

Roll No .....

**MCA - 401****MCA IV Semester**

Examination, June 2015

**Artificial Intelligence & Applications****Time : Three Hours****Maximum Marks : 70**

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
- ii) All parts of each question are to be attempted at one place.
- iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
- iv) Except numericals, Derivation, Design and Drawing etc.

**Unit - I**

1. a) What is AI technique?
- b) "AI is the enterprise of understanding human intelligence" comment.
- c) Describe the type of programming problems for which lisp is well suited.
- d) What is property list? Explain how we get items in property list and how do we retrieve values from a property list.

OR

Describe the data structures in lisp by taking example.

- i) Atom
- ii) The list

**Unit - II**

2. a) When would best first search be worse than simple breath first search.
- b) What is simulated annealing?
- c) Discuss issues in the design of search programs.
- d) Trace the constraint satisfaction procedure solving the following cryptarithmic problem.

CROSS  
+ ROADS  
DANGER

OR

Give an example for which breath first search would work better than depth first search.

**Unit - III**

3. a) What are various approaches to knowledge representation?
- b) What is Procedural and declarative knowledge?
- c) Explain Horn's clause.
- d) A problem solving search can proceed either forward (from start state to goal state) or backwards. What factors determine the choice of direction for particular problem.

OR

Device semantic network capable of representing propositions of the following kinds:

- i) John loves Mary more than she loves him,
- ii) John thinks that Mary does not love him,
- iii) John thinks that Mary does not love him, but she loves him.

**Unit - IV**

4. a) What is semantic analysis?
- b) What are basic tools required for language processing.
- c) Explain conceptual parsing.
- d) Make the augmented transition network for the following sentence:

"The dog likes a man"

Explain various steps.

OR

Consider the sentence

"The old man's glasses were filled with sherry"

What information is necessary to choose the correct meaning for the word "glasses" what information suggests the incorrect meaning?

**Unit - V**

5. a) What is expert system.
- b) What are the main application areas of ES.
- c) What is Rote learning?
- d) What are the main elements of expert system shell and how do they work? What are the advantages and limitations ES shells?

OR

Explain explanation based learning? Discuss its applications.

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