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BCACAC 316

Credit Based Fifth Semester B.C.A. Degree Examination, Oct./Nov. 2017 (Common to All Batches) (New Syllabus) ARTIFICIAL INTELLIGENCE

Elective : Stream - II

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 is Artificial Intelligence?

 $(10 \times 2 = 20)$

- b) Define knowledge acquisition.
- c) Write two application areas of Al.
- d) List out the requirements of good control strategies.
- e) Define the terms heuristic and heuristic function.
- f) Define belief and hypothesis.
- g) What is the difference between declarative knowledge and procedural knowledge?
- h) What is parsing?
- i) What do you mean by Morphological?
- j) List the application areas of expert system.
- k) How to access arrays in LISP with example?
- Write the lisp function that returns maximum of three numbers.



PART-B

Unit - I

- 2. a) Explain depth first search with algorithm and state its advantages.
 - b) Explain Best-First search with algorithm.
 - c) Define monotonic, partially commutative and commutative production system.
 - d) Explain the problems that arise in steepest ascent hill climbing and specify (5+5+5+5)the solution.
- 3. a) State water jug problem. Write production rules for the problem and suggest any one solution.
 - b) Write the problem reduction algorithm.
 - c) Write and explain generate and test algorithm.

(10+6+4)

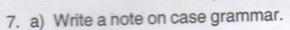
Unit - II

- 4. a) Explain inheritable knowledge. Write an algorithm for property inheritance.
 - b) Explain the properties that should be possessed by a good knowledge representation system.
 - c) Explain with example how computable function and predicates are useful for (10+5+5)representing facts.
- 5. a) Define the properties that should possessed by a good knowledge representation.
 - b) Explain granularity representation of knowledge.
 - c) What are the combination of symbols and rules permitted in FOPL?
 - d) How to represent set of objects in knowledge representation? (5+5+5+5)

Unit - III

- 6. a) Explain Augmented transition network with example.
 - b) Explain the factors affecting the learning performance.
 - c) Write a note on transformational grammar.

(10+5+5)



- b) Explain lexicon.
- c) Explain Chomsky Hierarchy of generator grammar.
- d) Explain the general learning model with neat diagram.

(5+5+5+5)

Unit - IV

- 8. a) Explain any five characteristics of expert system.
 - b) Explain the components of typical expert system.
 - c) Explain the input/output functions in LISP.
 - d) Explain any five list manipulation function in LISP with example. (5+5+5+5)
- 9. a) Write a note on the following with reference to LISP:
 - i) Mapping function
 - ii) Property list
 - b) What is the use of lambda function in LISP? Explain.
 - c) Explain any five predicate function with example.
 - d) Explain the iteration constructs available in LISP. (6+4+5+5)