IIMT COLLEGE OF ENGINEERING
Greater Noida
— Aim For Excellence —

Department of Computer Science & Engineering (AI)

Session: 2025-26 **Semester: 7th** **Section: CSE(AI) -7A, 7B**

Course Code: BAI701 **Course Name: Deep Learning**

Assignment 3 (Questions Based on CO 3)

1. Explain and compare PCA and LDA for linear dimensionality reduction.
2. What is manifold learning? Describe any two manifold learning algorithms.
3. Explain how autoencoders perform dimensionality reduction in neural networks.
4. Describe the basic structure and components of a Convolutional Neural Network (ConvNet).
5. Compare AlexNet, VGG, Inception, and ResNet architectures in terms of design and performance.
6. Explain different weight initialization methods used while training ConvNets.
7. Discuss the importance of batch normalization and hyperparameter optimization in ConvNet training.