**SHIVAJI UNIVERSITY, KOLHAPUR**

**DEPARTMENT OF STATISTICS**

**M.Sc. Part-II (SEM-III)**

**Practical:** Classification of states and absorption probabilities.

Date:

1. Let be a Markov chain with state space S={0, 1, 2} and TPM
2. Find the period of each state.
3. State about accessibility of state 0 from state 2.
4. Find the communicative classes
5. Find first passage time distribution for state 1 given that system starts with 2.
6. Find mean time from state 1 to state 2.
7. Find mean recurrence time of all states.
8. Classify the states of the MC.
9. Let be a Markov chain with state space S={0, 1, 2} and TPM

Classify the states of the MC and find the mean recurrence time.

1. Let be a sequence of numbers, such that for all n≥0, . Consider a Markov chain on the state space {0, 1, 2, ------} with transition probability matrix

Classify the states of the MC.

1. Let be a Markov chain with state space S={1, 2, 3, 4, 5} and TPM

Classify the states of the MC.

1. Consider the Markov chain having states 0, 1, 2, 3, 4 and



Determine the recurrent state.

1. Specify the classes of the following Markov chains, and determine whether they are transient or recurrent:



1. A Markov chain on states {0, 1, 2, 3, 4, 5} has transition probability matrices

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Find all communicating classes and find period of each state.

1. Consider a gambler who at each play of game has probability of 0.7 of winning Rs. 1 and probability 0.3 of loosing Rs. 1. Assuming that successive plays of the game are independent, what is the probability that, starting with Rs. 50, the Gamblers fortune will reach Rs. 150 before reaching Rs. 0.?
2. Let be a Markov chain with state space S={0,1,2,3,4} and TPM

Find the absorption probabilities.