

## CLASS WORK of Theme 7. GAME THEORY

### Task 1

- 1) Determine the lower and the upper prices of the game and existence of a saddle point for given payoff matrices.
- 2) Simplify these matrices and exclude unprofitable strategies.

(a)

$$A = \begin{pmatrix} 2 & 4 & 8 & 5 \\ 6 & 2 & 4 & 6 \\ 3 & 2 & 5 & 4 \end{pmatrix}$$

(b)

$$\begin{pmatrix} 1 & 2 & 1 & 2 \\ 2 & 1 & 2 & 4 \\ 3 & 3 & 2 & 2 \\ 4 & 1 & 3 & 3 \end{pmatrix}$$

### Task 2

The payoff matrices are given. Solve the matrix game by the graphical method, find the optimal strategies and the game price.

(a)

$$\Pi = \begin{pmatrix} 2 & 3 & 6 & 5 \\ 6 & 4 & 1 & 3 \end{pmatrix}$$

(b)

$$\Pi = \begin{pmatrix} 4 & 6 & 8 & 7 \\ 6 & 3 & 2 & 5 \end{pmatrix}^T$$