

TIME: 3 Hours
FM: 70

Answer any Six questions including Q.No.1 which is compulsory.

1. Answer all the following questions. [2×10]

- (a) Explain intelligence and Artificial intelligence? How do you distinguish between the both?
- (b) Differentiate between Strong AI and Weak AI?
- (c) Define different types of heuristics with an example?
- (d) Define Knowledge representation and Knowledge acquisition?
- (e) How knowledge engineering works in first order logic.
- (f) What are the problems associated with Speech Recognition.
- (g) List the significance of breadth first search and depth first search..
- (h) Explain AO* algorithm with an example.
- (i) Differentiate between structured and symbolic description.
- (j) Discuss the process of sentence generation.

2. a) Justify the validity of the following well formed formula (WFF) by using a truth table.

$$[(\neg A \vee B) \wedge (\neg B \vee C)] \Rightarrow (\neg A \vee C) \quad [5]$$

b) Describe the different components required for a system of inference in first order predicate calculus. [5]

3. a) Explain the different types of learning techniques in neural networks. What are their significance. [5]

b) Find out the conjunctive normal form (CNF) of the following statement: Everybody who say truth to all people is said truth by someone. [5]

4. a) How resolution can be used to show a sentence is valid and unsatisfiable. Explain with suitable example. [5]

b) Describe the different characteristics that govern the direction of a search procedure. Justify your view in case of hill climbing search process. [5]

5. a) State the fundamentals and importance of Performance measure and Utility Function with suitable example. [5]

b) Discuss the presence of ambiguity in natural language processing and how to resolve it. [5]

6. a) What is Knowledge Acquisition? Describe its overall process and how it is different from knowledge elicitation. [5]

b) Explain the resolution algorithm and discuss about soundness and completeness of resolution algorithm. [5]

7. a) Explain how knowledge is represented with the help of semantic nets with the help of a block diagram? [4]

b) Describe the A* algorithm and its relation with overestimation and underestimation of heuristics? [6]

8. Write Short Notes on any Two of the following : [5×2]

- (a) Chomsky's Hierarchy
- (b) Minsky frames system theory
- (c) Constraint satisfaction problem
- (d) First order predicate logic