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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examinations – JANUARY 2025** |
| **Date:** 17 – 01- 2025 **Time:** 9:30 am – 12:30 pm |

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| **School:** SOCSE | **Program:** B. Tech-COM/CEI/CAI/CSG/CST/IST/ISD | |
| **Course Code:** CSE3087 | **Course Name:** Applied Machine Learning | |
| **Semester**: V | **Max Marks**:100 | **Weightage**: 50% |

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

**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** | State MSE and MAE. | **2 Marks** | **L1** | **CO1** |
| **2** | List the types of features in machine learning. | **2 Marks** | **L1** | **CO1** |
| **3** | State the purpose of kernel trick? | **2 Marks** | **L1** | **CO2** |
| **4** | State the goal of ensemble learning. | **2 Marks** | **L1** | **CO2** |
| **5** | Describe Linear Threshold Unit with the help of diagram. | **2 Marks** | **L2** | **CO3** |
| **6** | List any two applications of Back Propagation network. | **2 Marks** | **L1** | **CO3** |
| **7** | Describe a single-layer perceptron model. | **2 Marks** | **L2** | **CO3** |
| **8** | Explain divisive clustering? | **2 Marks** | **L2** | **CO4** |
| **9** | List the outlier detection methods of Unsupervised Learning. | **2 Marks** | **L1** | **CO4** |
| **10** | Explain silhouette Co-efficient? | **2 Marks** | **L2** | **CO4** |

**Part B**

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| **Answer the Questions Total 80 Marks.** | | | | | |
| **11.** | **a.** | Demonstrate the support vector machine with a diagrammatic representation and explain mapping function, kernal and soft margin with respect to SVM. | **20 Marks** | **L3** | **CO1** |
| **or** | | | | | |
| **12.** | **a.** | Examine Simple Linear Regression, Multiple Linear Regression and Polynomial Regression with equations and necessary graphs. | **20 Marks** | **L3** | **CO1** |
|  |  |  |  |  |  |
| **13.** | **a.** | Demonstrate how Random Forest Machine Learning Algorithm is an improved version of Decision Tree Classifier. Support your answer with diagrams. | **20 Marks** | **L3** | **CO2** |
| **or** | | | | | |
| **14.** | **a.** | Illustrate stacking and ensemble. Also, explain how a Multilayer Stacking Ensemble helps in making predictions. | **20 Marks** | **L3** | **CO2** |

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| **15.** | **a.** | Calculate the logical computations with perceptrons and create logical gates such as the AND gate. The data is given as W1 =1.2, W2 = 0.6, threshold = 1, and learning rate n = 0.5. | **20 Marks** | **L3** | **CO3** |
| **Or** | | | | | |
| **16.** | **a.** | Calculate the logical computations with perceptrons and create logical gates such as the OR gate. The data is given as W1 =0.6, W2 = 0.6, threshold = 1, and learning rate n = 0.5. | **20 Marks** | **L3** | **CO3** |

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| **17.** | **a.** | Determine how to find the optimal number of clusters using Elbow method? Explain with equations and diagram. | **20 Marks** | **L3** | **CO4** |
| **Or** | | | | | |
| **18.** | **a.** | Illustrate Hierarchical Clustering and its types using diagrams. How hierarchical clustering is different or better than K-Means Clustering Algorithm? | **20 Marks** | **L3** | **CO4** |

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