

(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID : 110703

Roll No.

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B.TECH.

(SEM. VII) THEORY EXAMINATION, 2015-16

ARTIFICIAL INTELLIGENCE

[Time:3 hours]

[Total Marks:100]

SECTION-A

Note:All questions are *compulsory*.

1. Attempt **all** parts . All parts carry equal marks. Write answer of all part in short . (2x10=20)
 - (a) Define support vector machine.
 - (b) Describe the role of computer vision.
 - (c) What do you mean by intelligent agent?
 - (d) Define informational equivalence and computational equivalence.
 - (e) Discuss the various types of model of parallel algorithm with example.
 - (f) Define Modus Ponens's rule in propositional logic?
 - (g) Define inductive learning. How the performance of inductive learning algorithms can be measured?

- (h) State the factors that play a role in the design of a learning system.
- (i) Describe how can we use artificial intelligence in Natural Language Processing?
- (j) Describe the role of rational agent.

SECTION-B

Attempt **any five** questions from this section. (10x5=50)

- 2. (a) Describe AO* search technique.
- (b) What is intelligent agent? Describe basic kinds of agents programs.
- 3. (a) Distinguish between Markov Modle and Hidden Markov Model (HMM).
- (b) Draw diagram of HMM and show what is the hidden part of it that we refer to?
- 4. Translate following sentences in formulas in predicate logic and casual form:
 - (a) Mutton is food.
 - (b) Anything one eats and it does not kill is a food.
 - (c) Rajiv eats everthing that Sue eats.
 - (d) Kin eats peanuts and is still alive.
 - (e) John will marry Mary if Mary loves John.

- 5. Solve the Crypt arithmetic problem

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- 6. Discuss the problem of water jug with heuristic search techniques?
- 7. What are the desirable properties of good knowledge representation schemes?
- 8. Explain Bayesian network by taking an example. How is the Bayesian network powerful representation for uncertainty knowledge?
- 9. Explain about the Hill climbing algorithm with its drawback and how it can be overcome?

SECTION-C

Attempt **any two** questions from this section. (15x2=30)

- 10. (a) Write steps involved in making Principle Components to do a classification of given data.
- (b) Determne 2 Principle components of the following set of observations of 2-dimensional data having 5 examples.

S.No.	X	Y
1	-1.3	-1.8
2	-0.6	-0.9
3	0	0
4	0.6	0.9
5	1.3	1.8

11. Explain Min-Max procedure. Describe alpha beta pruning and give the other modifications to the min max procedure to improve its performance.
12. Write a short notes on:
 - (a) EM Algorithm
 - (b) Support Vector Machine
 - (c) Backtracking

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