S 9104

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Fourth Semester

Computer Science and Engineering

CS 240 — ARTIFICIAL INTELLIGENCE

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List some metrics to measure the success of an intelligent program.

2. Define production system.

3. What is meant by Heuristic search techniques?

4. Define Horn clause.

5. Explain Forward Reasoning.

6. Draw the functional block diagram of an agent. Explain.

7. Explain Dependency – Directed Back tracking.

8. What is meant by Truth Maintenance Systems.

9. Define Baye's theorem.

10. Define conditional planning.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the basics of searching. List some searching algorithms. (6)

    (ii) Write A* algorithm and explain.   (10)

Or

   (b) (i) Explain the logic of MIN-MAX algorithm.   (8)

    (ii) Discuss the problems encountered while using hill-climbing algorithm. (8)

12. (a) (i) Explain Resolution with suitable examples.   (8)

    (ii) Describe unification algorithm with suitable illustration.   (8)

Or

(b) (i) Represent the following sentences using first order Predicate Logic : (10)

   (1) Cats, Dogs and Horses are mammals.

   (2) Every mammal has a parent.

   (3) An offspring of a cat is a cat.

   (4) Silky Black is a cat.

   (5) Silky Black is Browny's parent.

   (6) Offspring and parent are inverse relations.

(ii) Answer for the following Queries : (6)

   (1) Browny is a cat?

   (2) Silky Black's offspring is Browny?

13. (a) (i) What is meant by Cognitive modeling? Explain. (8)

   (ii) Explain scripts in detail. (8)

Or

(b) (i) Define semantic nets. Explain how semantic nets are useful for knowledge Representation and reasoning. (8)

   (ii) Write short notes on Frames. (8)

14. (a) (i) Differentiate Monotonic and Non-monotonic Reasoning with examples. (8)

   (ii) Why decision-making is a complex procedure? Explain. (8)

Or

(b) (i) What is meant by uncertain knowledge? Explain the role of uncertainity in reasoning process.

   (ii) Write short notes on Probabilistic Reasoning systems.

15. (a) (i) Explain the structure of a planning agent. (5)

   (ii) Explain various types of learning methods. (6)

   (iii) Define Replanning. Explain. (5)

Or

(b) (i) Describe any one model of neural network.

   (ii) Illustrate how the use of operators in genetic algorithms help in achieving optimized solutions.

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