

## A2 1.midterm–retake – 2020.05.20.

*The student acknowledges that he / she has not used a prohibited tool while writing the midterm!*

Meaning of letters in the questions:

A: Last number of You phone number (1-10)

B: Last number of You ID card (or passport) (1-10)

### Questions:

1. Perform the  $\mathbf{Z}(\mathbf{X}^T + 2\mathbf{Y})$  matrix operation, where  $\mathbf{X} = \begin{bmatrix} 1 & -1 \\ A-4 & 2 \\ 0 & -3 \end{bmatrix}$ ,  $\mathbf{Y} =$

$$\begin{bmatrix} 0 & 2 & -1 \\ 1 & 3 & 0 \end{bmatrix} \text{ and } \mathbf{Z} = \begin{bmatrix} -1 & 0 \\ B-7 & 2 \\ 1 & -1 \end{bmatrix},$$

2. Determine all the solutions of the following system of equations:

$$\begin{aligned} Ax + y - z &= -(A+2) \\ 2x - y + Bz &= 3(B-1) \\ -x + 3y - 2z &= -2 \end{aligned}$$

3. Find the inverse of the matrix:

$$\begin{bmatrix} 4 & -A & -1 \\ 2 & 0 & 1 \\ -1 & B & 1 \end{bmatrix}$$

4. Evaluate the determinant:

$$\begin{vmatrix} A & 0 & 2 & 1 \\ 1 & 3 & -1 & 5 \\ 2 & B & 0 & 1 \\ 1 & 4 & 1 & -4 \end{vmatrix}$$

All question worth 5 points. You need reach at least 6 points to pass.