



R20 Regulation

Subject code: 3P5GA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech V Semester Regular Examinations, January 2023

INTRODUCTION TO AI & NEURAL NETWORKS

(CSE(AI & ML))

Maximum Marks: 70

Date:06.01.2023 Duration: 3 Hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10X2M=20 Marks)

- 1 What is dynamic programming?
- 2 What is a Search graph?
- 3 Define Conditional Probability.
- 4 Define predicate logic in AI.
- 5 What is non-monotonic reasoning?
- 6 Write some of the applications of artificial neural networks.
- 7 With an example write about systems of linear equations and substitutions.
- 8 Define perceptron and its structure.
- 9 Write about Feedforward network advantages and disadvantages?
- 10 Compare multilayer perceptron and Radial Basis Function networks.

Part-B

Answer All the following questions.

(5X10M=50 Marks)

- 11 a) Discuss the characteristics of AI problem. Can Towers of Hanoi problem be considered as AI problem? Justify your answer with suitable discussions. [5]
b) Explain the Heuristic Search Techniques. [5]

OR

- 12 Devise an AO* algorithm and explain how it is not suitable for searching in And-OR graphs. [10]

- 13 a) Justify the need for computable functions and predicates in logic. [5]
b) What is the significance of knowledge representation? Give differences between database and knowledge base [5]

OR

- 14 a) Different between proposition logic & predicate logic. [5]
b) Describe how the search control knowledge proves the efficiency of search in a Knowledge based systems [5]
- 15 Describe how BFS algorithm works with relevant example and also write down the rules of BFS algorithm. [10]

OR

- 16 a) "Neuron inhibition depends on activation function" Justify this statement with different types of activation functions. [5]
b) Explain the taxonomy of artificial neural network architectures. [5]
- 17 Discuss the role of mean square error in delta learning rule? Explain the impact of continuous activation function in it. [10]

OR

- 18 a) What kind of operations can be implemented with perceptron? Show that it cannot implement Exclusive OR function. [6]
b) Explain the 'OR' function using Neural Network. [4]
- 19 a) List and explain various practical and design issues of back propagation learning. [4]
b) Write a short note on learning rate parameter with 0.5 and local gradient in back propagation. [6]

OR

- 20 How multilayer feed forward networks can be used to solve linearly inseparable functions? Explain. [10]