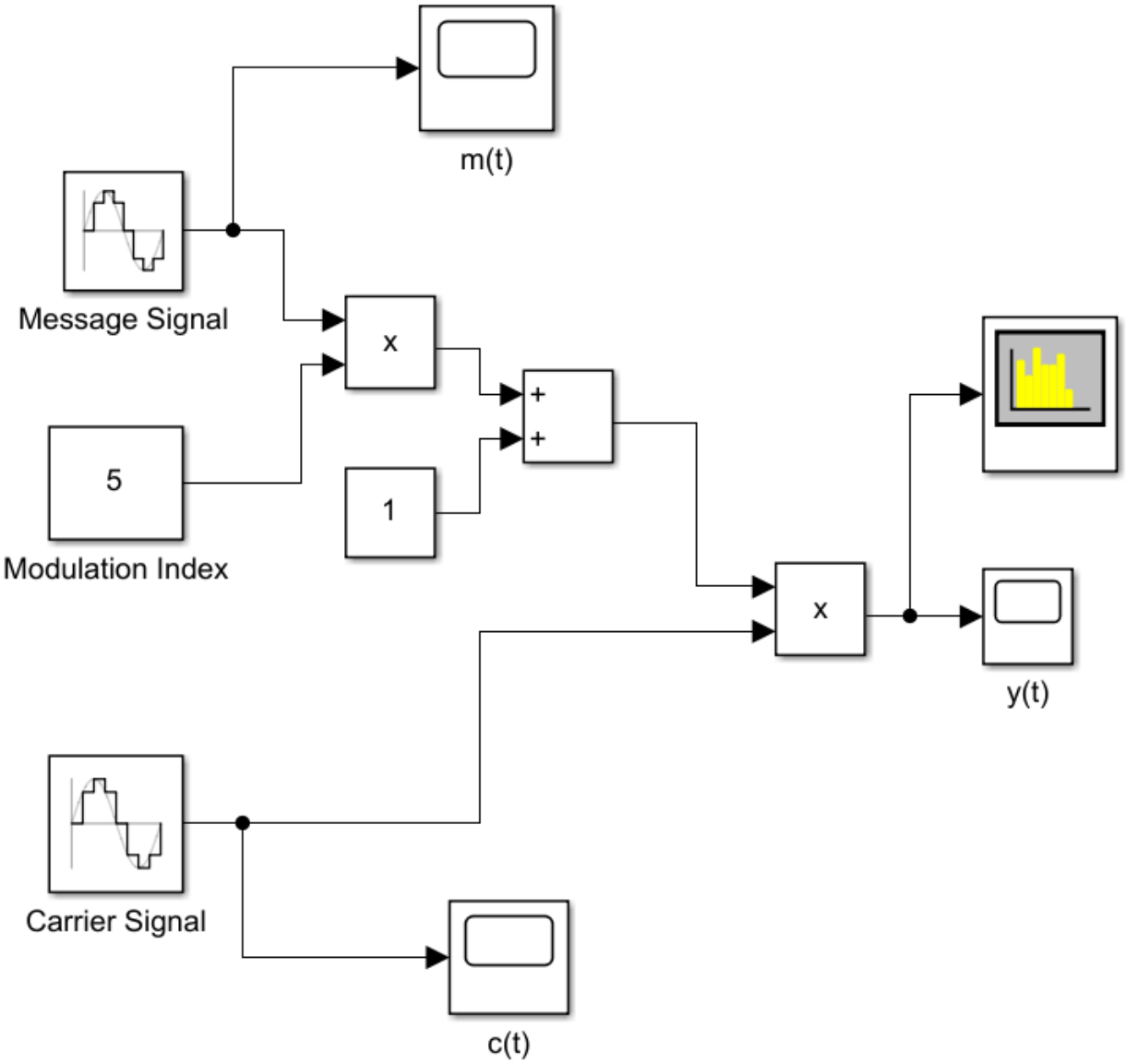
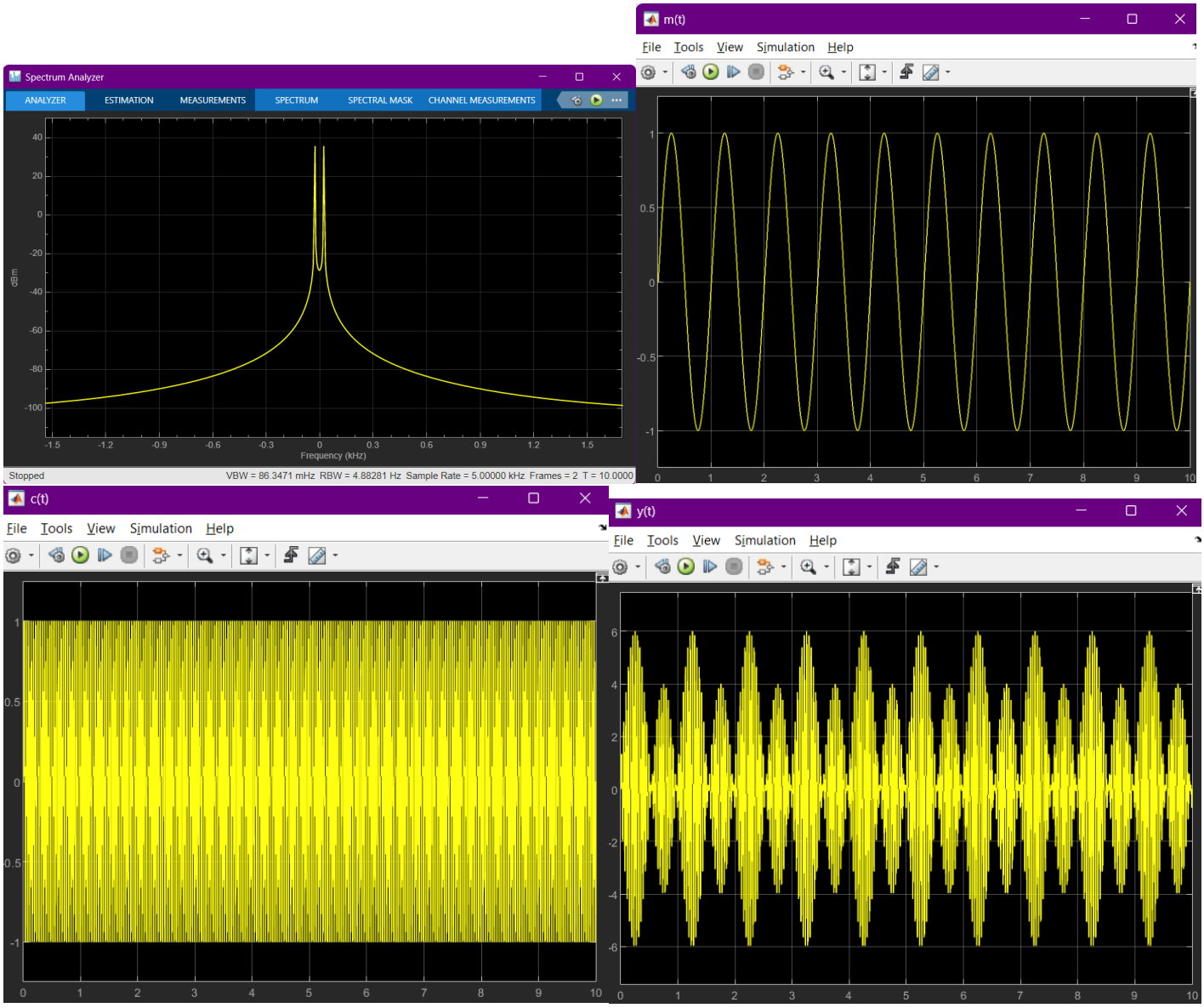
Lab Assignment - 3

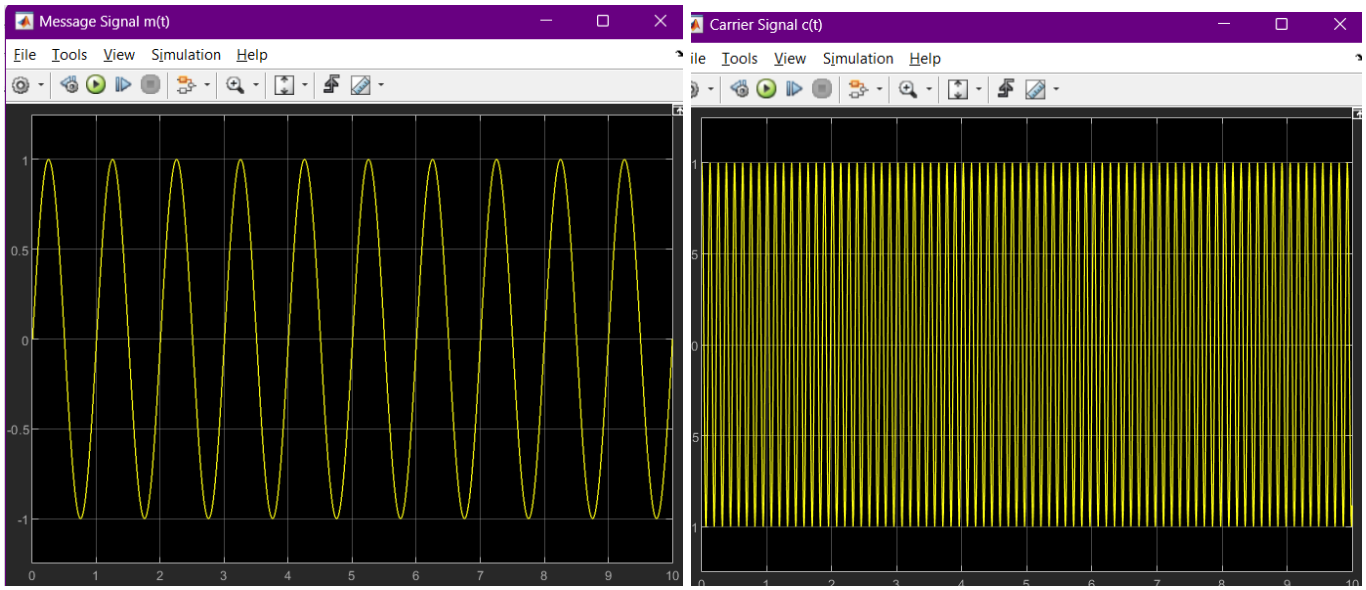
MODULATION USING SIMULINK

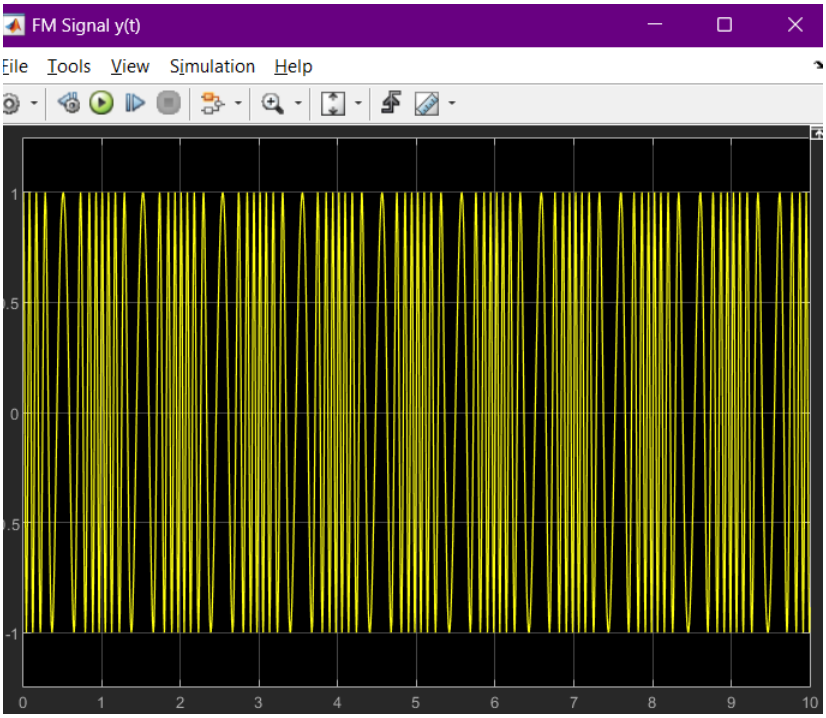
1. Build the Simulink model of AM modulator with parameters Carrier Signal frequency = 2*pi*25, Message Signal frequency = 2*pi and sampling time=1/5000. Amplitudes of both signals are 1



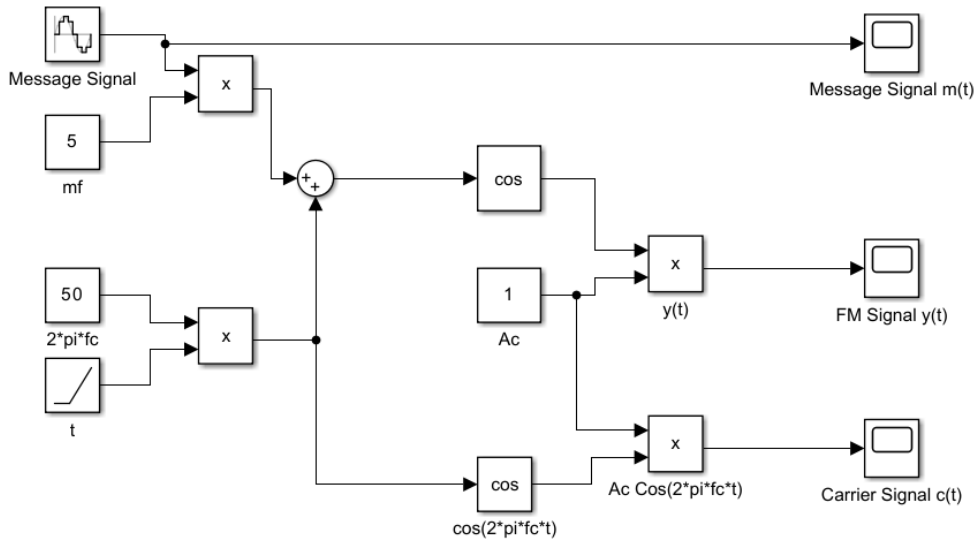


2. Build the Simulink model of FM modulator.

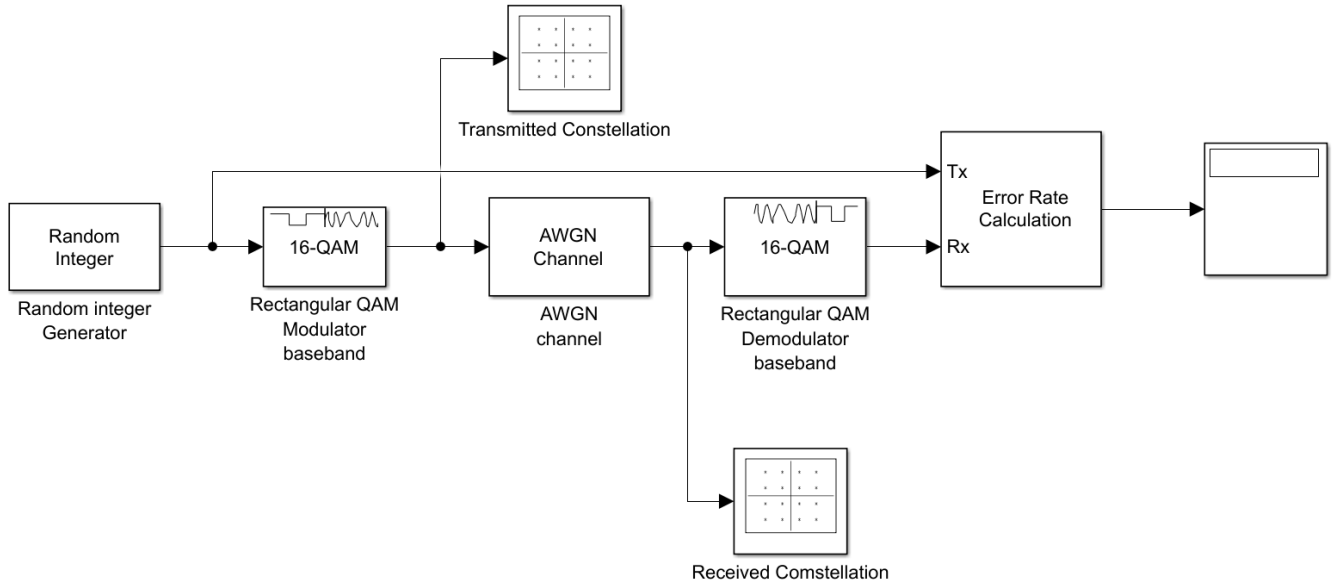


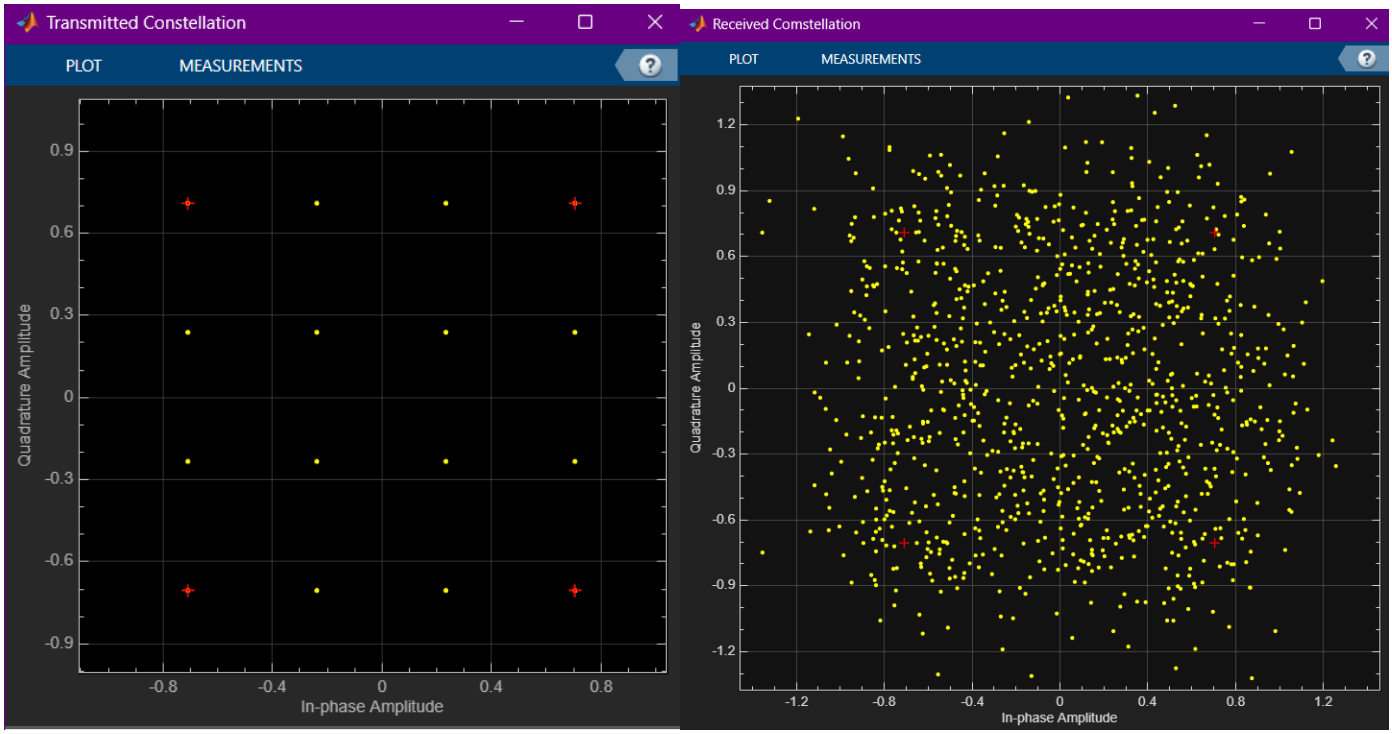


Message signal, $m(t) = A_m \cos(2*pi*f_m*t)$
Carrier signal, $c(t) = Ac \cos(2*pi*f_c*t)$, Then,
Modulated signal, $y(t) = Ac * \cos((2*pi*f_c*t)+m_f*\sin(2*pi*fm*t))$,
m_f is the modulation index
m_f= frequency deviation/ modulating frequency.



3. Build Simulink Model of 16 QAM Modulator and Demodulator.





4. Try to simulate a music file transmission using 16 QAM modulation with AWGN channel (model is given below).