REINFORCEMENT LEARNING

UNIT – I

1 Mark Questions

1. What are the elements in Reinforcement Learning?
2. Define rewards in Reinforcement Learning, explain with example?
3. Explain Greedy action in 10-armed bandit algorithm with example?
4. Define Explore and Exploitation dilemma in Reinforcement Learning to reach the optima

path?

1. How to solve the Normal distribution problems in multi-armed-bandit algorithm?
2. Explain e-greedy algorithm, with example?
3. Define Posterior Sampling theorem, with beta distribution?
4. Explain in detailed state, action, environment and agent with example?
5. Explain Bernoulli theorem in Reinforcement learning?
6. How we will implement Linear Algebra in Reinforcement Learning with example?

5 Marks Questions

1. What is Reinforcement Learning and explain characteristics of RL?
2. Explain applications and challenges of Reinforcement learning with examples?
3. How we will implement the Probability methodologies in Reinforcement Learning and

explain with example?

1. Explain definition of stochastic multi-armed-bandit algorithm and how to solve the

problems in the case of k-arms in detailed?

1. Explain in detailed Incremental Implementation method in multi-armed bandit algorithm

in Reinforcement Learning?

1. How to solve the average for reward probability by using tracking nonstationary method

in bandit problems with example?

1. How to select optimal path to win the goal by using upper confidence-bound and explain

in detail?

1. Explain KL-UCB algorithm and how we differ from the UCB algorithm in detailed to reach

the highest path?

1. How we initialize the Thompson Sampling algorithm and explain in detailed?
2. Define regret method to implement the sublinear regret in Reinforcement Learning?

UNIT – II

1 MarķQuestions

1. Define Markov Decision Process?
2. Define Policy in MDP with example problem?
3. Explain finite controlled Markov environment in Reinforcement Learning?
4. Which real life machine learning or Al application currently use Markov Decision Process

(MDP)?

1. What do you understand by the Markov process? In what areas of management can it be

applied successfully?

1. What is difference between Markov Decision process and Bellman equation in

reinforcement learning?

1. Explain the technique for maximize rewards from the process in MDP and Bellman

equation?

1. What is the main difference between reinforcement learning and Markov Decision

Process?

1. Define Transition and Transition probability in MDP?
2. Define Value function in Bellman equation?

5 Marks Questions

1. Explain Markov Decision Process with problem?
2. Explain policy and Value function in Markov Decision Problem with example?
3. How we can implement Reward models (infinite discounted, total, finite horizon, and

average) in MDP with example?

1. Explain Episodic and continuing tasks in MDP with example?
2. Explain Bellman's optimality operator in Reinforcement Learning?
3. Explain Value iteration and policy iteration with example?
4. What is the difference between infinite discount and finite horizon with examples?
5. What is the difference between value iteration and policy iteration with example?
6. Explain Interaction protocol for Markov Decision Processes, Markov chains with problems

set-up?

1. Compute the optimistic policy in Markov decision process and Bellman's equation with

examples?

UNIT – III

1 Mark Questions

1. How can you define immediate rewards in Reinforcement Learning?
2. What is the difference between model-based and model-free reinforcement learning?
3. What is the difference between action value and value function in optimal policy?
4. Define Generalized Policy Iteration with example?
5. What is the difference between the prediction and control problems in the context of

reinforcement learning?

1. How to evaluate First-visit MC prediction, for estimating V?

5 Marks Questions

1. Explain what is the predicted and controlled in reinforcement learning with example

problems?

1. Explain Model based algorithm in Reinforcement Learning with example?
2. Derive value function Estimation of prediction horizon in model predictive control with

example?

1. Explain Model based techniques with trade-offs model data to solve the maximize optimal

policy in reinforcement learning

1. How can we reach the policy iteration in prediction and control problems in the context

of Reinforcement Learning and explain with example?

1. Explain Monte Carlo methods for prediction in Reinforcement Learning with example?
2. Compute the Online implementation of Monte Carlo policy evaluation with example?
3. Explain Monte Carlo estimation of action values with example?
4. Explain Per-decision importance sampling in monte Carlo methods with example?
5. Explain Discounting aware importance sampling in Monte Carlo methods?

the Incremental implementation in Monte Carlo methods?

1. Explain Off-Policy prediction via Importance sampling in Monte Carlo methods with

example?

1. How can you implement the Monte Carlo control without exploring starts in

reinforcement learning?