**Mandsaur University, Mandsaur**

**Department of Computer Science & Engineering**

### **Subject: Deep Learning**

**Assignment 5**

**Q1.** Explain the concept of **deep generative models**. Discuss how **Boltzmann Machines** and **Deep Belief Networks (DBNs)** are used as generative models, highlighting their strengths and limitations.

**Q2.** What are **Generative Adversarial Networks (GANs)**? Explain their architecture, the role of the generator and discriminator, and describe at least two practical applications of GANs.

OR

**Q3.** Define a **Markov Decision Process (MDP)**. Explain its components (states, actions, transition probabilities, rewards, and policies) with an example. How does it form the foundation of reinforcement learning?