



विश्वजीवनमृतं ज्ञानम्

Atal Bihari Vajpayee Indian Institute of Information Technology & Management, Gwalior

IT306: Machine Learning

Minor Examination (Session 2024–25)

Maximum Time: 1 Hour

Max Marks: 20

Note: Attempt all questions. Use neat diagrams wherever needed.

1. Differentiate between parametric and non-parametric learning models with examples. (4 Marks)
2. Explain logistic regression. Derive the expression for the hypothesis function. (4 Marks)
3. Construct a decision tree for the following dataset using the ID3 algorithm (entropy method):

<i>Weather</i>	<i>Homework</i>	<i>Play</i>
<i>Sunny</i>	<i>Yes</i>	<i>No</i>
<i>Cloudy</i>	<i>No</i>	<i>Yes</i>
<i>Rainy</i>	<i>Yes</i>	<i>Yes</i>
<i>Sunny</i>	<i>No</i>	<i>No</i>

(6 Marks)

4. Write short notes on: (a) Bias–variance tradeoff (b) Cross-validation (6 Marks)