1. (5 pts) What mathematical symbols are used to express the following Boolean operations?
   (a) OR \( \lor \)
   (b) AND \( \land \)
   (c) NOT \( \neg \)
   (d) EXCLUSIVE XOR \( \oplus \)
   (e) IMPLIES \( \rightarrow \)
   (f) EQUIVALENT \( \equiv \)

2. (5 pts) How many truth assignments are there for five Boolean variables \( p, q, r, s, \) and \( t \)?
   Answer: There are \( 2^5 = 32 \) truth assignments.

3. (5 pts) How many Boolean function \( B(p, q, r, s, t) \) of five Boolean variables are there?
   Answer: There are \( 2^{2^5} = 2^{32} \) Boolean functions of 5 variables.

4. (10 pts) Construct a truth table to show that \( \neg (p \rightarrow q) \) is equivalent to \( p \land \neg q \).
   Answer:
   \[
   \begin{array}{c|c|c|c|c}
   \text{Input} & p & q & \neg (p \rightarrow q) & \equiv p \land \neg q \\
   \hline
   0 & 0 & 0 & 1 & 1 & 0 \\
   0 & 1 & 0 & 1 & 1 & 0 \\
   1 & 0 & 1 & 0 & 1 & 1 \\
   1 & 1 & 0 & 1 & 1 & 0 \\
   \end{array}
   \]