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## IT-7005(2)-CBGS

### B.E. VII Semester

Examination, June 2020

## Choice Based Grading System (CBGS)

### Artificial Intelligence (AI)

Time : Three Hours

Maximum Marks : 70

**Note:** i) Attempt any five questions.

ii) All questions carry equal marks.

iii) Missing data if any assume suitably.

1. a) Describe the water jug problem with their production rule.  
b) Discuss A\* Algorithm and the various observations about algorithm briefly.
  
2. a) Write the resolution procedure for propositional logic.  
b) Consider the following facts and represent them in predicate form.
  - i) There are 500 employees in ABC Company
  - ii) Employees earning more than Rs. 5000 pay tax
  - iii) John is a manager in ABC Company
  - iv) Manager earns Rs. 10,000Convert the facts in predicate form to clauses and then prove by resolution "John pays tax".
  
3. a) Explain classes and object in frame and give advantages and disadvantages of frame.  
b) Construct the conceptual dependency representation of the following.
  - i) John gives Mary a book.
  - ii) Ram gave flower to Sita.

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4. a) What is Computer vision? Explain the characteristic of robotics.  
b) Describe three important properties that neuronal signal functions should possess. Why are these important?
5. a) What is an expert system? Explain all the components of expert system.  
b) What is back propagation? Explain the back propagation training algorithm with the help of a one hidden layer feed forward network.
6. a) Describe Bayes theorem? Show how it is useful to handle uncertain data?  
b) Design the heuristic function for the following:
  - i) 8 puzzle problem
  - ii) Travelling salesman problem
7. a) Give an example for which breath first search would work better than depth first search.  
b) Explain the concept learning using decision trees and neural network approach.
8. Write Short Notes on (Any Three):
  - i) Alpha beta cut off
  - ii) Fuzzy logic
  - iii) Forward and backward reasoning
  - iv) AO\* algorithm

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