Name: Major: Grade:

1. Why do we use sound rather than other media in long-range underwater wireless communication?
2. Describe the characteristics of single carrier modulation and multi-carrier modulation.
3. Explain the causes and consequences of multipath effects in underwater acoustic communication.
4. Explain the causes and consequences of Doppler effects in underwater acoustic communication.
5. Draw the constellation of QPSK, assuming that the energy per bit is 1.