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Question Paper Code : 61165

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Sixth Semester

Computer Science and Engineering

CS 1351 – ARTIFICIAL INTELLIGENCE

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define: Rational Agent.
2. Distinguish depth-first and breadth first search strategies.
3. Give examples for partially observable agent environments.
4. Mention the significance of pruning.
5. Define heuristic function.
6. What is the advantage of Iterative deepening search?
7. Obtain a standard problem formulation for rolling a dice.
8. How does the stochastic-ness affect local beam search?
9. What are constraint satisfaction problems?
10. Examine the AI literature to discover whether the following tasks can currently be solved by computers. If you happen to arrive at any convincing answer, express the following relating to AI literature: Buying a week's worth of groceries in the market.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the nature of agents and agent environments. (8)
- (ii) Describe the PEAS description of autonomous fire fighter agent. (8)

Or

- (b) (i) Explain searching with partial information. (8)
- (ii) Compare the working of A* and AO* algorithms. (8)

12. (a) Explain Hill climbing and simulated annealing algorithms and compare the performance. (16)

Or

- (b) Explain the algorithm of Min-max decisions and alpha-beta pruning with respect to chess game. (16)

13. (a) Represent the family tree of Rama and Sita in first-order logic. You are free to decide on assumptions with respect to defining other family members. And try to answer the questions below from the knowledge represented.

(i) Who is the grandfather of Sita's grand daughter-in-law? (8)

(ii) Who is the next niece of Gita's brother-in-law's granddaughter? (8)

Or

- (b) Explain forward chaining and backward chaining with example. (16)

14. (a) Explain decision-tree learning for a parking-selection agent situated in a car-on-the-move. (16)

Or

- (b) Explain EM algorithm with an application of your choice. (16)

15. (a) Explain the challenges involved in the design of a Named Entity Recognition System for the language of your choice. (16)

Or

- (b) (i) Explain Statistical Machine Translation applied to poems. (8)

(ii) Explain the process of recipe blog retrieval. (8)