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Question Paper Code : 91354

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

Sixth Semester

Computer Science and Engineering

CS 2351/CS 61/10144 CS 601 — ARTIFICIAL INTELLIGENCE

(Common to Seventh Semester – Electronics and Instrumentation
Engineering/Instrumentation and Control Engineering/Information Technology)

(Regulation 2008/2010)

(Common to PTCS 2351/ 10144 CS 601 – Artificial Intelligence for B.E. (Part–Time)
Sixth Semester –CSE – Regulation 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is heuristic search strategy?
2. What is constraint satisfaction problem?
3. Define atomic sentence and complex sentence.
4. What is unification?
5. Define consistent plan.
6. Define critical path.
7. State Bayes' rule.
8. What is first order Markov process?
9. Distinguish between supervised learning and unsupervised learning.
10. What is overfitting?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What is an agent? Explain the basic kinds of agent program. (10)
(ii) Explain the components necessary to define a problem. (6)

Or

- (b) (i) What is depth limited search? Give the recursive implementation of depth limited search. (8)
(ii) Discuss recursive best first search algorithm. (8)
12. (a) (i) Write the algorithm for deciding entailment in propositional logic. (8)
(ii) Explain standard quantifiers of first order logic with example. (8)

Or

- (b) (i) Explain the forward chaining algorithm with the help of the pseudo-code. (8)
(ii) Give the completeness proof of resolution. (8)
13. (a) (i) Explain the concepts of forward and backward state space search in detail. (8)
(ii) Describe Graphplan algorithm in detail with example. (8)

Or

- (b) (i) Describe a planning method based on hierarchical task networks with an example. (8)
(ii) Discuss various planning methods for handling indeterminacy. (8)
14. (a) (i) Explain variable elimination algorithm for answering queries on Bayesian networks. (8)
(ii) Discuss forward- backward algorithm in detail. (8)

Or

- (b) Discuss the different design issues to be solved to use HMM for real world applications. (16)
15. (a) (i) Explain decision tree learning algorithm. (8)
(ii) Discuss backpropagation algorithm for learning in multilayer neural network. (8)

Or

- (b) (i) Explain the basic concept of support vector machine. (8)
(ii) Give the complete agent design for an exploratory Q learning agent. (8)