

Answer no: 4

Given that,

$$U = \{1, 2, \dots, 9\}$$

$$A = \{1, 2, 3, 4, 5\}$$

$$B = \{4, 5, 6, 7\}$$

$$C = \{5, 6, 7, 8, 9\} \quad D = \{1, 3, 5, 7, 9\}$$

$$E = \{2, 4, 6, 8\}$$

$$F = \{1, 5, 9\}$$

(a)

$$\begin{aligned} A \cup B &= \{1, 2, 3, 4, 5\} \cup \{4, 5, 6, 7\} \\ &= \{1, 2, 3, 4, 5, 6, 7\} \end{aligned}$$

$$\begin{aligned} A \cap B &= \{1, 2, 3, 4, 5\} \cap \{4, 5, 6, 7\} \\ &= \{4, 5\} \end{aligned}$$

$$\begin{aligned} (b) \quad A \cup C &= \{1, 2, 3, 4, 5\} \cup \{5, 6, 7, 8, 9\} \\ &= \{1, 2, 3, 4, 5, 6, 7, 8, 9\} \end{aligned}$$

$$\begin{aligned} A \cap C &= \{1, 2, 3, 4, 5\} \cap \{5, 6, 7, 8, 9\} \\ &= \{5\} \end{aligned}$$