LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B

M.Sc. DEGREE EXAMINATION – **DATA SCIENCE**

Max. : 100 Marks

FOURTH SEMESTER – **APRIL 2022**

PDS 4601 – REINFORCEMENT LEARNING

Date: 15-06-2022 Dept. No. Time: 01:00 PM - 04:00 PM

PART – A

	IARI - A	
Q. No	Answer ALL questions	(10 x 2 = 20 Marks)
1	List out the limitations of Monte Carlo Method.	
2	Define Rollout Policy.	
3	What is Temporal Difference Learning?	
4	Define Afterstates.	
5	State the term Eligibility Traces.	
6	Define Watkins's $Q(\lambda)$.	
7	List out the Model Free Reinforcement Learning algorithms.	
8	What is Fitted Iteration Algorithm?	
9	What are the two types of non-associative learning?	
10	State the term A3C.	
	PART – B	
	Answer ALL questions	(5 x 8 = 40 Marks)
11	(a) Explain the concept of importance sampling in off-policy prediction.	
	or	
	(b) Describe the perception on rollout algorithms in detail with an example	
12	(a) Explain the SARSA – On Policy Temporal Difference Learning method wit or	h backup diagram
	(b) Describe the idea on Maximization of Bias and Double Learning in detail.	
13	(a) Explain the concept of n-step TD prediction method with backup diagram. or	
	(b) Describe the concept of TD (λ) method with backup diagram.	

14 (a) Explain the idea on Value Function Approximation in detail.

or

(b) Describe the concept of Gradient Descent Algorithm in detail.

15 (a) Explain the concept of Elevator Dispatching Algorithm with neat diagram.

or

(b) Describe the perception on Option-Critic Architecture with neat illustration.

PART – C

Answer any TWO questions

(2 x 20 = 40 Marks)

16 Explain the following:

- (a) First Visit Monte Carlo method with an example
- (b) Temporal Difference Prediction with an illustration

17 Write a short note on the following:

- (a) SARSA (λ) with neat backup diagram.
- (b) State and explain the steps involved in Deep Q-Learning.

18 Describe the following topics:

- (a) Steps involved in REINFORCE algorithm with an example.
- (b) Concept of Actor Critic Method with neat illustration.

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