GATE-CS2021-7

December 2023

1. Let p and q be two propositions. Consider the following two formulae in propositional logic.

$$S_1 : (\rightarrow p \vee (p \wedge q)) \rightarrow q \tag{1}$$
$$S_2 : q \rightarrow (\rightarrow p \vee (p \wedge q)) \tag{2}$$

Which one of the following choices is correct?   (GATE-CS2021)

(A) Both S_1 and S_2 are tautologies.

(B) S_1 is a tautology but S_2 is not a tautology.

(C) S_1 is not a tautology but S_2 is a tautology.

(D) Neither S_1 nor S_2 is a tautology.