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| **SESSION** | **AUG/SEPTEMBER 2023** |
| **PROGRAM** | **MASTER OF BUSINESS ADMINISTRATION (MBA)** |
| **SEMESTER** | **III** |
| **COURSE CODE & NAME** | **DADS303 INTRODUCTION TO MACHINE LEARNING**  |
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**Assignment Set – 1**

**1. Discuss all the assumptions of linear regression 10**

**Ans 1.**

**Introduction to Linear Regression**

Linear regression is a fundamental statistical and machine learning technique used to model relationships between a dependent variable and one or more independent variables. It's widely used due to its simplicity, interpretability, and a range of applications in different fields. Understanding the assumptions behind linear regression is crucial for its correct application and interpretation of results.

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**2. What do you mean by Machine Learning? Discuss the relevance of Machine Learning in Business**

**Ans 2.**

Machine Learning (ML) is a branch of artificial intelligence that focuses on building systems capable of learning from data, identifying patterns, and making decisions with minimal human intervention. This technology has emerged as a crucial element in the modern business landscape, revolutionizing how companies operate, make decisions, and interact with customers.

**3. What is Support Vector Machine? What are the various steps in using Support Vector Machine? 2 + 8**

**Ans 3.**

**Introduction to SVM**

Support Vector Machine (SVM) is a powerful and versatile supervised machine learning algorithm used for both classification and regression tasks. It is particularly well-suited for complex but small- or medium-sized datasets. The primary objective of SVM is to find a hyperplane in an N-dimensional space (N being the number of features) that distinctly classifies the data points.

**Key Concept of SVM**

The core

**Assignment Set – 2**

**4. Briefly explain ‘Splitting Criteria’, ‘Merging Criteria’ and ‘Stopping Criteria’ in Decision Tree.**

**Ans 4.**

**Splitting Criteria in Decision Trees**

Splitting criteria are fundamental in the construction of decision trees, a popular tool in machine learning for tasks like classification and regression. These criteria determine how the data at a node is split into two or more homogenous sets. The goal is to find the best split that maximizes the homogeneity

**5. Explain the K-Means Clustering algorithm**

**Ans 5.**

K-Means Clustering is a fundamental algorithm in the field of machine learning, particularly in the domain of unsupervised learning. This algorithm is pivotal for data analysis, where the objective is to categorize a given dataset into clusters based on feature similarities.

**6. Discuss various validation measures in detail. 10**

**Ans 6.**

**Introduction to Validation Measures in Machine Learning**

In the field of machine learning, validation measures are critical for evaluating the performance of models. These measures help in understanding how well a model generalizes to new, unseen data. They are essential for both choosing the right model for a given task and for tuning