KALINGA UNIVERSITY

Faculty of Computer Science & Information Technology

Assignment 3

Program – BTCSAIML **Sem-III**

Course – Machine Learning **Subject Code – BTCSAIML304**

Note: Attempt all questions.
Short Questions -1, 2 & 3.
Long Questions – 4 & 5.

Instructions:

***For short answer type questions, answer limit is 50 to 100 words.**

***For long answer type questions, answer limit is 250 to 300 words.**

Q1. What is the main difference between k-Means clustering and Hierarchical clustering?

Q2. Define DBSCAN clustering and briefly explain what a Core point and a Noise point are.

Q3. Explain the step-by-step working of the k-Means algorithm. How do you choose the best value of k using the Elbow Method?

Q4. Compare PCA (Principal Component Analysis) and LDA (Linear Discriminant Analysis). Explain when you would choose one over the other.

Q5. Describe two real-world applications where clustering and dimensionality reduction are used together.