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BCACAC 316

V Semester B.C.A. Degree Examination, October/November 2019

(Credit Based Semester Scheme)

(Common to All Batches)

Artificial Intelligence

Time : 3 Hours]

[Max. Marks : 100

Note : Answer any TEN questions from Part-A and ONE full question from each Unit in Part-B.

PART - A

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1. Answer **any ten** of the following :

(10 × 2 = 20)

- (a) What does production system consist of?
- (b) Define the terms heuristic and heuristic function.
- (c) Define semantics.
- (d) What do you mean by 'chronological backtracking'?
- (e) What is the difference between top down and bottom up parsing?
- (f) Define Knowledge-based system.
- (g) What is the difference between declarative knowledge and procedural knowledge?
- (h) Define parsing.
- (i) What is an expert system?
- (j) List the requirements of a good control strategy.
- (k) Write the syntax and example for cond function.
- (l) Give the return value of
 - (i) (cadr'(a(bc) d e f))
 - (ii) (member 'b '(a b (c d) e))



PART - B

UNIT - I

2. (a) Explain Breadth First Search with an algorithm and state its advantages.
- (b) State Water Jug problem. Also write production rules for the problem and suggest any one solution.
- (c) Define Monotonic and Partial Commutative Production System. **(6 + 10 + 4)**
3. (a) Explain OR graph. Write the algorithm for Best First Search.
- (b) Explain the following terms with reference to hill climbing techniques. Give a method to deal each of these.
- (i) Local maxima
- (ii) Plateau
- (iii) ridge
- (c) Explain Depth First Search with an algorithm. **(6 + 8 + 6)**

UNIT - II

4. (a) Explain the four important properties that should be possessed by a good system for knowledge representation.
- (b) Using suitable examples explain how facts can be represented using predicate logic.
- (c) Explain inheritable knowledge. Write an algorithm for property inheritance. **(6 + 6 + 8)**
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 instance and is a relationship using predicate logic? Illustrate with example. **(8 + 6 + 6)**



UNIT – III

6. (a) Explain ATN.
(b) Explain the General Learning model with neat diagram.
(c) Define Chomsky Hierarchy of Generative Grammar. **(8 + 6 + 6)**
7. (a) Write a note on transformational grammar.
(b) What are the relative performance characteristics among the different learning concepts?
(c) Write a note on Lexicon.
(d) Explain the concept of learning through clustering. **(5 + 5 + 5 + 5)**

UNIT – IV

8. (a) Explain any five list manipulation functions in LISP.
(b) How to work with arrays and property list in LISP.
(c) Explain the components of typical expert system.
(d) Write a LISP function to find maximum of 3 numbers. **(5 + 5 + 6 + 4)**
9. (a) Explain any Six predicate functions with example.
(b) Explain the characteristic feature of Expert system.
(c) Write a note on :
(i) Internal storage for list in LISP
(ii) Mapping function
(iii) Format function
(iv) Logical functions. **(6 + 6 + 8)**