Reg. No. : | | | | | | | | | | | |

T 3184

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

Sixth Semester

(Regulation 2004)

Computer Science and Engineering

CS 1351 — ARTIFICIAL INTELLIGENCE

(Common to B.E. (Part-Time) Fifth Semester Regulation 2005)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Define artificial intelligence.

2. What is the use of heuristic functions?

3. How to improve the effectiveness of a search-based problem-solving technique?

4. What is a constraint satisfaction problem?

5. What is unification algorithm?

6. How can you represent the resolution in predicate logic?

7. List out the advantages of nonmonotonic reasoning.

8. Differentiate between JTMS and LTMS.

9. What are framesets and instances?

10. List out the important components of a script.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Give an example of a problem for which breadth-first search would work better than depth-first search. (8)

(ii) Explain the algorithm for steepest hill climbing. (8)

Or

(b) Explain the following search strategies.

(i) Best-first search (8)

(ii) A* search (8)

12. (a) Explain Min-Max search procedure.

Or

(b) Describe Alpha-Beta pruning and give the other modifications to the minmax procedure to improve its performance. (10 + 6)

13. (a) Illustrate the use of predicate logic to represent the knowledge with suitable example.

Or

(b) Consider the following sentences :

- John likes all kinds of food.
- Apples are food.
- Chicken is food.
- Anything anyone eats and isn't killed by is food.
- Bill eats peanuts and is still alive.
- Sue eats everything Bill eats.

(i) Translate these sentences into formulas in predicate logic.

(ii) Prove that John likes peanuts using backward chaining

(iii) Convert the formulas of a part into clause form

(iv) Prove that John likes peanuts using resolution. (4 × 4 = 16)

14. (a) With an example explain the logics for nonmonotonic reasoning.

Or

(b) Explain how Bayesian statistics provides reasoning under various kinds of uncertainty.

15. (a) (i) Construct semantic net representations for the following :

- *Pomepeian (Marcus), Blacksmith (Marcus)*
- Mary gave the green flowered vase to her favorite cousin.

$(2 \times 4 = 8)$

(ii) Construct partitioned semantic net representations for the following :

- Every batter hit a ball
- All the batters like the pitcher. $(2 \times 4 = 8)$

Or

(b) Illustrate the learning from examples by induction with suitable examples.