

Practice Questions:

Q.1 Translate into predicate logic:

- (a) Every teacher teaches some subject.
- (b) No student likes exams.
- (c) Some animals are not carnivores.
- (d) Everyone who studies hard succeeds.

Q.2 Use **resolution** to prove:

- (a) If it is cold, then people wear jackets. It is cold. \rightarrow People wear jackets.
- (b) If a person is a parent, then they care for their child. John is a parent. \rightarrow John cares for his child.

Q.3 Use resolution to test satisfiability:

- (a) $P \vee Q$
- (b) $\neg P \vee R$
- (c) $\neg R$

What conclusion can be derived?

Q.4 Given the knowledge base:

- All doctors are educated: $\forall x (\text{Doctor}(x) \rightarrow \text{Educated}(x))$
- Smith is a doctor: $\text{Doctor}(\text{Smith})$

Prove: Educated (Smith).

Q. 5 Knowledge Base:

- All students who read books are intelligent.
- Ravi is a student.
- Ravi reads books.

Use resolution to prove: Ravi is intelligent.