Name . . . . . ,

row. .... col....

1.	2.	3.	4.	Σ.

1. Use generating functions to find a_n if: $a_n = a_{n-1} + 5^{n-1}$ and $a_0 = 1$.

2. Consider the Hamming code with the following generator matrix: $\begin{bmatrix} 1101001 \\ 1001100 \\ 1011010 \\ 0101010 \end{bmatrix}$. Find the parity check matrix. What was sent if at most one error has arisen during the transmission and the received word is a) 1001011, b) 1100110?

3. Find all trees that are self-complementary and prove that there is no any other such tree.

4. In a tree T with at least 3 vertices there is $k+1$ ($k > 0$) vertices of degree at least $k+1$. Prove that there is more than k^2 vertices of degree 1 in three T.