

Printed Pages: 3

3006

MCAE-24/MCA-511(A)

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

Paper ID : 214584

Roll No.

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MCA

(SEM. V) THEORY EXAMINATION, 2015-16

ARTIFICIAL INTELLIGENCE

[Time:3 hours]

[Total Marks:100]

Section-A

1. Attempt **all** parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)
 - (a) Differentiate supervised and unsupervised learning
 - (b) How machine translation systems are implemented?
 - (c) What are the basic components of propositional logic?
 - (d) State the reason why first order, logic fails to cope with that the mind like medical diagnosis.
 - (e) State the reasons why the inductive logic programming is popular.
 - (f) What is active and passive reinforcement learning?
 - (g) How does one characterize the quality of heuristic?

- (h) Name three UnInformed search strategies.
- (i) How TELL and ASK are used in first-order-logic.
- (j) Construct CD representation of the following:

John took the book from Mary.

Section-B

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

- 2. Describe about Learning based agent. Differentiate between Simple reflex based and Model based agents.
- 3. Solve the Crypt arithmetic problem :
 CROSS
 +ROADS

 DANGER

- 4. Briefly describe the meaning of Knowledge representation and knowledge acquisition. What procedure is followed for knowledge acquisition?
- 5. Describe the decision tree learning model by choosing "suitable example".
- 6. Describe A* search technique and prove that, it is optimal and complete.

7. Explain the concept of conceptual dependency? Give the conceptual dependency graph for the sentence: "Mary drove her car to office".
8. Explain Bayesian network by taking an example. How is the Bayesian network powerful representation for uncertainty knowledge?
9. Prove that the following sentence is valid: "If prices fall the rate increases. If rate increases then Johnny makes a lot of money. But Johnny doesn't make a lot of money. Prove by resolution that prices do not fall".

Section-C

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

10. Explain learning with complete data-Naive Bayes's model and learning with hidden data-EM algorithm.
11. Explain the design pattern of pattern recognition system.
12. Write short notes on the following:
 - (a) Depth first searching
 - (b) Bayesian network
 - (c) Reinforcement learning.

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