Code No: 155BZ **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, March - 2024
MACHINE LEARNING
(Common to AI&DS, AI&ML)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a) Define inductive bias? [2]
b) How do you calculate entropy? [3]
c) Draw a neat sketch for neural network representation. [2]
d) Define estimation hypothesis accuracy. [3]
e) State minimum description length principle. [2]
f) Discuss about radial bias function. [3]
g) What do you mean by first order logic rule? [2]
h) How to parallelize the genetic algorithms? [3]
i) Define analytical learning? [2]
j) What is the motivation for combining inductive and analytical learning? [3]

PART – B

(50 Marks)

2. Explain find –S algorithm with given example. Give its application. [10]

Sky	Airtemp	Humidity	Wind	Water	Forecast	EnjoySport
Sunny	Warm	Normal	Strong	Warm	Same	Yes
Sunny	Warm	High	Strong	Warm	Same	Yes
Rainy	Cold	High	Strong	Warm	Change	No
Sunny	Warm	High	Strong	Cool	Change	Yes

OR

3. What do you mean by a well –posed learning problem? Explain the important features that are required to well –define a learning problem. [10]

4. With an example, explain the concept of back propagation algorithm. [10]

OR

5. Discuss about the following:
a) Perceptron Training Rule
b) Gradient Descent and Delta Rule. [5+5]

6. Explain Maximum Likelihood Hypothesis for predicting probabilities. [10]

OR

7. Describe the K nearest neighbor algorithm with the help of an example. [10]

8. Determine the steps in genetic programming with an example. [10]

OR

9. Build an example to explain the concept of sequential covering algorithms. [10]

10. Analyze how prior knowledge is used to alter the search objective. [10]

OR

11. Explain in detail about the explanation-based learning of search control knowledge. [10]

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