```matlab
% Himanshu Dixit 21103262 B11

sgtitle(['Himanshu Dixit (21103262) B11 - ' ...
    'Quantization'], 'FontSize',12, 'FontWeight', ...
    'bold', 'HorizontalAlignment','center', ...
    'FontName', 'Times New Roman');

%Message Signal
amp=2;
fs=3000;
T=1/fs;
t = 0:T:0.02;
sig1=amp* sin (2*pi*100.*t);
min_sig=min(sig1);
max_sig=max(sig1);
sig = amp* sin (2*pi*100.*t);
nbits= 4;
quint_level=2^nbits;
s=(max_sig-min_sig)/quint_level;
for jj=min_sig:s:max_sig
sig(sig<=jj+s& sig>=jj)=((2*jj)+s)/2;
end

subplot(3,1,1);
plot(sig1);
title('Plot of Message Signal')
xlabel('Samples Number')
ylabel('Samples')


subplot(3,1,2);
stem(sig);
title('Plot of Sampled Signal')
xlabel('Samples Number')
ylabel('Samples')


qun_error=sig1-sig;
subplot(3,1,3);
plot(qun_error);
title('Plot of Quantization Error')
xlabel('Samples Number')
ylabel('Quantization Error')
```
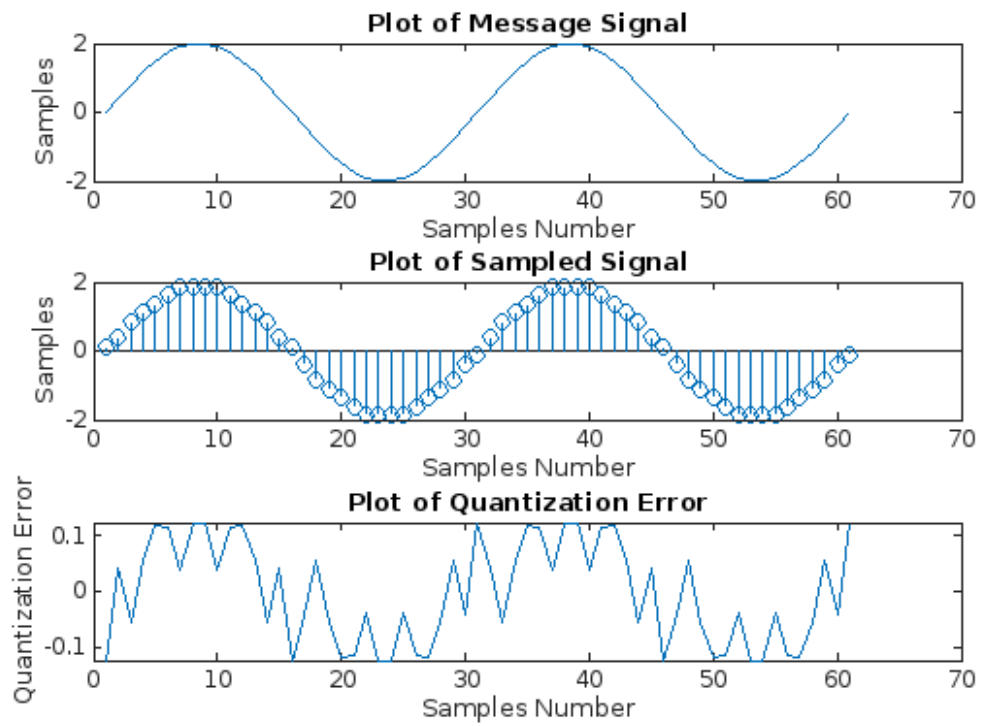
Himanshu Dixit (21103262) B11 - Quantization

Plot of Message Signal

Plot of Sampled Signal

Plot of Quantization Error

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