ECS 204: SIGNALS AND SYSTEMS

PROGRAMMING ASSIGNMENT

NAME: Ishanya

ROLL NO: 21329

DATE: 20 th April 2023

% Name: Ishanya

% Roll number: 21329

% Q1 (b) (values taken is 10^6)

fs = 1000000;

fc = 1329/2;

fm = 1329/4;

Ac = 1;

Am = 1;

t = linspace(0, 0.01, 0.1\*fs);

% Define the modulating signal

m\_t = Am\*cos(2\*pi\*fm\*t);

% Define the carrier signal

c\_t = Ac\*cos(2\*pi\*fc\*t);

% Calculate the modulated signal

s\_t = m\_t.\*c\_t;

% Plot the modulating signal

subplot(4,1,1);

plot(t, m\_t);

xlabel('Time (s)');

ylabel('m(t)');

title('Modulating signal');

% Plot the carrier signal

subplot(4,1,2);

plot(t, c\_t);

xlabel('Time (s)');

ylabel('c(t)');

title('Carrier signal');

% Plot the modulated signal

subplot(4,1,3);

plot(t, s\_t);

xlabel('Time (s)');

ylabel('s(t)');

title('Modulated signal');

% Plot the magnitude spectrum of the modulated signal

subplot(4,1,4);

S\_f = fftshift(abs(fft(s\_t)));

f = linspace(-fs/2, fs/2, length(S\_f));

plot(f, S\_f);

xlabel('Frequency (Hz)');

ylabel('|S(f)|');

title('Magnitude spectrum of modulated signal');

