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B.E./B.Tech. Degree Examinations, Nov./Dec. 2013
IT9030 – Knowledge Engineering
Branch : Information Technology

Regulations : 2008

Elective

Time : 3 Hours

Max.Marks : 100

Answer all questions

Part A (10 x 2 = 20 Marks)

1. Define knowledge representation.
2. What is knowledge acquisition?
3. Define Horn Clause. Give an example.
4. Write the De Morgan's laws.
5. What is Entailment?
6. Write the advantages of object oriented representation.
7. Define 'Intelligent Agents'.
8. State the Baye's rule.
9. What is modal logic?
10. Define the frame problem.

Part B (5 x 16 = 80 Marks)

11. (i) Write syntax, semantics and inference rules of first order logic. (8)
(ii) Explain the Ontological Engineering process. (8)
12. (a) (i) Write the resolution algorithm. (8)
(ii) You are given the following facts (*1) P (*2) $(P \wedge Q) \rightarrow R$
(*3) $SVT \rightarrow Q$ (4) T. Using these and resolution, prove that R is true. (8)
(OR)
(b) (i) Explain normalization in Description Logic. (8)
(ii) How will you use rules to represent knowledge? Explain in detail. (8)
13. (a) (i) Explain the knowledge representation using frames. (8)
(ii) How will you compute subsumption and satisfaction? (8)
(OR)
(b) (i) Explain the inheritance networks. (8)
(ii) List the strategies for defeasible inheritance and explain them. (8)
14. (a) (i) Explain the Closed World Reasoning with an example. (8)
(ii) Explain the Autoepistemic logic. (8)
(OR)
(b) (i) Define non-monotonic logic. Explain it with an example. (8)
(ii) Explain belief networks in detail. (8)
15. (a) (i) Define explanation and diagnosis. Explain them briefly. (8)
(ii) Explain situation calculus with examples. (8)
(OR)
(b) (i) Provide a solution to the frame problem using actions. (8)
(ii) Explain hierarchical planning. (8)