

BE2-R4: ARTIFICIAL INTELLIGENCE & NEURAL NETWORKS

NOTE:

1. Answer question 1 and any FOUR from questions 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

Time: 3 Hours

Total Marks: 100

1.
 - a) Explain Formal tasks, Mundane tasks, and Expert tasks in AI.
 - b) Describe a Production System in AI.
 - c) Discuss Strengths and weaknesses of propositional logic.
 - d) Prepare a semantic net for the following sentence:
John is 72" tall and taller than Johnny.
 - e) Explain Fuzzy Logic Systems Architecture.
 - f) Discuss supervised learning, unsupervised learning and reinforced learning in neural networks.
 - g) Explain the term Linearly Separable Patterns and explain the XOR problem in the context of linearly separability.

(7x4)

2.
 - a) Explain the State Space Search of The water jug problem.
 - b) Explain Travelling Salesman Problem.

(9+9)

3.
 - a) Describe Unification Algorithm with an example.
 - b) What do you mean by Knowledge Engineering?
 - c) Compare Expert Systems and Conventional Computers.
 - d) Explain the Expert System Architecture.

(7+4+3+4)

4.
 - a) Prepare a fuzzy system for air conditioning system.
 - b) Describe the general steps of Natural Language Processing.
 - c) Write a program in Prolog to count the number of vowels in a list.

(6+6+6)

5.
 - a) What is Credit assignment problem?
 - b) Explain Backpropagation learning algorithm of ANN.

(6+12)

6. Explain following types of learning rules:
 - a) Hebbian Learning Rule
 - b) Delta Learning Rule

(9+9)

7. Write short notes on the following:
 - a) Backtracking
 - b) Baye's Theorem

(9+9)