

```

clc;

T=0.04; % Time period of 50 Hz signal

t=0:0.0005:0.02;

f = 1/T;

n1=0:40;

xa_t=sin(2*pi*f*t/T);

subplot(2,2,1);

plot(200*t , xa_t);

title('Verification of sampling theorem');

title('Continuous signal');

xlabel('t');

ylabel('x(t)');

ts1=0.002; %>niq rate

ts2=0.01; %=niq rate

ts3=0.1; %<niq rate

n=0:20;

x_ts1=2*sin(2*pi*n*ts1/T);

subplot(2,2,2);

stem(n,x_ts1);

title('greater than Nq');

xlabel('n');

ylabel('x(n)');

n=0:4;

x_ts2=2*sin(2*pi*n*ts2/T);

subplot(2,2,3);

```

```
stem(n,x_ts2);  
title('Equal to Nq');  
xlabel('n');  
ylabel('x(n)');  
n=0:10;  
x_ts3=2*sin(2*pi*n*ts3/T);  
subplot(2,2,4);  
stem(n,x_ts3);  
title('less than Nq');  
xlabel('n');  
ylabel('x(n)');
```