Sets Ex 1.4 Q5

(i) False,

The correct statement is $a \in \{a,b,c\}$.

(ii) False, $\because$ $\{a\}$ is a subset and not an element of $\{a,b,c\}$

The correct form is $\{a\} \subset \{a,b,c\}$.

(iii) False, $\because$ a is not an element of $\{\{a\},b\}$

The correct form is $\{a\} \in \{\{a\},b\}$

(iv) False, $\because \{a\}$ is not a subset of $\{\{a\},b\}$ hence it cannot be contained in it.

The correct form is $\{a\} \in \{\{a\},b\}$. Another correct form could be $\{\{a\}\} \subset \{\{a\},b\}$.

(v) False, $\because$ $\{b,c\}$ is an element and not a subset of $\{a,\{,bc\}\}$.

The correct form is $\{b,c\} \in \{a,\{b,c\}\}$.

(vi) False, $\because$ $\{a,b\}$ is not a subset of $\{a,\{b,c\}\}$

The correct form is $\{a,b\} \not\subset \{a,\{b,c\}\}$.

(vii) False, $\because$ ϕ is not an element of $\{a,b\}$.

The correct form is $\phi \subset \{a,b\}$.

(viii) True, $\because$ empty set ϕ is a subset of every set.

(ix) False, $\because \{x : x+3=3\} = \{x : x=0\} = \{0\}$

The correct form is $\{x : x+3=3\} \neq \phi$.

Sets Ex 1.4 Q6

(i) False, $\{c,d\}$ is an element of A and not a subset of A.

(ii) True, $\because \{c,d\}$ is indeed an element of A.

(iii) True, $\because \{c,d\}$ is a subset of A.

(iv) True,

(v) False, $\because$ a belongs to A and not a subset of A. An element of a set belongs to it whereas a subset of it is contained in it.

(vi) True, $\because \{a,b,e\}$ is a subset of A.

(vii) False, $\because \{a,b,e\}$ is a subset of A, so it does not belong to A.

(viii) False, $\because \{a,b,c\}$ is not a subset of A.

(ix) False, $\because \phi$ is a subset and not an element of A.

(x) False, $\because \phi$ and not $\{\phi\}$ is a subset of A.

Sets Ex 1.4 Q7

(i) False, $\because 1$ is not an element of A.

(ii) False, $\because \{1,2,3\}$ is not a subset of A, it is an element of A.

(iii) True, $\because \{6,7,8\}$ is indeed an element of A.

(iv) True, $\because \{\{4,5\}\}$ is indeed a subset of A.

(v) False, $\because \phi$ is a subset and not an element of A.

(vi) True, $\because \phi$ is a subset of every set, and hence a subset of A.

Sets Ex 1.4 Q8

(i) True, $\because \phi$ indeed belongs to A.

(ii) True, $\because \{\phi\}$ is an element of A.

(iii) False, $\because \{1\}$ is not an element of A.

(iv) True, $\because \{2,\phi\}$ is a subset of A.

(v) False, $\because 2$ is not a subset of A, it is an element of A.

(vi) True, $\because \{2,\{1\}\}$ is not a subset of A.

(vii) True, $\because \{\{2\},\{1\}\}$ is not a subset of A.

(viii) True, $\because \{\phi,\{\phi\},\{1,\phi\}\}$ is a subset of A.

(ix)True, $\because \{\{\phi\}\}$ is a subset of A.

********** END **********