IT-833

B.E. VIII Semester Examination, June 2015

Artificial Intelligence (Elective-III)

Time: Three Hours Maximum Marks: 70

Note: Attempt one question from each unit. Each unit have internal choice. Assume Data/Value if required.

Unit I

1. a) Algorithm A* does not terminate until a goal node is selected for expansion. However, a path to the goal node might be reached long before that node is selected for expansion. Why does not it terminate as soon as a goal node has been found? Illustrate your answer with an example. 7

b) Give an example of a problem for which breadth first search would work better than depth - first search. Give an example of problem for which depth - first search would work better than breadth - first search. 7

OR

2. a) Write AO* algorithm. 7

b) Describe the behavior of a revised version of the steepest ascent hill climbing algorithm in which step 2 is replaced by "set current state to best successor" 7

Unit II

3. a) Consider the following sentences. 7

i) John likes all kinds of food.

ii) Apples are food.

iii) Chicken is food.

iv) Any thing any one eats and is not killed by is food. Translate these sentences into formulas in predicate logic.

b) Write comparison between monotonic and nonmonotonic reasoning. 7

OR

4. a) Draw Truth table and show that the following is a valid argument. If it is humid then it will rain and since it is humid today it will rain. 7

b) Prove the following theorems using deductive inference rules. 7

i) FromA^BAC, A interC

ii) FromAAB,A^CinterC 4

Unit m

5. a) Express the following sentences in description logic 7

i) Sachin plays for Mumbai Indians and has more than one million fans.

ii) Sucheta is a faculty member.

b) Assume universe of discourse for set of salary structures . (in terms of k) per month is defined as: 7

U = {2,5,10,20,30,40,50,60,70,80}

The fuzzy sets defined on U based on salaries are

Poor = {(2,1 ), (5 ,1 ), (10 ,0.8 ), (20 , 0.5), (30 ,0.2 ),}

Average = {(10,0.2),(20,0.5),(30,0.6),(40,0.8),(50,0.6),

(60, 0.2)}

Rich = {(40, 0.2), (50, 0.5), (60, 0.8), (70, 1), (80, 1)}

Draw the graph of all three fuzzy sets on the some coordinate axes. Find the membership value of your age.

OR

6. a) Construct semantic net representations for the following.

i) Pompeian (marcus), Blacksmith (marcus)

ii) Mary gave the green flowered Vase to her favorite cousin. 7

b) Write Bayes' theorem also discuss its uses. 7

Unit IV

7. a) How would the minimax procedure have to be modified

to be used by a program playing a three or four person game rather than a two - person one? 7

b) When your friend claims that LSI produces the best approximation to the original term document matrix. You would like to add two conditions to make her statement meaningful. What are these? 7

OR

8. a) Explain alpha-beta search procedure. How to use in tic - tac - toe game. 7

b) Identify Two ways in which MLP systems can make life easier for people with disabilities. 7

UnitV

9. a) Give the characteristics benefits and uses of neural network. 7

b) Explain about Winston's learning program. 7

OR

10. a) How is an expert system different from a traditional program? How is a production system different from an expert system? Describe the knowledge acquisition component of ES. " 7

b) Explain about case - Based reasoning. 7