Lecture 06 Worksheet (ECON211), AY 2025-26 [Date: 24 Jul 2025]

1. **Matching Pennies Game** We have a game in which there are two players-Tinky Winky and Laa Laa- such that each player has a coin. They toss the coins simultaneously. The outcomes are as follows:

- Tinky Winky wins (+1) and La La loses (-1) if both coins turn heads OR both coins turn tails.
- Laa Laa wins (+1) and Tinky Winky loses (-1) if either of the following happens:
  - The coin with Tinky Winky shows heads and the one with Laa Laa shows tails.
  - The coin with Tinky Winky shows tails and the one with Laa Laa shows heads.

Write the payoff for Tinky Winky in the form of a matrix. Guess the winning strategy for Tinky Winky.

2. If there are two matrices A and B such that:

$$A = \begin{bmatrix} 1 \\ 3 \end{bmatrix}$$

and

$$B = \begin{bmatrix} 2 & 4 \end{bmatrix}$$

calculate $A \times B$ and $B \times A$.

3. You run a bakery in Chennai and maintain an inventory list for each week. The raw material that you need are flour, sugar, and butter. A kg of flour costs ₹100, a kg of butter ₹1000, and a kg of sugar ₹50. You have two outlets: one at TTK Road and another at Khader Nawaz Khan Road. The details of inventory are as follows:

- TTK Road: 50kg (flour), 20kg (butter), 10kg (sugar)
- KNK Road: 100kg (flour), 40kg (butter), 20kg(sugar)

Write the inventory and the cost matrix. Multiply the two matrices to get the total cost of running operations at each outlet.

4. Two besties, Nandini and Kundavai, went to a bookstore.Nandini bought **2 novels** and **1 notebook** for ₹450. Kundavai bought **3 novels** and **2 notebooks** for ₹700. Assuming all novels cost the same and all notebooks cost the same, use Cramer's Rule to find the cost of a novel and a notebook.