

Code No: 138CY

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, September - 2020

MACHINE LEARNING

(Electronics and Communication Engineering)

Time: 2 Hours

Max. Marks: 75

Answer any Five Questions

All Questions Carry Equal Marks

- 1.a) Will the CANDIDATE-ELIMINATION algorithm converge to the correct hypothesis? Justify your answer.
- b) Define the boundary sets - general boundary G, specific boundary S. [8+7]
- 2.a) What is the representational power of perceptron? Explain the training rule of perceptron.
- b) How to estimate hypothesis accuracy? [8+7]
- 3.a) Illustrate Bayes optimal classification.
- b) Describe the significance of conditional independence in Bayesian belief networks. [7+8]
- 4.a) Provide implementation for LEARN-ONE-RULE, a general-to-specific beam search.
- b) Compare dynamic programming with reinforcement learning. [7+8]
5. Discuss how explanation is used to distinguish the relevant features of the training example from the irrelevant. Give illustrations. [15]
6. Construct a decision tree for the following training data and use entropy as a measure of impurity. [15]

Age	income	Student	credit_rating	buys_computer
<=30	high	No	Fair	no
<=30	high	No	excellent	no
31...40	high	No	Fair	yes
>40	medium	No	Fair	yes
>40	low	Yes	Fair	yes
>40	low	Yes	excellent	no
31...40	low	Yes	excellent	yes
<=30	medium	No	Fair	no
<=30	low	Yes	Fair	yes
>40	medium	Yes	Fair	yes
<=30	medium	Yes	excellent	yes
31...40	medium	No	excellent	yes
31...40	high	Yes	Fair	yes

- 7.a) What set of functions can be represented by feedforward networks? Give examples.
- b) Explain the procedure to estimate the difference in error between two learning methods L_A and L_B . [8+7]
- 8.a) Explain about K-nearest neighbour algorithm.
- b) Describe case based reasoning system with an example. [8+7]