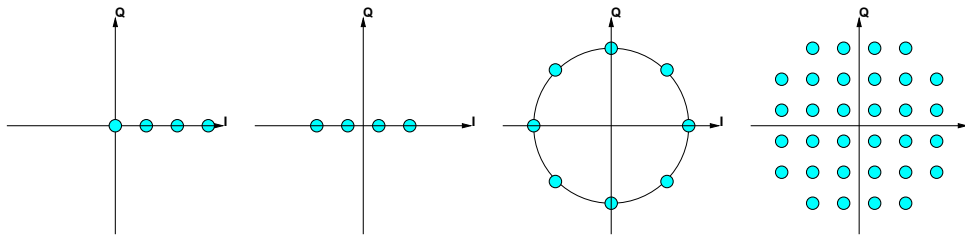


Digital Communication 4

- For each of the digital modulation schemes shown in the constellation diagrams below: (a) describe the modulation scheme, (b) identify the number of bits per symbol, and (c) state the ratio of the bit rate to the symbol (baud) rate and (d) determine the baud rate required to achieve a bit rate of 24 Mbit s^{-1} .



- For the digital stream $\dots 010101010101\dots$ determine the spectrum of the modulated waveform for (a) On-Off Keying (b) Binary Phase Shift Keying (c) both I and Q components of Gray-encoded Quadrature Phase Shift Keying. (d) determine the spectrum of the modulated waveform for both I and Q components of Gray-encoded Quadrature Phase Shift Keying for the digital stream $\dots 001100110011\dots$