Reg. No. ☐☐☐☐☐☐☐☐☐☐

**BCACAC 316**

**Credit Based Fifth Semester B.C.A. Degree Examination, Nov./Dec. 2018**
**Elective Stream – II**
**ARTIFICIAL INTELLIGENCE**
**(Common to all Batches)**

Time : 3 Hours                                                                 Max. Marks : 100

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

PART – A                                                         (10×2=20)

1. a) What is Artificial Intelligence ?

   b) What are the advantages of breadth first search ?

   c) What are the related fields of AI ?

   d) What do you mean by Heuristic function ?

   e) What is the difference between deterministic and non deterministic parser ?

   f) Define belief and hypothesis.

   g) Define knowledge acquisition.

   h) What do you mean by ground atom ?

   i) What is an expert system ?

   j) List the application areas of expert system.

   k) What do you mean by phonological.

   l) Give the return value of :
      i) (member '(d) '(a (d) e f))
      ii) (append '(a (b c)) '(d e)).

## PART – B

### Unit – I

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

   b) Explain best first search with algorithm.

   c) What is nearest neighbor heuristic ? Explain travelling salesman problem with algorithm.

   $(10+5+5)$

3. a) Explain problem reduction with the help of AND-OR graph.

   b) Explain the following terms with reference to hill climbing techniques.
      i) Local maxima
      ii) Plateau
      iii) Ridge.

   c) Explain generate and test strategy.

   d) Write an algorithm for agenda driven search.

   $(6+6+4+4)$

### Unit – II

4. a) Explain the properties that should be possessed by a good knowledge representation.

   b) How to represent instance and is a relationship using predicate logic ? Illustrate with example.

   c) Explain inheritable knowledge. Write an algorithm for property inheritance

   $(5+5+10)$

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

   b) Write a note on granularity representation of knowledge.

   c) How to represent set of objects in knowledge representation.

   $(8+6+6)$

### Unit – III

6. a) Define Chomsky Hierarchy of Generative Grammar.

   b) With an example explain ATN.

   c) Explain the concept of learning through clustering.

   $(6+8+6)$

7. a) Explain the General Learning model with neat diagram.

   b) Explain the factors affecting the learning performance.

   c) Explain Case Grammars with example.

   d) Write a note on Lexicon.

(5+5+5+5)

## Unit – IV

8. a) Explain the expert system characteristics.

   b) Explain any five list manipulation functions.

   c) Explain the components of typical expert system.

   d) How to construct local variables in LISP.

(5+5+6+4)

9. a) Explain any six predicate calls with example.

   b) Explain I/O functions in LISP.

   c) Write a note on :
      i) Arrays in LISP
      ii) Mapping function
      iii) Property list
      iv) Conditional predicate Cond.

(6+6+8)

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