



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

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III B.Tech I Sem Regular End Examination, February 2022

Machine Learning (IT)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Question paper consists: Part-A and Part-B.

2. In Part – A, answer all questions which carries 20 marks.

3. 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

(10*2 Marks = 20 Marks)

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| 1. a) Define learning. | 2M | CO1 | BL1 |
| b) What are the key ideas of statistics which influence machine learning? | 2M | CO1 | BL4 |
| c) What is the role of activation function? | 2M | CO2 | BL3 |
| d) State central limit theorem. | 2M | CO2 | BL1 |
| e) What are the advantages of instance based methods? | 2M | CO3 | BL2 |
| f) Define error of hypothesis. | 2M | CO3 | BL1 |
| g) State rule based learning. | 2M | CO4 | BL1 |
| h) What is a horn clause? | 2M | CO4 | BL1 |
| i) How to compute weakest pre-image of the explanation? | 2M | CO5 | BL3 |
| j) What is analytical learning? | 2M | CO5 | BL1 |

PART- B

(10*5 Marks = 50 Marks)

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| 2 a) Illustrate general-to-specific ordering of hypotheses in concept learning. | 5M | CO1 | BL2 |
| b) Explain the key property of FIND-S algorithm for concept learning with necessary example. | 5M | CO1 | BL3 |

OR

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| 3 Discuss the basic design issues and approaches to machine learning by considering a program to learn to play checkers. | 10M | CO1 | BL2 |
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| 4 a) Discuss the representational power of a perceptron. | 5M | CO2 | BL1 |
| b) Explain the gradient descent algorithm for training a linear unit. Implement stochastic approximation to this. | 5M | CO2 | BL5 |

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| 5 How to compare two learning algorithms? Discuss with suitable examples. | 10M | CO2 | BL5 |
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| 6 | a) What is case based reasoning? Why is it known as lazy learner? | 4M | C03 | BL4 |
| | b) Discuss KNN algorithm. | 6M | C03 | BL2 |

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| 7 | What is Bayesian belief network? How is it trained using expectation maximization algorithm? Explain with an illustrative example. | 10M | C03 | BL5 |
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| 8 | a) What are the advantages of first order representations over propositional representations? | 5M | C04 | BL3 |
| | b) Discuss the basic FOIL algorithm. | 5M | C04 | BL1 |

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| 9 | Consider the two strings as initial population for genetic algorithm and generate all possible off springs using various operators.
String 1: 11101001000
String 2: 00001010101 | 10M | C04 | BL6 |
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| 10 | a) Discuss the practical problems with applying explanation-based learning to learning search control. | 5M | C05 | BL4 |
| | b) Compare pure analytical learning with pure inductive learning. | 5M | C05 | BL2 |

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| 11 | What are the main properties of PROLOG-EBG algorithm? Is it deductive or inductive? Justify your answer. | 10M | C05 | BL5 |
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