R20 Regulation *Subject code:* 3P5GA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, June/July 2023

INTRODUCTION TO AI & NEURAL NETWORKS

(CSE(AI & ML))

Maximum Marks: 70 Date:23.06.2023 *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 (10 X 2 Marks=20 Marks)

1 What is Heuristic function?
2 What are the categories of production systems?
3 List the two levels of Knowledge Representation.
4 What do you mean by predicate logic in AI? Give few computable functions.
5 What is non-monotonic reasoning? Give an example.
6 Define neural network. Give an example.
7 What is credit assignment problem?
8 What is associative memory?
9 Mention the five types of learning process.
10 What is Hessian matrix.

Part-B

Answer All the following questions. (5 X 10 Marks=50 Marks)

11 (a) State the characteristics of an AI Problem. (5 Marks)
(b) Write the algorithm for hill climbing. (5 Marks)

OR

12 Explain Best First Search algorithm with an example. (10 Marks)

13 Describe briefly resolution in predicate logic with suitable example. (10 Marks)

OR

14 Explain in detail about forward chaining and backward chaining with algorithms. (10 Marks)

15 Explain DFS algorithm with an example. (10 Marks)

OR

16 What are biological Neurons? How they help in creating artificial neuron model. (10 Marks)

17 (a) Explain Hebbian Learning Rule. (5 Marks)
(b) Write notes on Boltzmann Learning with example. (5 Marks)

OR

18 Briefly explain statistical nature of the Learning Process and also explain learning with a teacher and learning without a teacher. (10 Marks)

19 In which manner multilayer perceptron models differ from Single layer perceptron model? Explain the reasons for emergence of Multilayer perceptron Model. (10 Marks)

OR

20 Write short notes on Error Back-Propagation Training with an example. (10 Marks)