

**IT9030 – Knowledge Engineering**

**Time : 3 Hours**

**Max. Marks : 100**

**Answer All Questions**

**Part A (10 x 2 = 20 Marks)**

1. Define Knowledge Engineering?
2. What is expressiveness?
3. Define Horn clause.
4. What is Vivid Knowledge?
5. Write the Closed World Assumption.
6. Define Semiotics.
7. What is Entailment?
8. Write the applications of Inheritance Networks.
9. What is modal logic?
10. Define 'Complex Action'.

**Part B (5 x 16 = 80 Marks)**

11. (i) Explain the syntax and semantics of first order logic. (8)  
(ii) Explain ontologies in detail. (8)
12. (a) (i) Explain the algorithm used to convert well formed formulas into clause form. (8)  
(ii) Compare propositional logic and predicate logic. (8)  
(OR)  
(b) (i) Explain forward chaining and backward chaining inference methods. (8)  
(ii) Explain the syntax semantics of Description Logic. (8)
13. (a) (i) Explain the Frame formalism. (8)  
(ii) Compare Taxonomics and classification (8)  
(OR)  
(b) (i) Explain about Inheritance. (8)  
(ii) List the strategies for Defeasible Inheritance and explain them. (8)
14. (a) (i) Explain Default Logic with examples. (8)  
(ii) What is Fuzzy Logic? Explain it in detail. (8)  
(OR)  
(b) (i) Explain Non-Monotonic logic in detail. (8)  
(ii) Explain Probabilistic reasoning with examples. (8)
15. (a) (i) What are explanation an Diagnosis? Explain them. (8)  
(ii) Explain actions to be performed by a robot. (8)  
(OR)  
(b) (i) Explain situational calculus with examples (8)  
(ii) Compare the hierarchical and conditional planning techniques. (8)