Total No. of Questions :5]   [Total No. of Printed Pages :2

Roll No ....

MCA - 401
M.C.A. IV Semester
Examination, December 2014
Artificial Intelligence and 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 artificial intelligence?
   b) What are the applications of AI?
   c) What does Turing test mean?
   d) Precisely describe
      i)   User defined function in LISP.
      ii) Control structures in LISP.

   OR

   What is LISP? Discuss Lambda expressions and function definition in LISP.

Unit - II

2. a) List some drawbacks of hill climbing process.
   b) What are advantages of Production system for AI?
   c) What do you mean by forward chaining?
   d) Explain A* algorithm in brief with the help of suitable example.

MCA-401   PTO

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[2]

OR

Explain constraint satisfaction problems in short.

Unit - III

3. a) Explain the component of script.
   b) Define horn clause in short.
   c) Explain skolemization in short.
   d) Consider the following axioms:
      i)   All hounds howl at night.
      ii) Anyone who has any cats will not have any mice.
      iii) Light sleepers do not have anything which howls at night.
      iv) John has either a cat or a hound.
      v)   (Conclusion) If John is a light sleeper, then John does not have any mice.

   OR

   What do you understand by conceptual dependency? Discuss its applications, advantage and disadvantage in concise manner.

Unit - IV

4. a) What are the components that are needed for representing a plan?
   b) What do you mean by recursive transitions nets?
   c) Explain context free grammar in short.
   d) Explain alpha-beta cut-offs algorithm with example.

   OR

   Explain Natural language Processing. What are the levels of knowledge used in language understanding?

Unit - V

5. a) What do you mean by Certainty Factor?
   b) What is the Bayes rule equation?
   c) Explain active reinforcement learning with example.
   d) Explain the process of explanation based learning with example.

   OR

   Explain Expert System. Differentiate between expert systems and decision support systems.

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