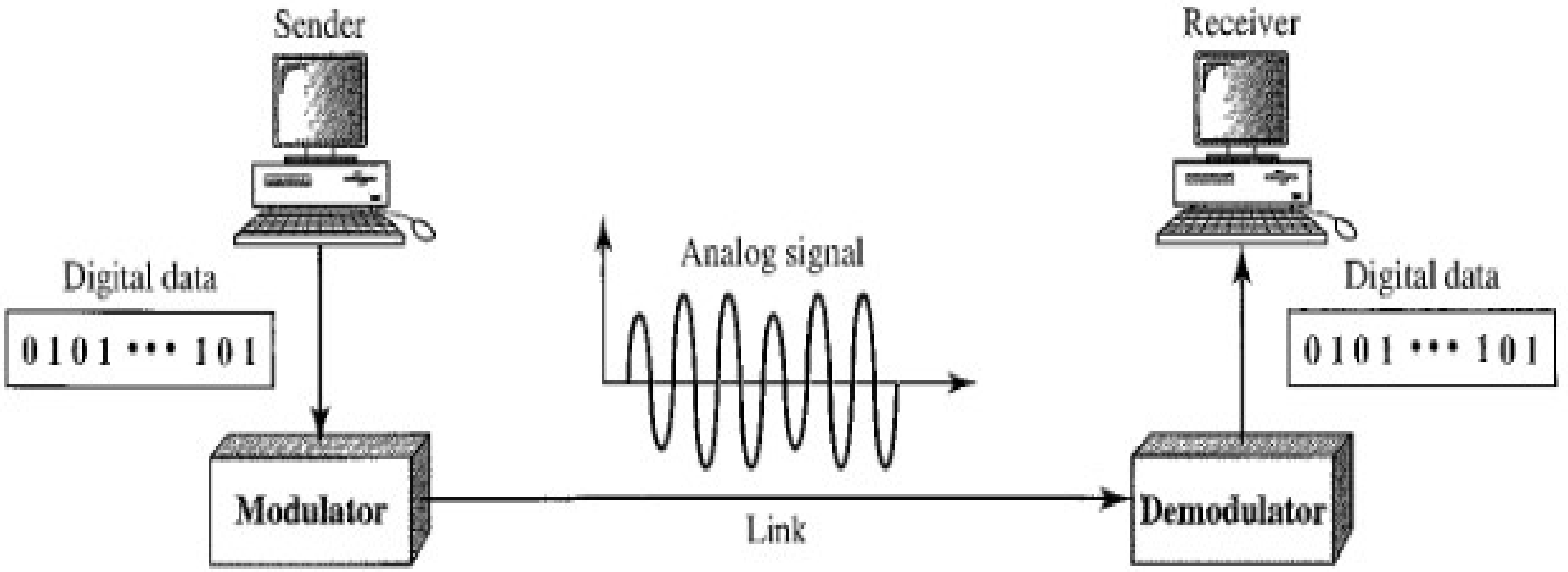
Chapter 5

DIGITAL-TO-ANALOG CONVERSION

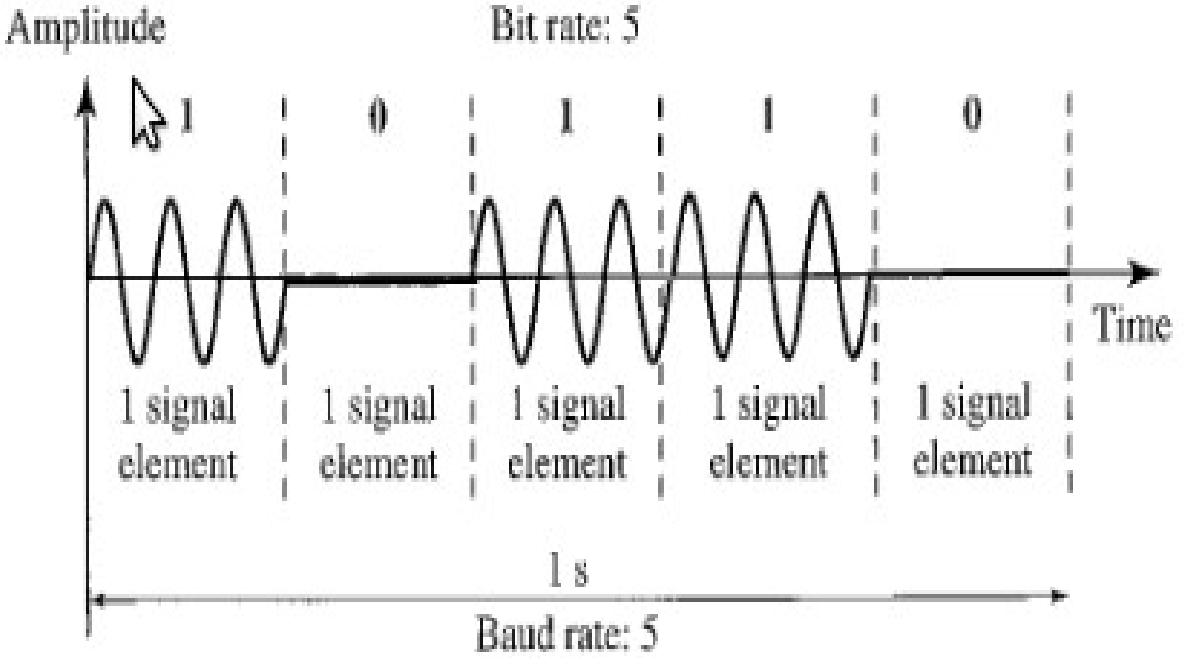
- Changing the characteristics of an analog signal based on the information in ditital data

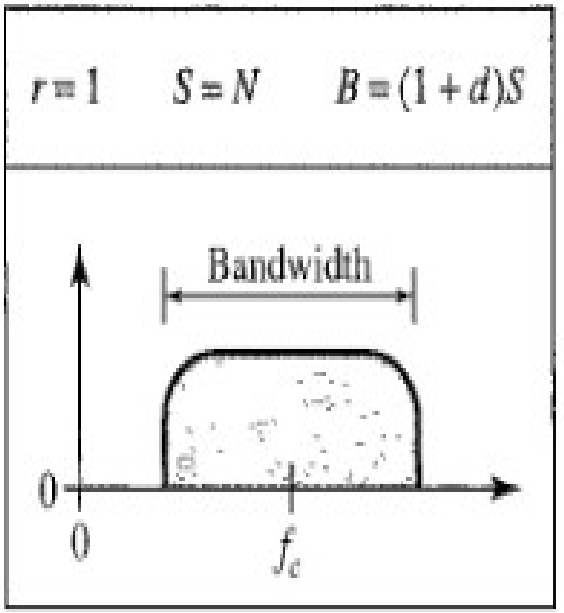


Aspects of D-to-A Conversion

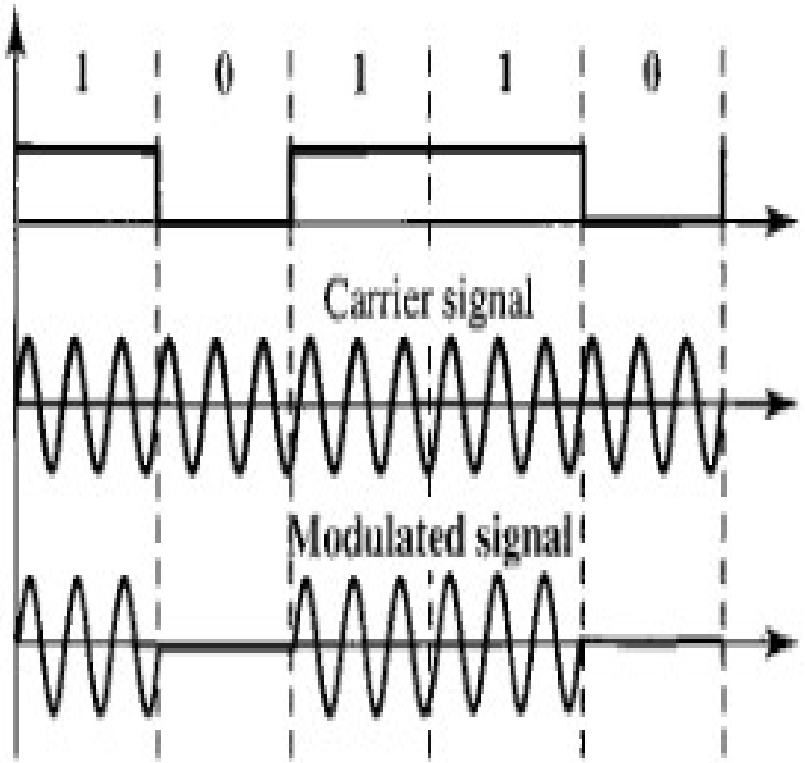
- Data element vs. Signal Element
- Data Rate vs. Signal Rate : $S=N*1/r$, $r=\log_2 L$
- Bandwidth: Proportional to the signal rate, except for FSK
- Carrier signal: base signal, carrier frequency
- Modulation – modifying the characteristics of a carrier frequency to send data

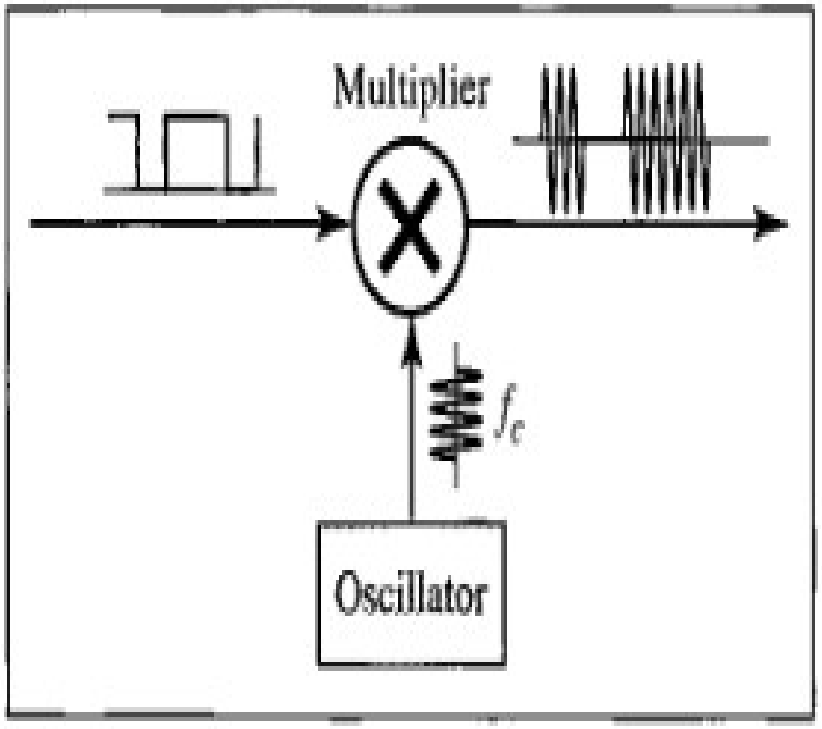
Amplitude Shift Keying (ASK)



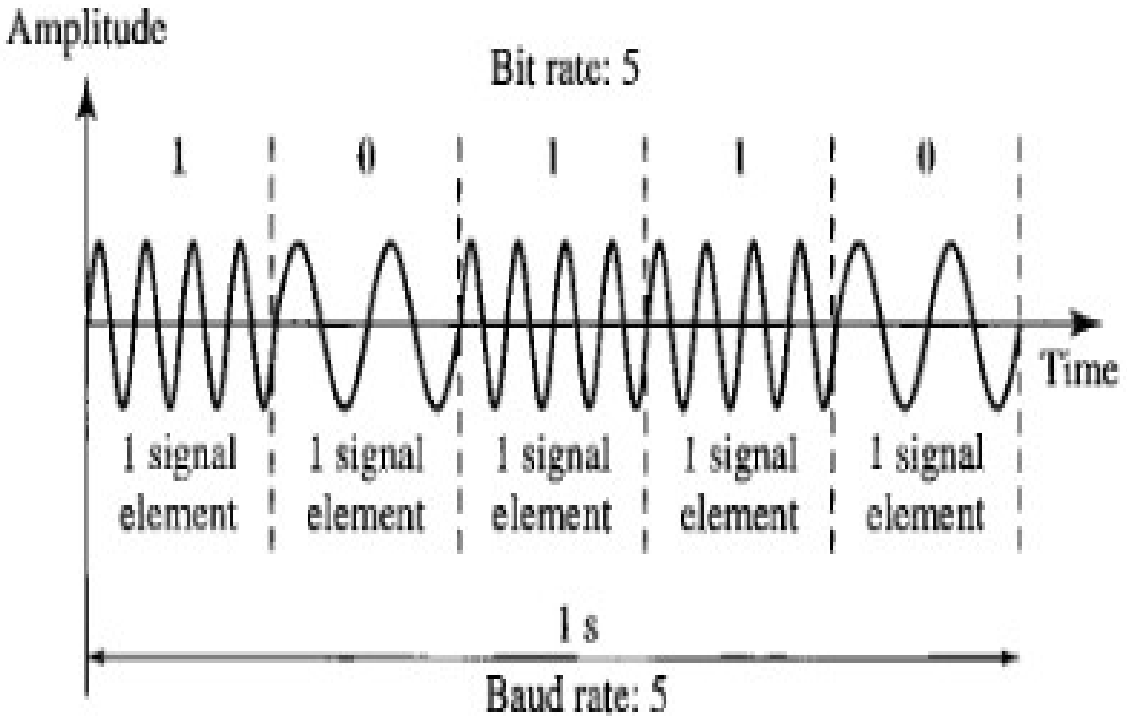


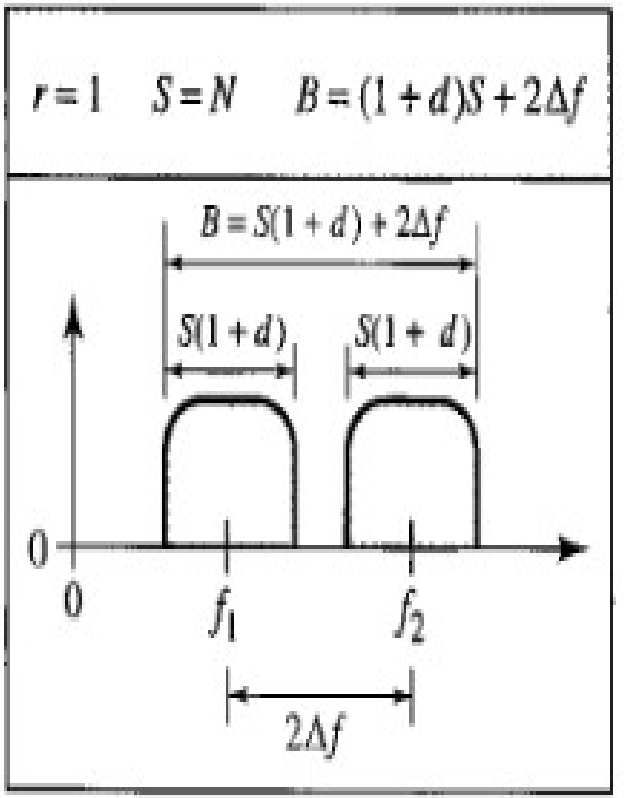
Amplitude Shift Keying (ASK)



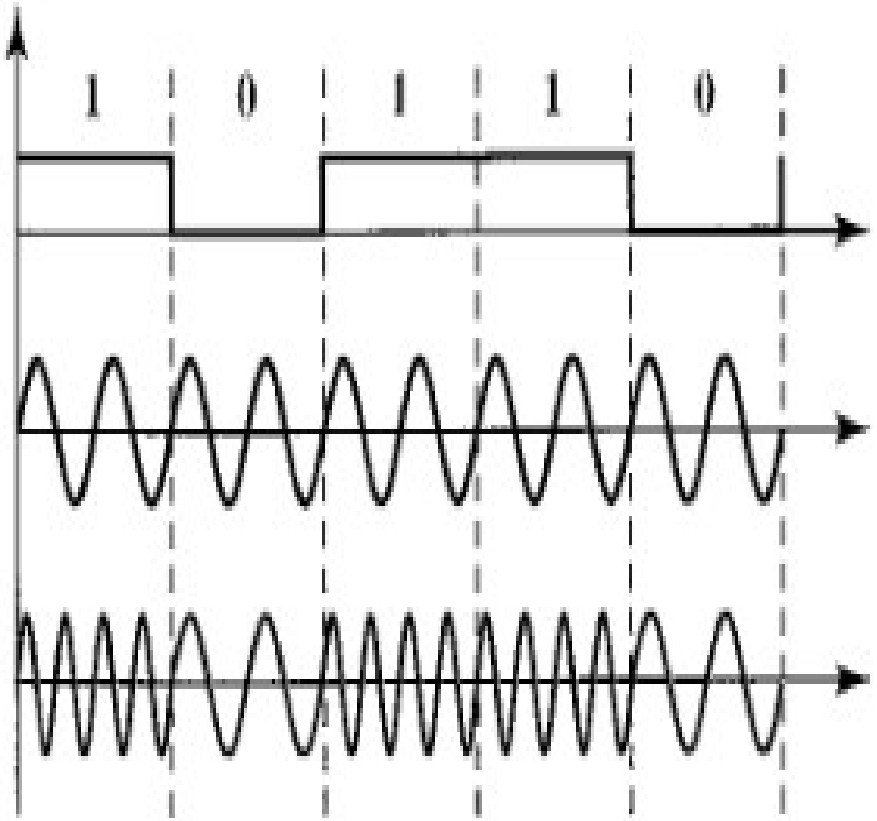


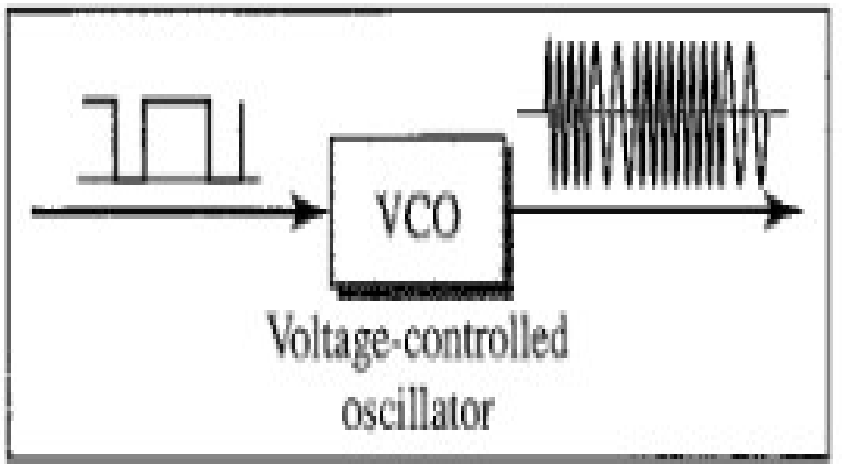
Frequency Shift Keying (FSK)



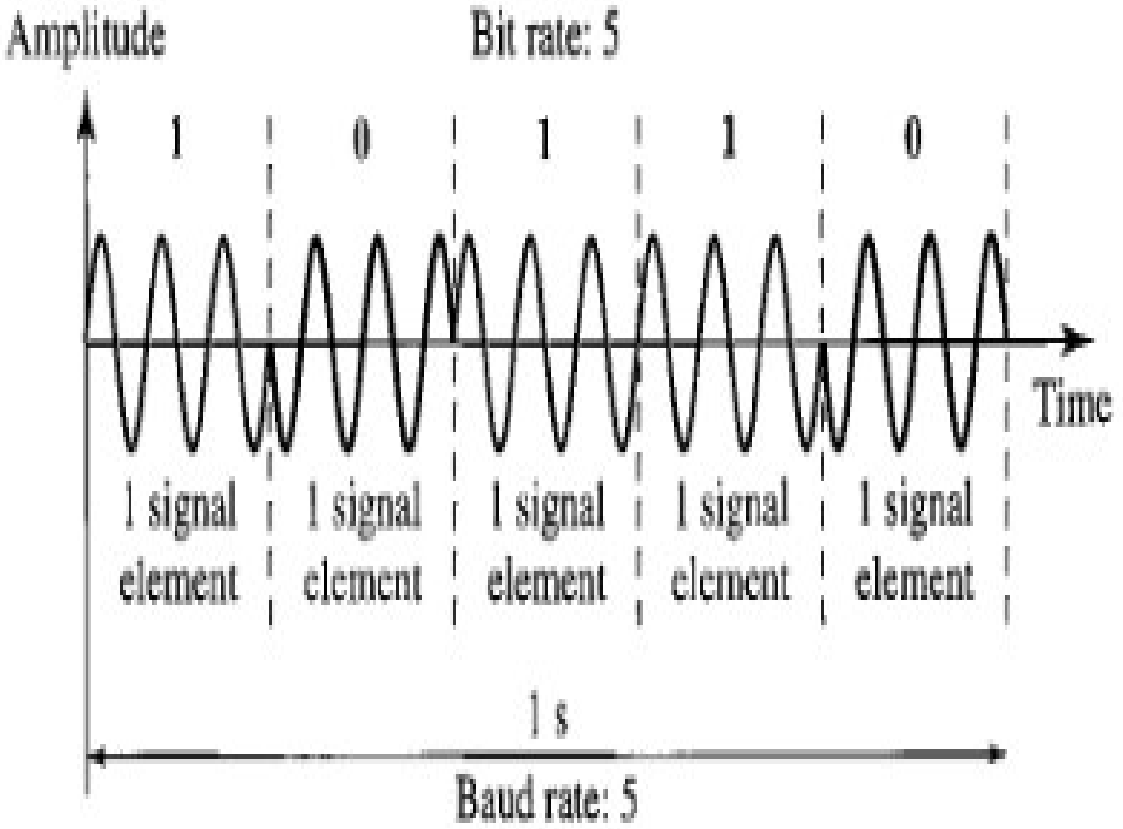


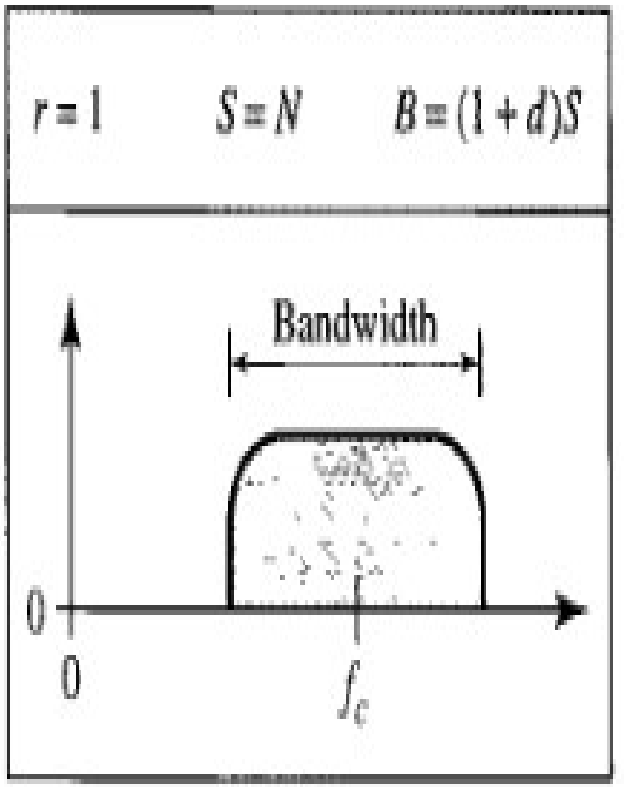
Frequency Shift Keying (FSK)



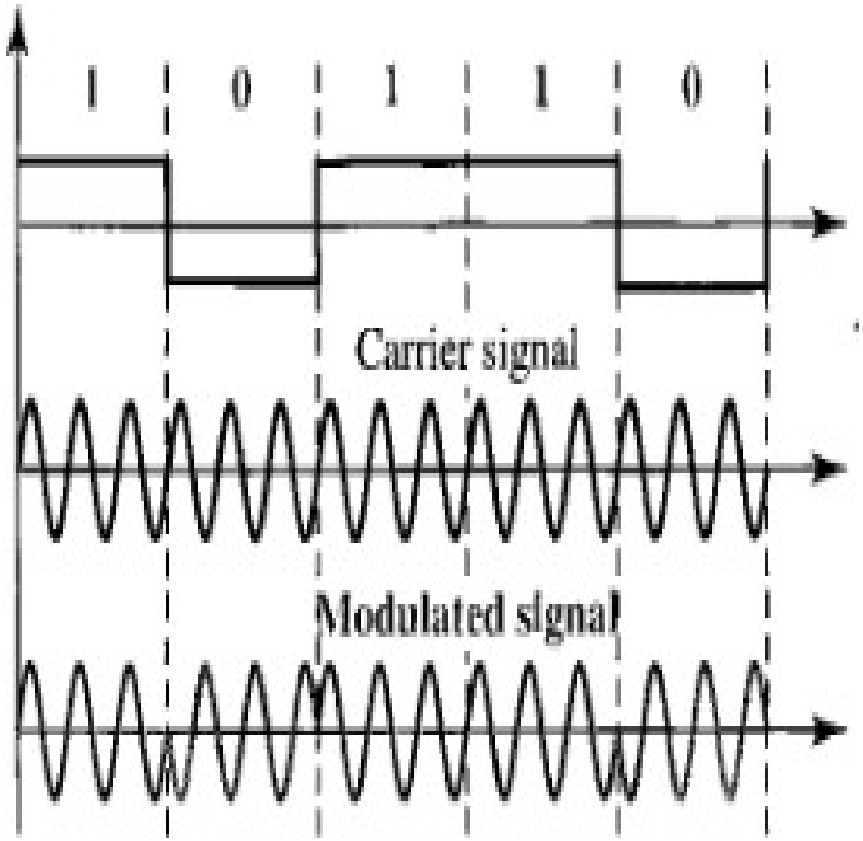


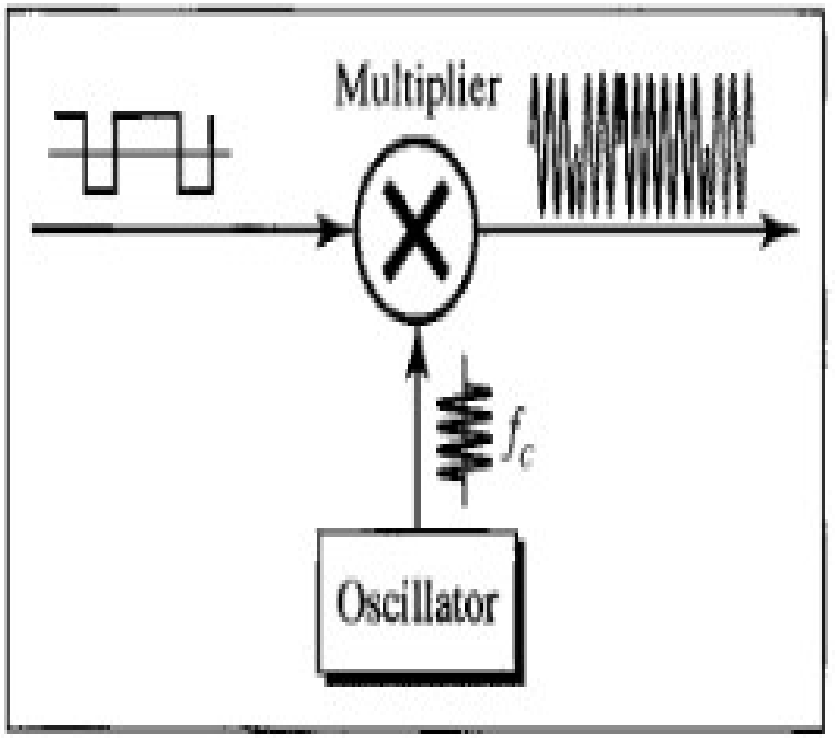
Phase Shift Keying (PSK)



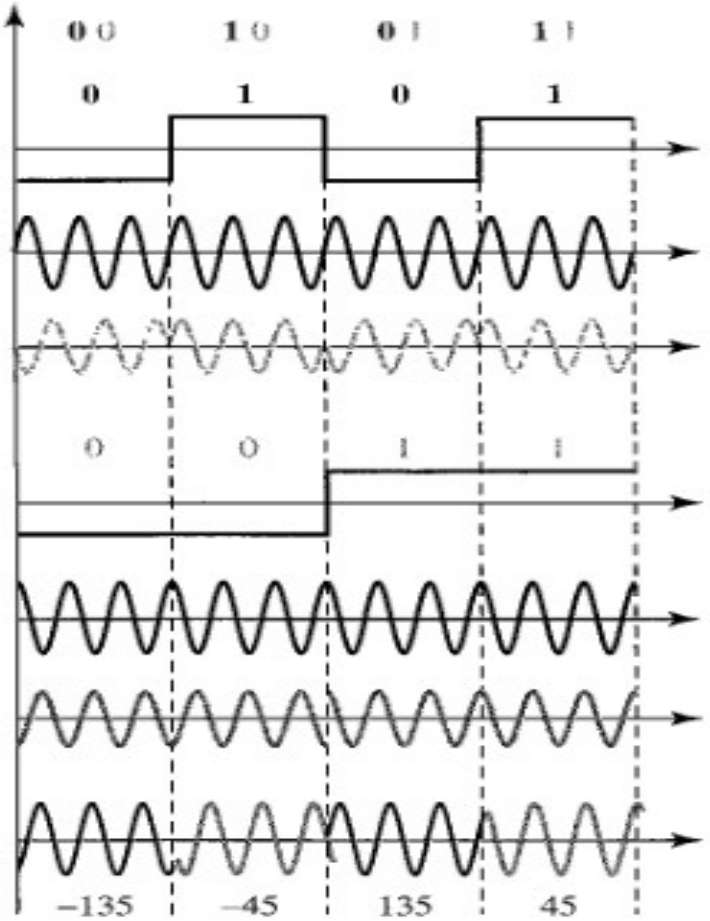


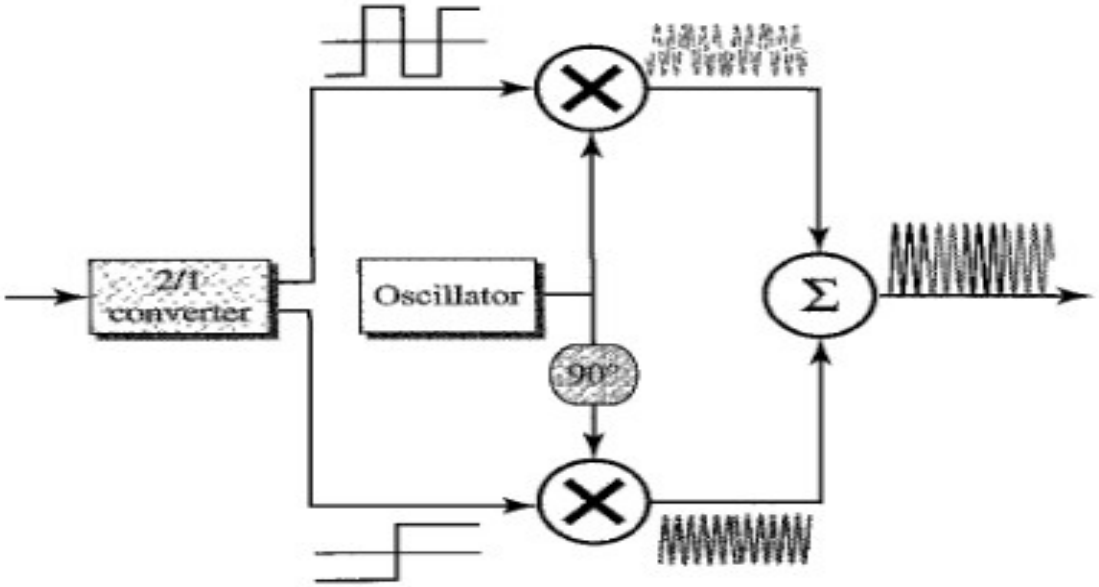
Phase Shift Keying (PSK)



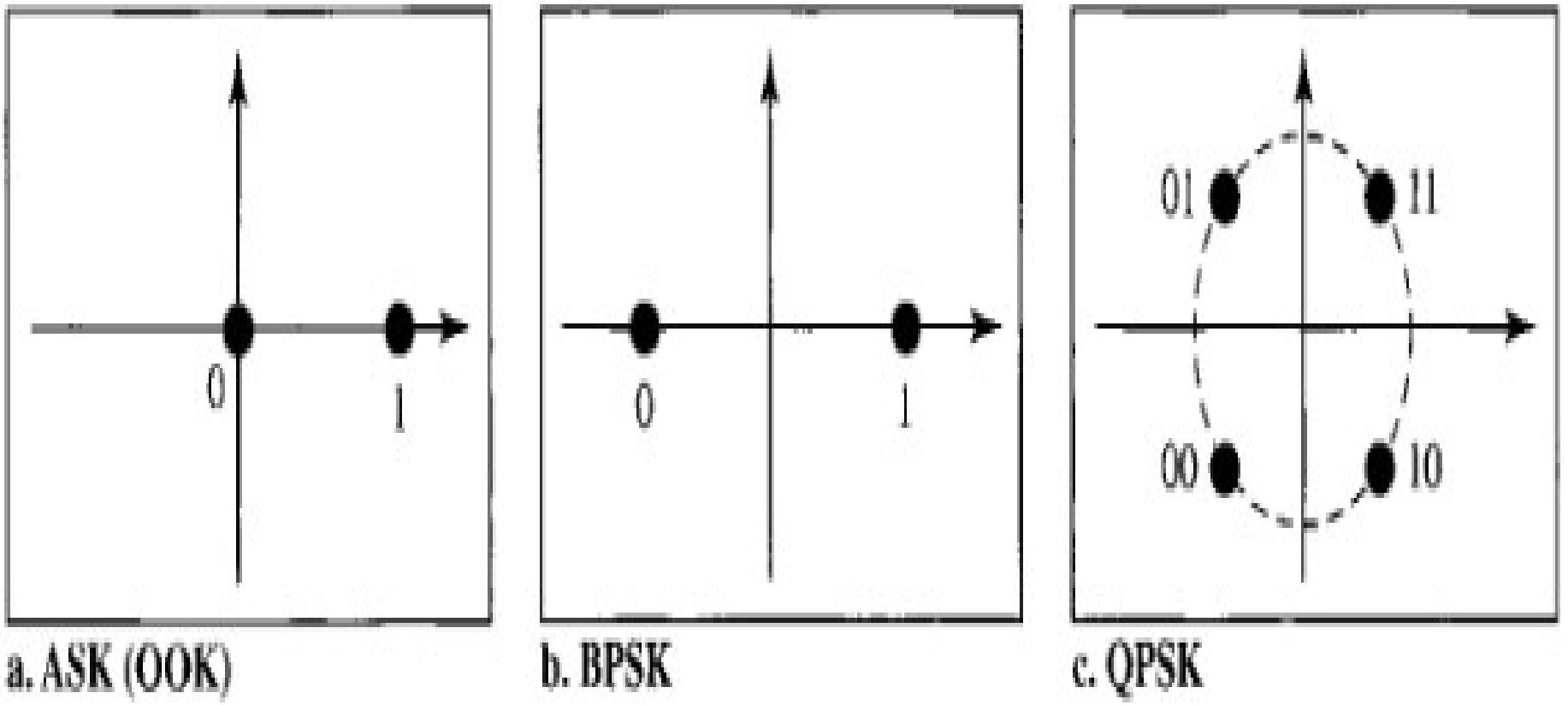


Quadrature PSK





Constellation Diagrams

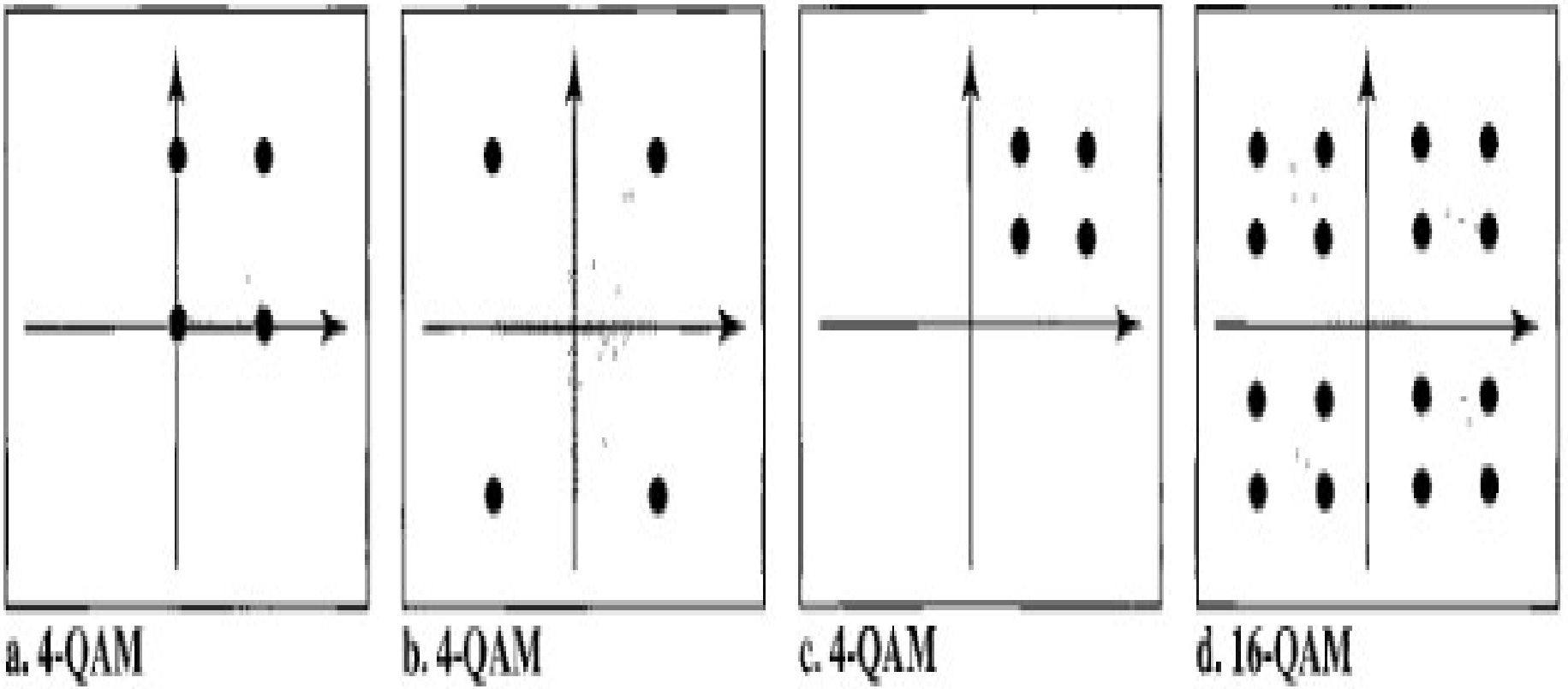


a. ASK (OOK)

b. BPSK

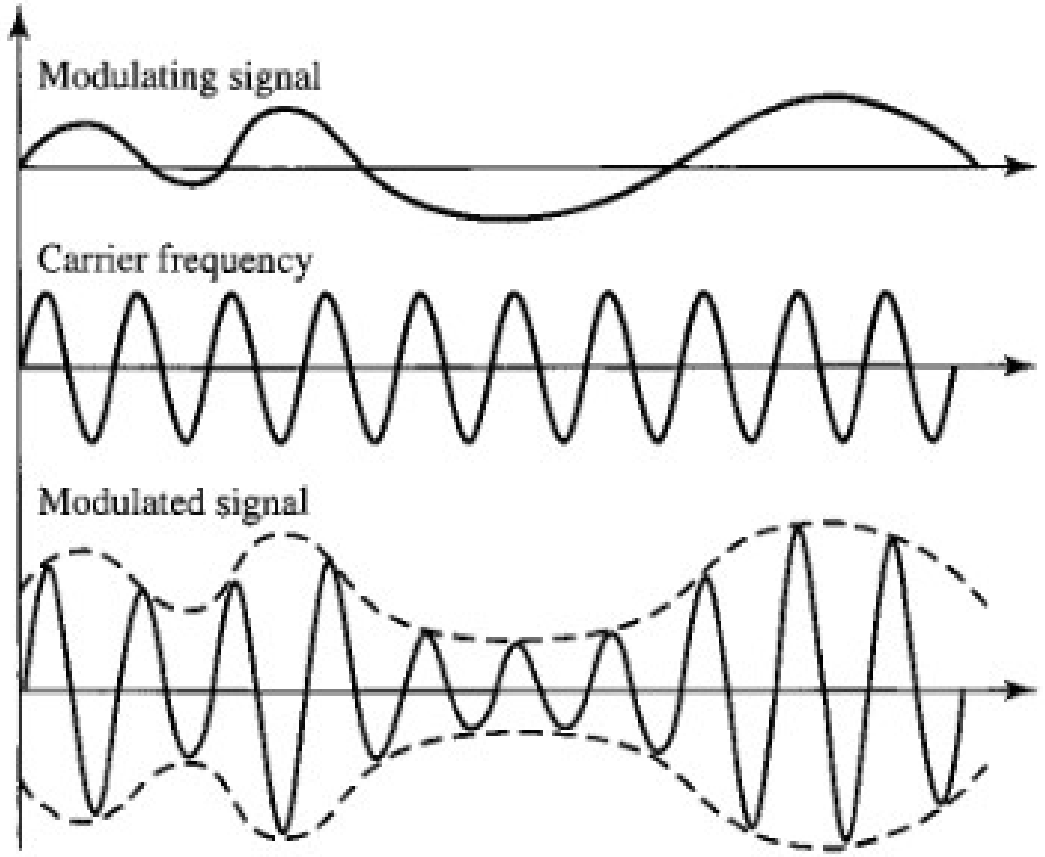
c. QPSK

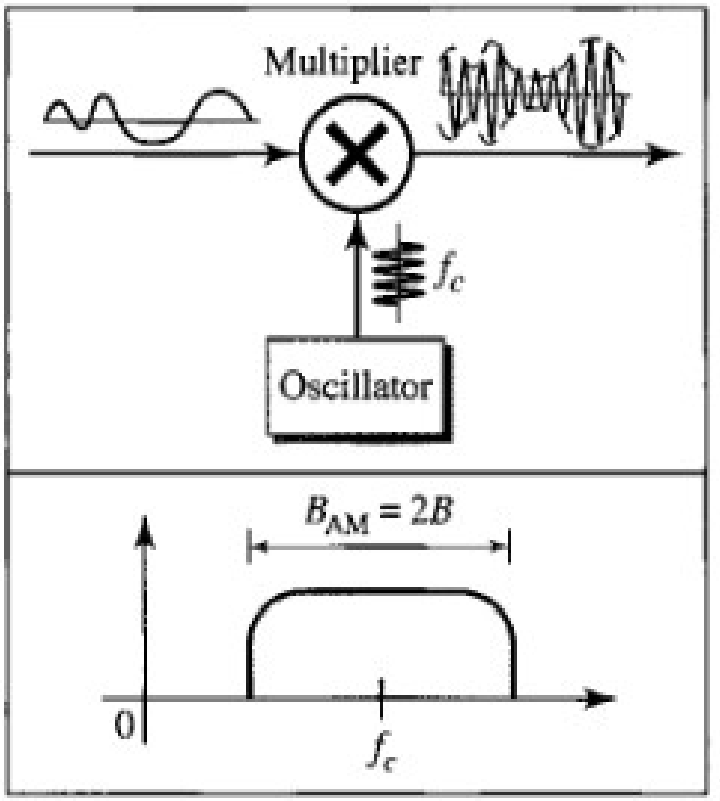
Quadrature Amplitude Modulation (QAM)



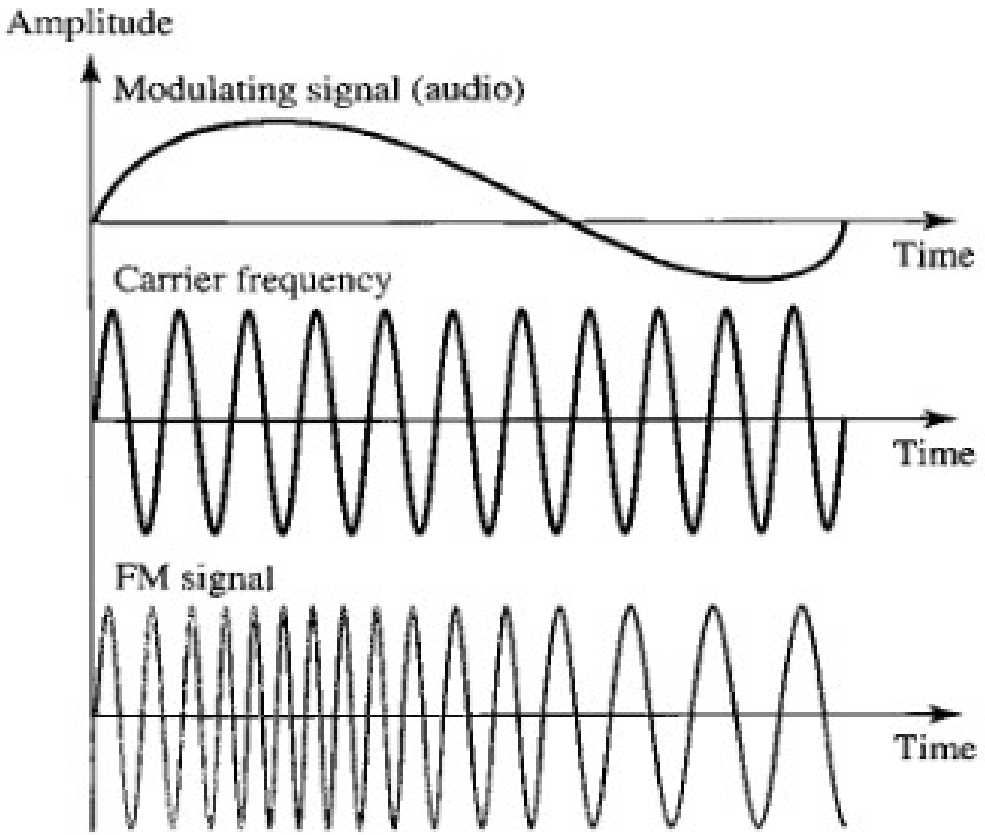
ANALOG-TO-ANALOG CONVERSION

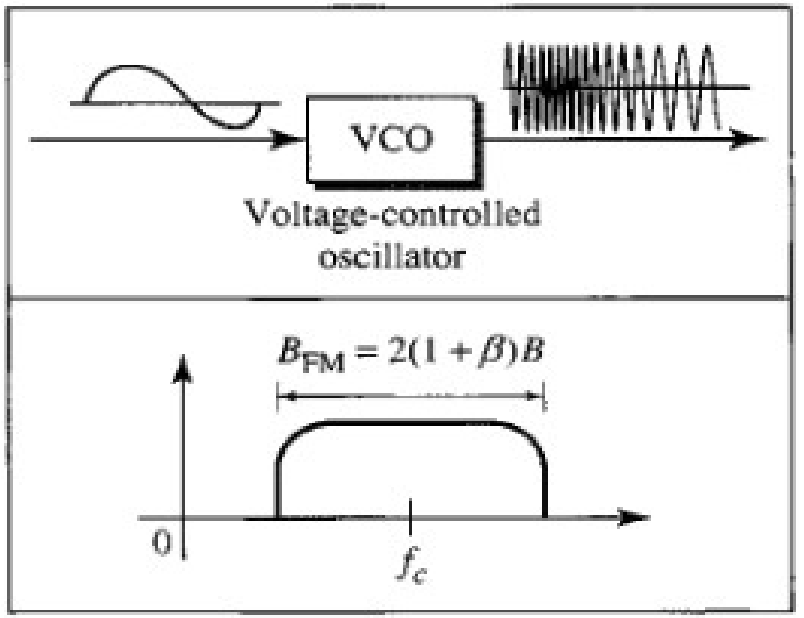
Amplitude Modulation (AM)



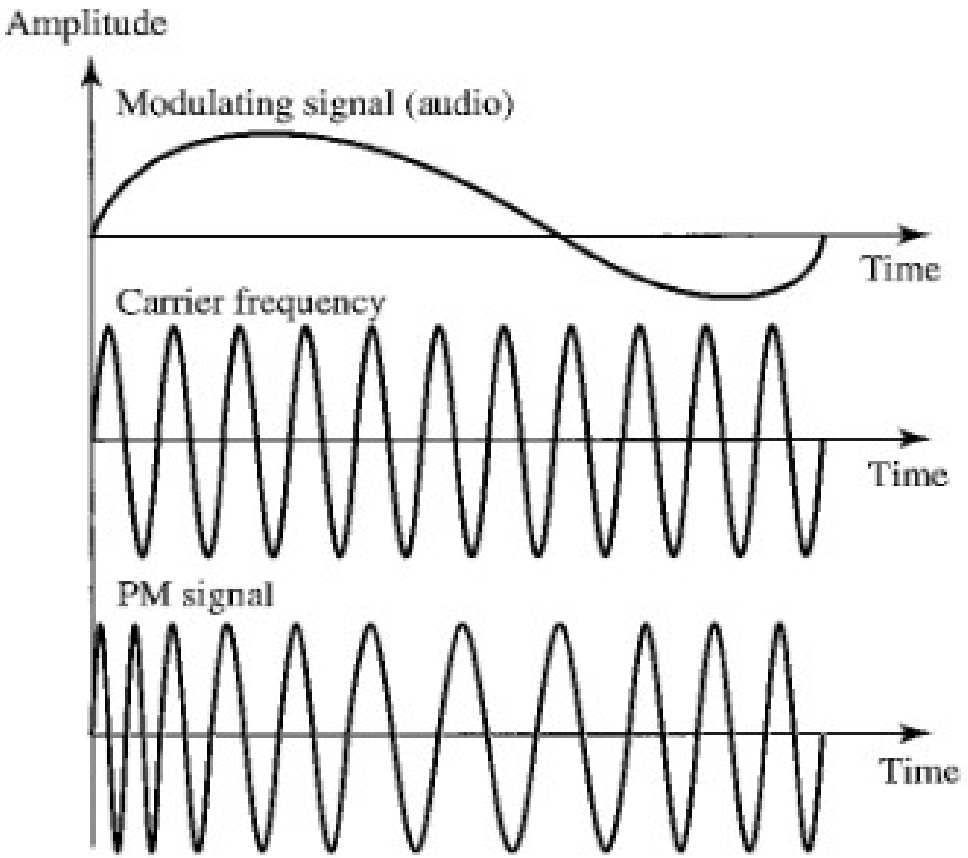


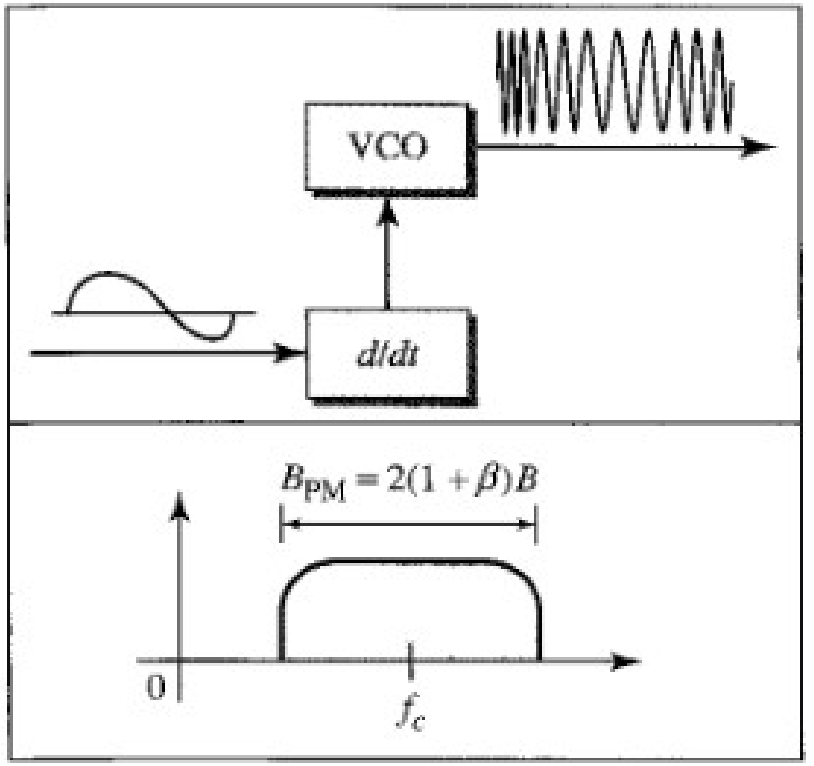
Frequency Modulation (FM)





Phase Modulation (PM)





Enjoy! :)