R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, January/February - 2023
MACHINE LEARNING
(Common to IT, CSE(IOT))

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)	What are the issues in machine learning?	[2]
b)	Explain about hypothesis space search in decision tree learning?	[3]
c)	Define back propagation algorithm?	[2]
d)	What are the advanced topics in neural networks?	[3]
e)	Define sample complexity of finite hypothesis space?	[2]
f)	Compare eager and lazy learners?	[3]
g)	What do you mean by first order logic rule?	[2]
h)	What do you mean by inverted deduction?	[3]
i)	What do you mean by explanation based learning?	[2]
j)	What do you mean by analytical learning?	[3]

PART – B

(50 Marks)

2.   Trace the Candidate Elimination Algorithm for the hypothesis space H given the sequence of training examples from below table. [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.a)   Explain the various stages involved in designing a learning system.
  b)   List the issues in Decision Tree Learning. Interpret the algorithm with respect to Overfitting the data. [5+5]

4.   What is Artificial Neural Network? Explain appropriate problem for Neural Network Learning with its characteristics. [10]

OR

5.   Compare and contrast between various learning algorithms. [10]

6. Write Bayes theorem. What is the relationship between Bayes theorem and the problem of concept learning? [10]

OR

7. Explain the Expectation maximization Algorithm in detail, with an example. [10]

8. Determine and explain the various models of evolution and learning. [10]

OR

9. What is Reinforcement Learning and explain Reinforcement learning problem with neat diagram. [10]

10. Analyze how prior knowledge is used to augment search operators. [10]

OR

11. Explain in detail about the inductive-analytical approaches to learning. [10]

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