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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examinations – JANUARY 2025** |
| **Date:** 08 / 01/ 2025 **Time:** 9:30 am-12:30 pm |

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| **School:** SOIS | **Program:** BCA/BSD | |
| **Course Code:** CSA3002 | **Course Name:** Machine Learning Algorithms | |
| **Semester**: V | **Max Marks**: 100 | **Weightage**: 50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **26** | **26** | **24** | **24** | **-** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

|  |  |  |  |  |
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| **Answer ALL the Questions. Each question carries 2marks. 10Q x 2M=20M** | | | | |
| **1** | Define machine learning. | **2 Marks** | **L1** | **CO1** |
| **2** | List two applications of machine learning. | **2 Marks** | **L1** | **CO1** |
| **3** | List the main types of ensemble methods. | **2 Marks** | **L1** | **CO1** |
| **4** | What is feature selection? | **2 Marks** | **L1** | **CO2** |
| **5** | Why is feature selection important? | **2 Marks** | **L1** | **CO2** |
| **6** | What is variability and clutter in object recognition? | **2 Marks** | **L1** | **CO2** |
| **7** | What libraries are used in object recognition? | **2 Marks** | **L1** | **CO3** |
| **8** | What is localization in object detection? | **2 Marks** | **L1** | **CO3** |
| **9** | What is transfer learning? | **2 Marks** | **L1** | **CO4** |
| **10** | What is a Recommendation System? | **2 Marks** | **L1** | **CO4** |

**Part B**

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| **Answer the Questions Total 80 Marks.** | | | | | |
| **11.** | **a.**  **b.**  **c.** | What are the three classifications of machine learning algorithms?  Explain the logistic regression with the help of sigmoid function.  Discuss the chronological overview of machine learning algorithms. | **4 Marks**  **6 Marks**  **10 Marks** | **L1**  **L2**  **L2** | **CO1** |
| **Or** | | | | | |
| **12.** | **a.**  **b.**  **c.** | List the major tasks in data preprocessing.  Explain the two categories of algorithms in unsupervised learning.  Discuss the applications of machine learning. | **4 Marks**  **6 Marks**  **10 Marks** | **L1**  **L2**  **L2** | **CO1** |
|  |  |  |  |  |  |
| **13.** | **a.**  **b.**  **c.** | What is oversampling?  Explain the wrapper methods used in feature selection.  Discuss tokenizing with the help of an example. | **4 Marks**  **6 Marks**  **10 Marks** | **L1**  **L2**  **L2** | **CO2** |
| **Or** | | | | | |
| **14.** | **a.**  **b.**  **c.** | What is undersampling?  Explain the embedded methods used in feature selection.  Distinguish between parameters and hyper-parameter with the help of example. | **4 Marks**  **6 Marks**  **10 Marks** | **L1**  **L2**  **L2** | **CO2** |

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| **15.** | **a.**  **b.**  **c.** | List the applications of object recognition.  Explain the term support and confidence in association rule mining.  Discuss in detail the steps to build Machine Learning Model. | **4 Marks**  **6 Marks**  **10 Marks** | **L1**  **L2**  **L2** | **CO3** |
| **Or** | | | | | |
| **16.** | **a.**  **b.**  **c.** | Differentiate between object recognition and object classification.  Explain the steps of Apriori algorithm.  List in detail steps for hand written digits recognition using MNIST dataset. | **4 Marks**  **6 Marks**  **10 Marks** | **L1**  **L2**  **L2** | **CO3** |

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| **17.** | **a.**  **b.**  **c.** | What is Content-Based Filtering recommendation system?  Compare Faster R-CNN and YOLO algorithms.  List in detail the steps involved in image classification. | **4 Marks**  **6 Marks**  **10 Marks** | **L1**  **L2**  **L2** | **CO4** |
| **Or** | | | | | |
| **18.** | **a.**  **b.**  **c.** | What is Collaborative Filtering recommendation system?  Explain the need of recommendation systems.  Find the frequent itemset with minimum support count=2 using Apriori algorithm. | **4 Marks**  **6 Marks**  **10 Marks** | **L1**  **L2**  **L3** | **CO4** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***