$\begin{array}{c} Sets \\ (2012-2013 \ Academic \ Year: \ Tutorial \ Questions) \end{array}$

Exercises

- 1.1 Given the sets $A = \{1, 2, 3, 4\}$ and $B = \{1, 3, 5, 9\}$, where these form the universal set, compute the following (i) $A \cup B$, (ii) $A \cap B$, (iii) $A \setminus B$, (iv) $B \setminus A$, and (v) \overline{A} , and \overline{B} .
- 1.2 Given the sets $A = \{0, 2, 5, 6\}$ and $B = \{1, 3, 5, 9\}$, compute the following (i) $A \cup B$, (ii) $A \cap B$, (iii) $A \setminus B$, and (iv) $B \setminus A$.
- 1.3 Draw a Venn diagram to illustrate the relationships between two sets A and B for the following cases, noting where appropriate $A \setminus B$, $B \setminus A$, $A \cap B$, $A \cup B$: (i) $A \cap B = \emptyset$ and (ii) $A \cup B = A$, where $A \neq B$.
- 1.4 If set $A = \mathbb{R}$, and set B contains the elements 1, 2, 3, 4, 5, what is $A \cup B$?
- 1.5 If set $A = \mathbb{R}^+$ and set $B = 0, \mathbb{R}^-$, what is $A \cup B$?
- 1.6 If set $A = \mathbb{Z}$, and set B contains the elements 1, 2, 3, 4, 5, what is $A \cap B$?
- 1.7 If set $A = \mathbb{R}^+$ and set $B = \mathbb{R}^-$, what is $A \cap B$?
- 1.8 If $A = \mathbb{C}$, set $B = \mathbb{Z}$, and set $C = \mathbb{R}^+$, what is $A \cup B \cap C$?
- 1.9 If $A = \mathbb{C}$, set $B = \mathbb{Z}$, and set $C = \mathbb{R}^+$, what is $A \cup B \cap \overline{C}$?
- 1.10 Write down the decimal set Ω_{Decimal} .
- 1.11 Write down the set of primary colours.
- 1.12 What is $\mathbb{C} \cup \mathbb{Z}$?
- 1.13 What is $\mathbb{Z} \cap \mathbb{R}$?
- 1.14 What is $\{x|x > 5\} \cap \{x|x < 10\}$?
- 1.15 What is $\{x|x > 5\} \cup \{x|x < 10\}$?