Set Theory

1)

Write in words:

(a) $A \subset B$ _____ [1]

(b) $2 \in G$ _____ [1]

(c) $D = \varnothing$ _____ [1]

(d) $n(E) = 10$ _____ [1]

2)

$\xi = \{1,7,11,15\}$. List the members of the following sets:

(i)   {multiples of 3}

Answer: {_____} _____ [1]

(ii)   {factors of 21}

Answer: {_____} _____ [2]

(iii)   {prime numbers}.

Answer: {_____} _____ [2]

3)

$\varepsilon = \{2, 4, 6, 8, 10, 12, 14\}$
$X = \{2, 4, 8, 10\}$
$Y = \{6, 8, 14\}$

(a)　Using the sets above, state whether each statement is true or false.

(i)　　$8 \notin Y$

Answer: _____ [1]

(ii)　　$\{4, 6\} \subseteq X$

Answer: _____ [1]

(b)　List the members of

(i)　　$X \cup Y$

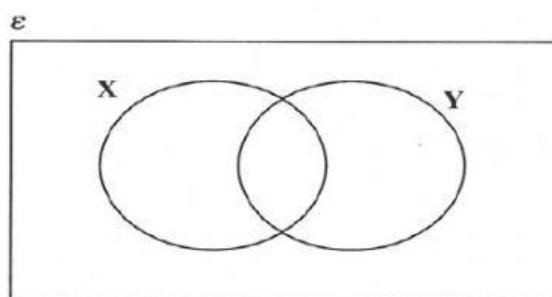Answer: _____ [1]

(ii)　　Y'

Answer: _____ [2]

(iii)　　$n(x)'$
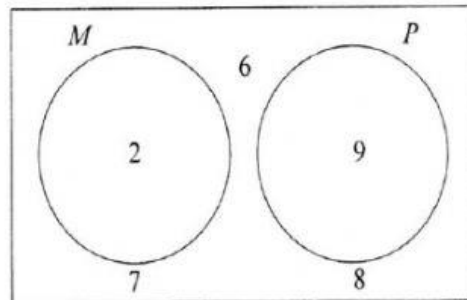
Answer: _____ [2]

(iv)　　$X \cap Y$

Answer: _____ [1]

(c)　Complete the Venn diagram, writing each member of **X** and **Y** in the correct region.

Answer: _____ [4]

4)

Use the Venn diagram below to answer the questions which follow.

List the member(s) of

(i) M,

Answer: {_____} [1]

(ii) P,

Answer: {_____} [1]

(iii) $M \cup P$,

Answer: {_____} [1]

(iv) $M \cap P$,

Answer: {_____} [1]

(v) M',

Answer: {_____} [2]

(vi) ε.

Answer: {_____} [2]