Quiz 31

1. Define an \((n,k)\) linear code.

2. \(G\) is a systematic code with generator matrix over \(\mathbb{Z}_2\):

\[
G = \begin{bmatrix}
1 & 0 & 0 & 1 & 1 & 0 \\
0 & 1 & 0 & 1 & 0 & 1 \\
0 & 0 & 1 & 1 & 1 & 1
\end{bmatrix}
\]

What are \(n,k\) for the \((n,k)\) linear code that \(G\) generates?

3. What is the parity-check matrix \(H\) corresponding to \(G\) in \(\mathbb{Z}_2\)?

4. What is the "Orthogonality Relation" characterization of codewords \(v\) in an \((n,k)\) linear code with generator matrix \(G\) and parity-check matrix \(H\)?