Answer no: 4

Given that,

$$U = \{1, 2, \ldots, 9\}$$
$$A = \{1, 2, 3, 4, 5\}$$
$$B = \{4, 5, 6, 7\}$$
$$C = \{5, 6, 7, 8, 9\} \quad D = \{1, 3, 5, 7, 9\}$$
$$E = \{2, 4, 6, 8\}$$
$$F = \{1, 5, 9\}$$

(a)

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

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

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

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