These questions are important to our completion of the 7-qbit code. They are solved briefly in your book. Show the calculations in detail, in your own words.

A. Prove that $|\bar{0}\rangle$ is an eigenvector of each observable M_k (for $k = 0, 1, 2$). With which eigenvalues?

B. Prove that $|\bar{0}\rangle$ is an eigenvector of each N_k. With which eigenvalues?

C. Repeat questions A and B for $|\bar{1}\rangle$.