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2/5/13

B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2013

INFORMATION TECHNOLOGY

ELECTIVE

IT 9030 – KNOWLEDGE ENGINEERING

(Regulation 2008)

Time : 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Write the uses of knowledge representation using logic.
2. Define 'Knowledge Acquisition'.
3. Provide an example for Horn clause and explain it.
4. Compare Description logic with predicate logic.
5. What is meant by entailment?
6. Define Inheritance.
7. What is Default Logic?
8. Write the application of Auto epistemic logic.
9. Define 'Modal Reasoning'.
10. What is 'Frame Problem'?

Part – B (5 x 16 = 80 marks)

11. (i) Write the inference rules used in first order logic and explain them. (8)
(ii) Develop an ontology to explain the knowledge about animal kingdom. (8)
12. a) (i) State the resolution algorithm for propositional logic. Explain it with an example. (8)
(ii) Explain the algorithm used to convert well formed formulas into clause form. (8)

OR

- b) (i) What are production rules and working memory? Explain them. (8)
(ii) You are given the following facts and rules

Toddler

Toddler \rightarrow Child

Child \wedge Male \rightarrow Boy

Infant \rightarrow Child

Child \wedge Female \rightarrow Girl

Female

Prove that the Knowledge base entails "Girl". (8)

13. a) (i) Explain the reasoning with frames. (8)
(ii) Define 'Normalisation'. Explain it. (8)

OR

- b) (i) How will you compute classification? (8)
(ii) Compare taxonomies and Frame Hierarchies. (8)

14. a) (i) Explain Fuzzy logic with examples for handling uncertainty. (8)
(ii) Explain non- monotonic logic with an example. (8)

OR

- b) (i) Explain belief networks with an example. (8)
- (ii) Define conditional Probability and Independence. Explain them with examples. (8)

15. a) (i) What is explanation? How is it useful for diagnosis? Discuss about explanation based reasoning. (8)
- (ii) Define Action. Explain actions using situation logic. (8)

OR

- b) (i) Explain planning in STRIPS. (8)
- (ii) Explain hierarchical and conditional planning. (8)