



Department of Artificial Intelligence and Machine Learning

ARTIFICIAL NEURAL NETWORKS AND DEEP LEARNING

Course Code : AI2531A

Date : 28/1/2025

Semester : V Sem

Time : 9:30am to 11:30am

Max Marks : 10 (Q) + 50(CIE)

Duration : 30 + 90=120 min

Improvement CIE

Note: Answer all the Questions

Q. No	PART A Quiz Questions	M	BT	CO
1	a) List any two difference between modelling states and modelling state-action pairs in reinforcement learning?	2	2	1
	b) Mention any two challenges in reinforcement learning	2	1	1
	c) Write the equation for the confidence bonus in upper bound algorithm.	2	3	1
	d) What does the Q function represents in markov decision process	2	2	2
	e) What is Bootstrapping in the context of reinforcement learning	2	2	1

Note: Answer all the Questions

Q. No	PART B CIE Questions	M	B T	C O
2	a) List any 5 differences between SARSA and Q- Learning methods.	5	1	2
	b) With example briefly explain how neural network can be used as function approximate in RL setting such as playing Atari Games.	5	2	3
3	a) Compare and contrast Generative Adversarial Networks (GANs) and Variational Auto encoders (VAEs) in terms of their architecture, training process, and the quality of generated samples	5	2	2
	b) Explain Attention Mechanism and its role in deep learning models.	5	2	2
4	a) In the context of decision-making for game-playing AI, explain how Monte Carlo Tree Search (MCTS) can be used to determine the best move in a game like Go. What are the key steps involved in the MCTS algorithm, and how does it balance exploration and exploitation during the search process?	5	2	1
	b) Explain the concept of Conditional GANs (cGANs). How do they extend the basic GAN architecture to allow for more controlled generation of images based on specific conditions (e.g., class labels, input images)?	5	3	3
5	Explain the architecture and training process of Generative Adversarial Networks (GANs).	10	2	3
6	Consider the Multi Armed Bandits problem, discuss why its considered as stateless and elaborate how Naïve bayes and ϵ - Greedy algorithms can be used to solve it and also discuss the drawbacks of these approaches	10	3	2

M-Marks, BT-Blooms Taxonomy Levels, CO-Course Outcomes

Marks Distribution	Particulars	CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
	Max Marks CIE & Quiz	13	27	20	--	7	36	17	--	--	--