Q.1

(a) {4, 5, 6, 7, 8, 9, 10, 11}

(b) {2, 4, 6, 8, 10}

(c) {0, 1, 4, 9, 16, 25, 36, 49, 64, 81}

(d) $\{\sqrt{2}\}$ / $\{\emptyset\}$

Q.2

(a) False
(b) False
(c) True
(c) True
(d) False
(e) True

(Q.3) Subset or No Subset ($\subseteq$ / $\not\subseteq$)

(i) (a) $\subseteq$ Subset

(b) $\not\subseteq$

(c) $\subseteq$

(d) $\not\subseteq$

(e) $\subseteq$, (f) $\subseteq$ (g) $\subseteq$

(ii) (a) DAE
{1, 3, 5}

(b) DUE
{1, 2, 3, 4, 5, 7, 9}

(c) {1}

(d) $\emptyset$? ?

(e) $\{\emptyset\}$ (f) {1, 3, 5, 9}

(4) (a) $\{a\} \rightarrow \{\{\emptyset\}, \{a\}\}$

(a) $\{1, 2, 4\}$

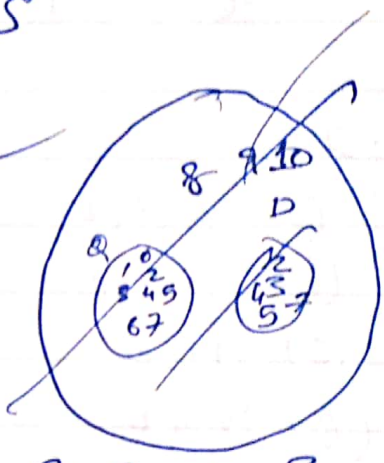
$2^3 = 8$

$\{\emptyset, 1, 2, 4, \{1, 2\}, \{2, 4\}, \{1, 4\}, \{1, 2, 4\}\}$

(6) $U = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$P = \{2, 3, 5, 7\}$

$Q = \{0, 1, 2, 3, 4, 5, 6, 7\}$



Q.6 (b) $P' = \{0, 1, 4, 6, 8, 9, 10\}$

$P' \cap Q = \{0\ 1\ 4\ 6\}$

(c) $n(P' \cap Q) = 7$? $n = 7$

Q.5

(a) $n(P(\{a, b, \{a, b\}\}))$

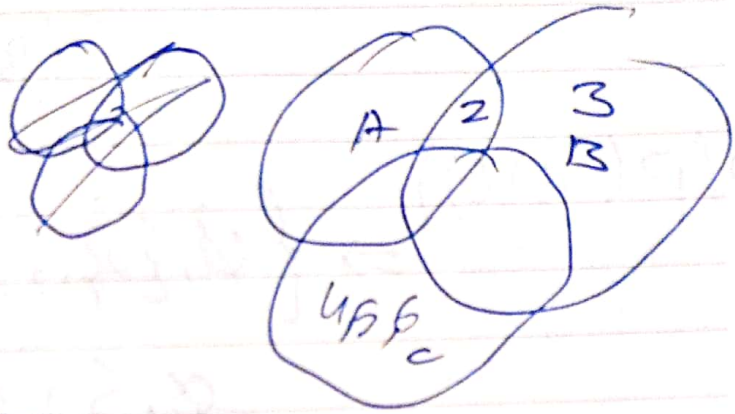
$n = 3$, $2^3 = 8$

(b) $2^4 = 16$

(c) $\emptyset^{\wedge} =$

Q.7) $A = \{2\}$, $B = \{2, 3\}$, $C = \{4, 5, 6\}$

(a)



(b) $P(B)$

$B = \{2, 3\}$

$P(B) = \{\{\}, \{2\}, \{3\}, \{2, 3\}\} \Rightarrow \{\emptyset, \{2\}, \{3\}, \{2, 3\}\}$

(b) $P(P(A))$: $P(A) = \{2\}$ $\quad 2^1 = 2$

$P(P(A)) = \{\emptyset, \{2\}\}$ $\quad 2^2 = 4$

$P(P(A)) = \{\emptyset, \{\emptyset\}, \{2\}, \{\emptyset, \{2\}\}\}$

(c) $n(C \cup B)$

$n(\{2, 3, 4, 5, 6\})$

$n = 5$

(d) $n(P(P(B \setminus C)))$ $\Rightarrow$ $B - C = \{2, 3\}$

$\{\emptyset, \{2\}, \{3\}, \{2, 3\}\}$

$\emptyset, \{\emptyset\}, \{2\}, \{3\}, \{\emptyset, 2\}, \{\emptyset, 3\}, \{2, 3\}, \{\emptyset, 2, 3\}$

$n(P(P(B \setminus C))$ $\Rightarrow \{2, 3\}$ $(B \setminus C) \Rightarrow a \; b$

$P(B \setminus C) = \{\emptyset, \{2\}, \{3\}, \{2, 3\}\}$

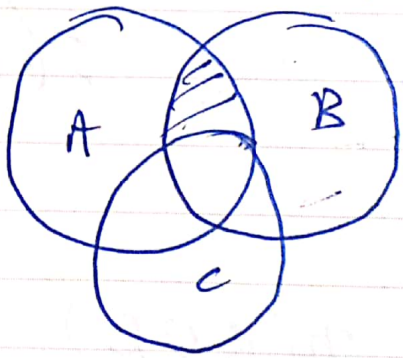
$P(P(B \setminus C))$ $\Rightarrow \{\emptyset, \{2\}, \{3\}, \{2,3\}, \{\emptyset, 2\}, \{\emptyset, 3\}$

$\emptyset, \{2,3\}, \{3, \{2,3\}\}, \{2, \{2,3\}\}$

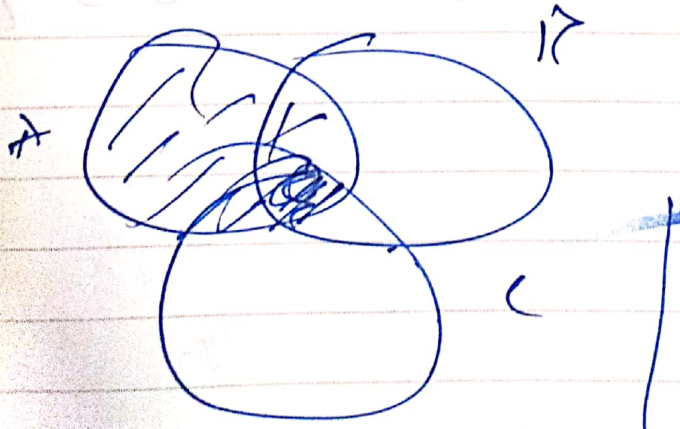
- - - - .

$n = 16$

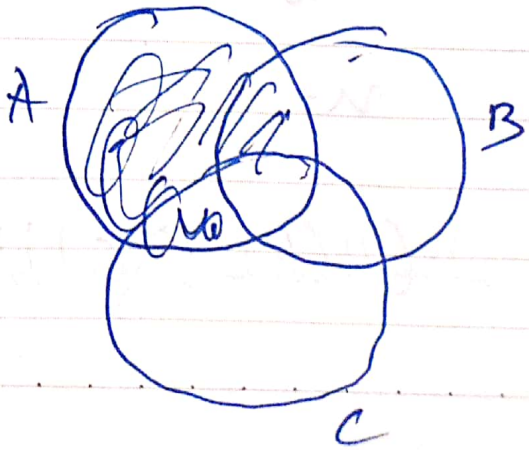
Q.8 (a) $A \cap (B - C)$



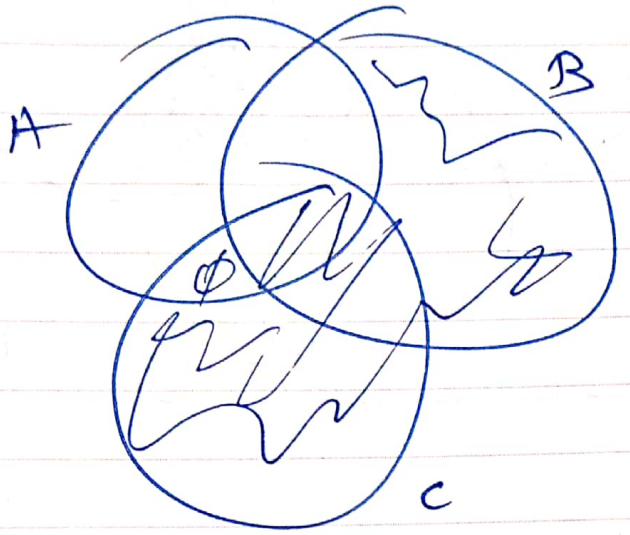
(b) $A \cap (B - C)'$

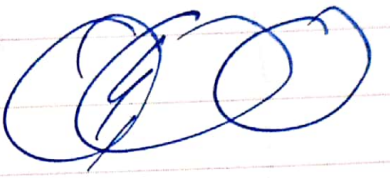


(c) $(A \cap B') \cup (A \cap C')$



(d) $A \cap (B \cup C)$ $A \cap C = \emptyset$

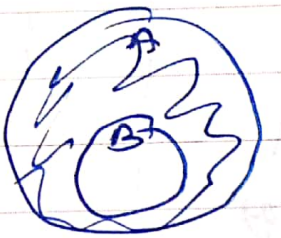




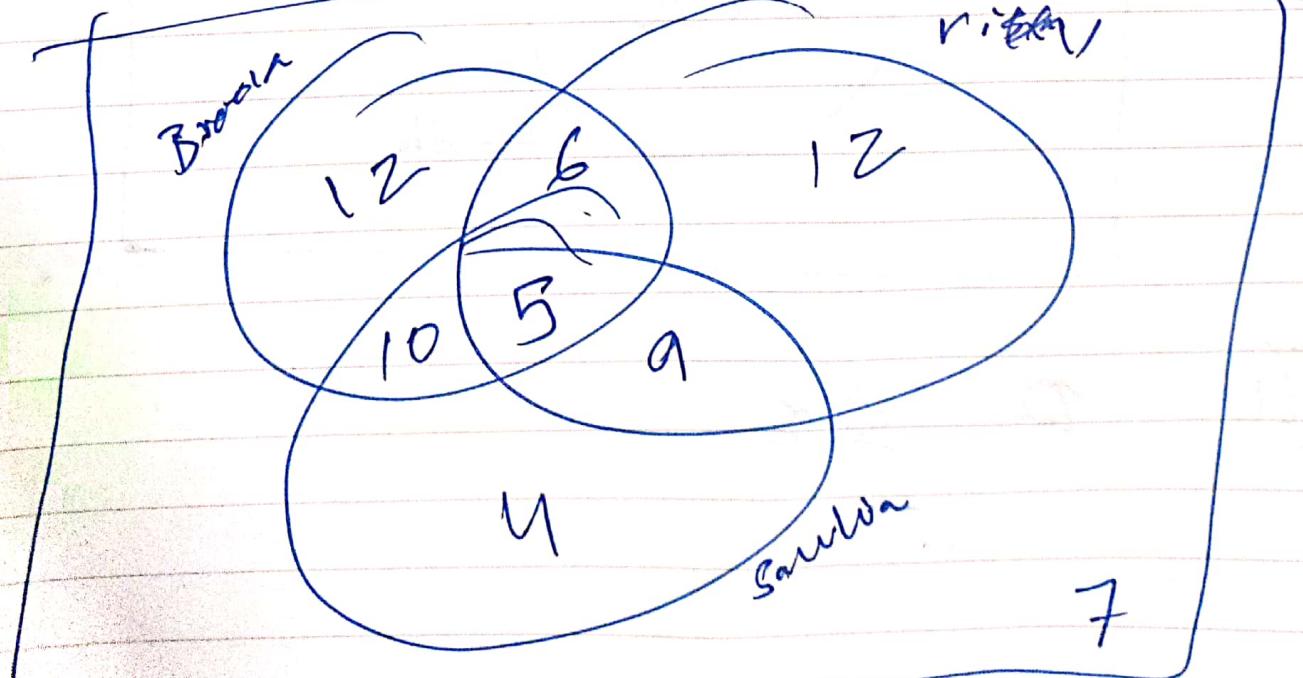
(e)

Given that

$B \subset A$, find $A \cap B$ =



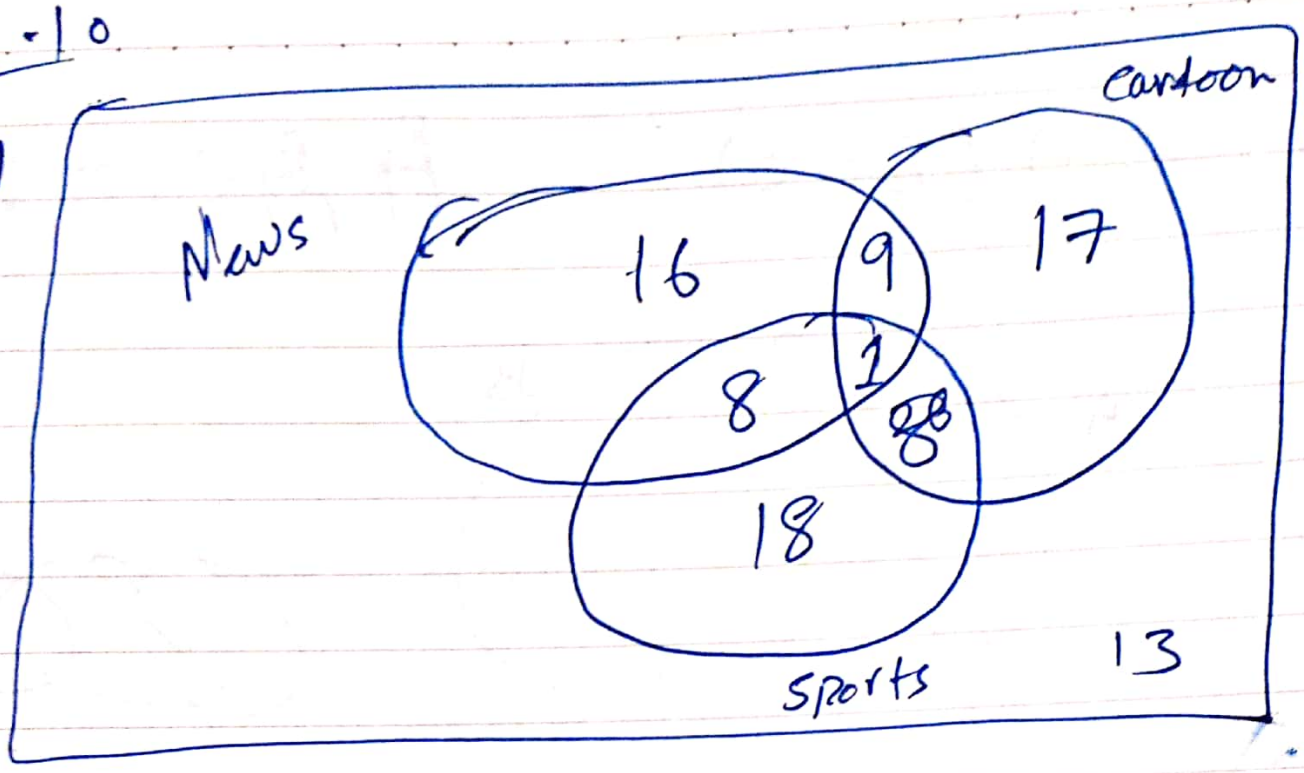
Q.9



65 Total

Q.10

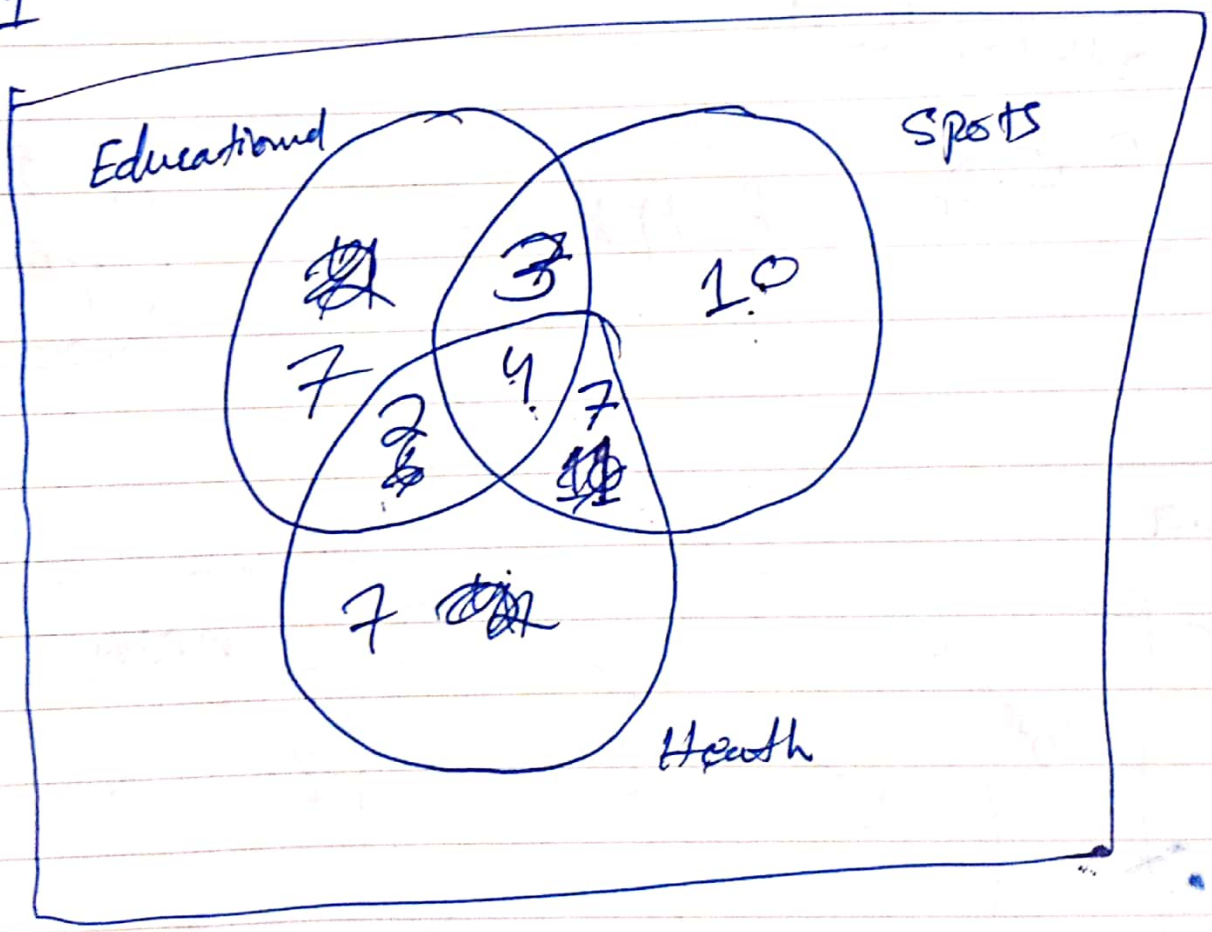
(a)



(b) 1

Q.11

(a)



(i) D Ans