Reg. No. | | | | | | | | | |

BCACAC 305

Credit Based Fifth Semester B.C.A. Degree Examination, October/November 2011
ARTIFICIAL INTELLIGENCE

Time : 3 Hours Max. Marks : 100

Note : *Answer* ***any ten*** *questions from Part – **A** and* ***one full*** *question from* ***each*** *Unit of Part – **B**.*

PART – A

1. a) What are the fields closely related to AI ? **(2×10=20)**

   b) What is a control strategy ? State its two requirements.

   c) What do you mean by Heuristic ?

   d) What is the difference between declarative and procedural knowledge ?

   e) How inheritable knowledge can be represented ?

   f) What is Parsing ?

   g) What do you mean by Discourse Integration ?

   h) What are the two important tasks of semantic analysis ?

   i) What is a function call in LISP ? Give an example of a function call.

   j) What is the value returned by (cons (*23)'(1)) ?

   k) What is an Expert System ?

   l) List the application areas of expert systems.

PART – B

UNIT – I

2. a) State how knowledge should be represented in a way that AI technique could fully exploit it.

   b) State the disadvantages of Breadth First Search.

   c) Write the algorithm of Steepest Ascent Hill climbing.

   d) State how simulated annealing algorithm is different from hill climbing algorithms. **(5+5+4+6)**

3. a) State water jug problem. Also write production rules for the problem and suggest any one solution.

   b) State the advantages of Depth first search.

   c) Explain the following terms with reference to hill climbing techniques.

      i) Local maximum

      ii) Plateau

      iii) Ridge **(10+4+6)**

UNIT – II

4. a) Define and describe the difference between knowledge, belief, hypothesis and data.

   b) Write a note on granularity of representation.

   c) Explain four important properties of attributes that are useful for describing relationship among them. **(6+6+8)**

5. a) Explain with examples how computable functions and predicates are useful representing facts.

   b) Explain the four important properties that should be possessed by a good system for the knowledge representation.

   c) Using suitable examples explain how facts can be represented using predicate logic. **(8+6+6)**

UNIT – III

6. a) "Syntactic processing plays an important role in natural language understanding". Justify this citing two reasons.

   b) What are Augmented Transition Networks ? Give an example in graphical notation.

   c) Write Graph-Unify algorithm

   d) Explain Winstons's learning program. **(4+5+5+6)**

7. a) Explain the concept of learning by parameter adjustment.

   b) State the difference between logical unification and graph unification in grammar.

   c) List various kinds of relationship present among sentences as identified in discourse and pragmatic process.

   d) Explain the concept of learning by taking advice. **(5+5+6+4)**

UNIT – IV

8. a) Give any four list manipulation functions in LISP with their meanings, usage and examples.

   b) What are predicate functions ? List any six most common predicate calls with their usage, meaning and examples.

   c) Explain various iteration constructs available in LISP.

   d) State the characteristic features of expert system. **(4+6+6+4)**

9. a) Explain various constructs used with local variables in LISP.

   b) Explain the conditional predicate cond with purpose, usage and examples.

   c) What is property lists ? How are they implemented in LISP ?

   d) Write note on expert system shell. **(5+5+4+6)**