A$

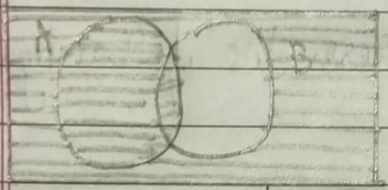


8. State the sets represented by the shaded portion of the following Venn-diagrams:

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

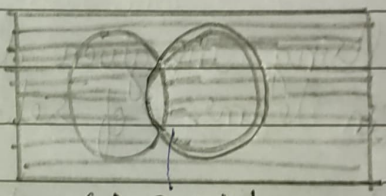
9. In each of the ~~following~~ given diagrams, shade the region which represents the set given underneath the diagram

i)



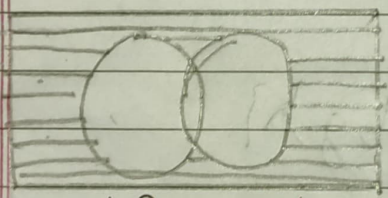
$(B - A)'$

ii)



$(A \cap B)'$

iii)



$(P \cup Q)'$

10. From the given diagram find:

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

$= A \cup B$

$\{a, b, c, d, e, g\}$

C

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

Ans $= \{a, d, g\}$

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

$= A \cap C$

$\{b, c\}$

B

$= \{c, d, e, g\}$

Ans $= \{d, e, g\}$

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

Verify: $A - (B \cap C)$

$= (A - B) \cup (A - C)$

$= B \cap C$

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

Ans- $\{a, b, c, d, e\}$

11. Using the given diagram, express the following sets in terms of set A and B.

i) $\{a, d\}$

$= A \cup B'$

ii) $\{a, d, c, f\}$

$= (A \cap B)'$

iii) $\{a, d, c, f, g, h\}$

$= A' \cap B'$

iv) $\{a, d, g, h\}$

$= B - A$

v) $\{g, h\}$

$= (A \cup B)'$