+1/1/60+

Name: ..... **Reg. No.: CIIT/.....–BSE–...../ATK**

Quiz 1: CSC456: Stochastic Processes: BS(SE)-VIII (Fall 2025)

Instructions:

- Please choose the most correct option by filling or ticking or crossing the box.
- Spoiled or overwritten selection has no credit.
- Please don't use whitener or any other eraser.
- **Correct:** 3 Marks, **Incorrect:** Zero Mark, **Not Attempt:** 1 Mark

Q. 1. Which of the following best describes a stochastic process?

- ☐ A sample space of an experiment
- ☐ A deterministic mathematical function
- ☐ A single random variable
- ☐ A sequence of random variables over time

Q. 2. If a Markov chain has the transition matrix $P = \begin{bmatrix} 0.1 & 0.9 \\ 0.8 & 0.2 \end{bmatrix}$, what is P_{10}?

- ☐ 0.8
- ☐ 0.2
- ☐ 0.9
- ☐ 0.1

Q. 3. For two events E and F in a sample space S, if

$$P(E|F) = P(E),$$

then E and F are:

- ☐ Independent
- ☐ Mutually exclusive
- ☐ Exhaustive
- ☐ Complementary

Q. 4. The sample space for flipping three coins has how many outcomes?

- ☐ 6
- ☐ 8
- ☐ 4
- ☐ 10

Q. 5. Suppose cards numbered one through ten are placed in a hat, mixed up, and then one of the cards is drawn. Find the probability if we are told that the number on the drawn card is at least five.

Q. 6. Write the Transition Probability Matrix from the following diagram. Also find P_{10}^3.

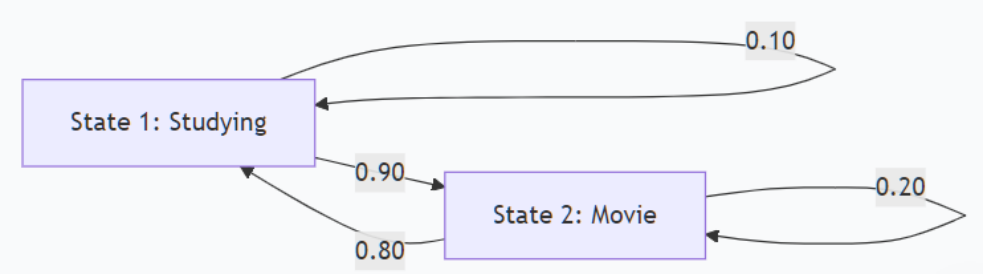

Figure 1: State Transition Diagram

..... BACK SIDE PAPER CAN BE USED AS ROUGH .....