

Roll No .....

## MCA-401

### M.C.A. IV Semester

Examination, May 2019

### Artificial Intelligence and Applications

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) What is an AI techniques? Explain characteristics of AI applications.  
b) What is LISP? Explain numeric function and basic list manipulation functions.
2. a) What is production system? Explain various control strategies.  
b) Explain breadth first search and depth first search algorithms with example.
3. a) Explain forward and backward chaining with suitable example.  
b) What are the heuristic search techniques? Explain A\* and AO\* Algorithm.
4. a) What is meant by knowledge representation? Explain the construction of knowledge based agent.  
b) What is predicate logic? State the meaning of the given predicate logic: " $(\forall X) \text{human}(X) \leftarrow \text{nortal}(X)$ "

5. a) How planning problem is represented? Explain with suitable example.  
b) Explain top down and bottom up parsing.
6. a) Write the advantages and disadvantage of natural language.  
b) Explain various components of planning systems.
7. a) Explain Bayes theorem and Bayesian networks.  
b) What is learning? Explain rote learning, learning by induction and explanation based learning.
8. a) What are the application of expert systems? Explain MYCIN.  
b) Write short notes on:  
i) Minimax and alpha-beta cutoffs  
ii) Knowledge acquisition

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