Assignment 1

Due by 2020-09-20, 23:59 IST

1. Let the options that are correct be true. If a statement is true, then it is correct. If a statement is false, then it is not correct.
   a. A statement can be both true and false. 1 point
   b. A statement can be both true and false. 1 point
   c. A statement can be both true and false. 1 point
   d. A statement can be both true and false. 1 point

2. Which of the following logical statements are equivalent to the statement $p \rightarrow q$? 1 point
   a. $\neg p \lor q$ 1 point
   b. $p \land q$ 1 point
   c. $p \land \neg q$ 1 point
   d. $\neg p \land q$ 1 point

3. Which of the following statements are true? 1 point
   a. $p \rightarrow q$ implies $p \rightarrow q$ 1 point
   b. $p \land q$ implies $p \land q$ 1 point
   c. $p \lor q$ implies $p \lor q$ 1 point
   d. $p \land q$ implies $p \land q$ 1 point

4. Which of the following statements are true? 1 point
   a. $p \rightarrow q$ implies $p \rightarrow q$ 1 point
   b. $p \land q$ implies $p \land q$ 1 point
   c. $p \lor q$ implies $p \lor q$ 1 point
   d. $p \land q$ implies $p \land q$ 1 point

5. Which of the following statements are true? 1 point
   a. $p \rightarrow q$ implies $p \rightarrow q$ 1 point
   b. $p \land q$ implies $p \land q$ 1 point
   c. $p \lor q$ implies $p \lor q$ 1 point
   d. $p \land q$ implies $p \land q$ 1 point

6. Let $A = \{1, 2, 3\}$ be a set and $\mathcal{P}(A)$ be the power set of $A$. Which of the following are true? 1 point
   a. $\mathcal{P}(A) = \{\emptyset, \{1\}, \{2\}, \{3\}, \{1, 2\}, \{1, 3\}, \{2, 3\}, \{1, 2, 3\}\}$ 1 point
   b. $\mathcal{P}(A) = \{\emptyset, \{1\}, \{2\}, \{3\}, \{1, 2\}, \{1, 3\}, \{2, 3\}\}$ 1 point
   c. $\mathcal{P}(A) = \{\emptyset, \{1\}, \{2\}, \{3\}, \{1, 2\}, \{1, 3\}, \{2, 3\}\}$ 1 point
   d. $\mathcal{P}(A) = \{\emptyset, \{1\}, \{2\}, \{3\}, \{1, 2\}, \{1, 3\}, \{2, 3\}\}$ 1 point

7. Which of the following are true? 1 point
   a. $p \rightarrow q$ implies $p \rightarrow q$ 1 point
   b. $p \land q$ implies $p \land q$ 1 point
   c. $p \lor q$ implies $p \lor q$ 1 point
   d. $p \land q$ implies $p \land q$ 1 point

8. Which of the following are true? 1 point
   a. $p \rightarrow q$ implies $p \rightarrow q$ 1 point
   b. $p \land q$ implies $p \land q$ 1 point
   c. $p \lor q$ implies $p \lor q$ 1 point
   d. $p \land q$ implies $p \land q$ 1 point

9. Which of the following are true? 1 point
   a. $p \rightarrow q$ implies $p \rightarrow q$ 1 point
   b. $p \land q$ implies $p \land q$ 1 point
   c. $p \lor q$ implies $p \lor q$ 1 point
   d. $p \land q$ implies $p \land q$ 1 point

10. Which of the following are true? 1 point
    a. $p \rightarrow q$ implies $p \rightarrow q$ 1 point
    b. $p \land q$ implies $p \land q$ 1 point
    c. $p \lor q$ implies $p \lor q$ 1 point
    d. $p \land q$ implies $p \land q$ 1 point