

N 1251

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2004.

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. What are the advantages one infer when machines perform intelligently?
2. What is the power of heuristic search?
3. What do you understand by first order logic?
4. When does one go for combined forward and backward reasoning?
5. Draw the semantic net for the statement. The Dog bit the mail carrier.
6. What is cognition knowledge?
7. When does uncertainty arise? What does it mean?
8. What is stochastic simulation?
9. What is meant by casual links?
10. What are the functions of neural networks?

PART B — (5 × 16 = 80 marks)

11. (i) What is an ideal rational agent? (4)
- (ii) Name atleast 5 agent types with percepts, actions and goals with environment. (8)
- (iii) Give the structure of an agent with goals. (4)

12. (a) (i) What are the components of planning? (4)
(ii) Give the algorithm for partial order planning. (8)
(iii) How to explain experience? (4)

Or

- (b) (i) How is learning achieved using neural networks? (12)
(ii) How does Genetic algorithm come out with optimal solutions? (4)
13. (a) (i) Discuss propositional logic with reference to its syntax, semantics, validity and inference, rules of inference. (12)
(ii) How is first order logic different from higher order logic. (4)

Or

- (b) State additional inference rules for first order logic. How those can be exploited to do a proof? Comment on it. (16)
14. (a) What is meant by nonmonotonic logic and justification based TMS? How does LTMS (Logic based Truth Maintenance System) differ from TMS? How to implement monotonic reasoning? (16)

Or

- (b) (i) What is the role of Baye's rule in handling uncertainty? (8)
(ii) How do you represent vagueness? (8)
15. (a) Discuss briefly the eight declarative structures in which knowledge can be represented. (16)

Or

- (b) (i) What are the benefits and limitations of using rules to represent knowledge and rule chaining for solving problems. (8)
(ii) How do frames capture a great deal of commonsense knowledge? Comment on it with suitable examples. (8)
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