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4. Write the following sentence in if - then form: "A necessary condition for this computer program to be correct is that it not produce error messages during translation."

If this computer program is correct, then it does not produce error messages during translation.

5.

(a) Write 45 in base 2. $45 = 32 + 8 + 4 + 1 = 101101_2$

(b) Write 45 in base 16. $45 = 2 \cdot 16 + 13 = 2D_{16}$

A \rightarrow 10
 B \rightarrow 11
 C \rightarrow 12
 D \rightarrow 13

6. Are $p \wedge (q \vee r)$ and $(p \wedge q) \vee (p \wedge r)$ logically equivalent? Justify your answer.

Yes. It is the distributive law