

**RL Lab Assignment - 4**  
**CS 414: Reinforcement Learning Lab**  
**Course Instructor : Prof. Prabuchandran**  
**Teaching Assistant : Shruthi K.**  
**Date: 14 Mar 2022**

**INSTRUCTIONS:** You have to give clear and detailed plots and solution to each of the questions. **Submit one single pdf file containing solutions to all problems in google class room before 25th Mar, 11.30 am before the RL class. Submit the code as .py file or as python notebook along with the solution pdf. Only one member of the group has to submit the assignment. Name your pdf with rollno1\_rollno2\_rollno3.** For example 190010005\_190010006\_190010007.pdf. Late submissions will not be graded. Students can discuss but must write their solutions based on their understanding independently. Do not use web resources or answers from your peers to obtain solutions. If anyone is involved in malpractice of any sort, then suitable disciplinary action will be taken.

Each group needs to implement and compare RL algorithms namely Monte Carlo Control, SARSA, Q-learning on 3 standard RL tasks. One of the RL tasks would be the mountain car task and the other two tasks would be any standard RL task of your choice. If the group has only one member then it is sufficient if he compares on two RL tasks. Write your observations about the working of each of the algorithms, its advantages, disadvantages etc. Provide reasonable plots comparing the final policy learnt as well the transient behaviour of all the algorithms.