

Harshavardhan Alimi
18EC10021

Code :-

```
clc;
clear all;
close all;
F=3000;
Fs1=5000;
N=512;
Ts=1/Fs1;
t=0:Ts:(N-1)*Ts;
x=cos(2*pi*F*t);
x_up=upsample(x,2);
Fs2=2*Fs1;
N2=2*N;
freq=-Fs2/2:Fs2/N2:Fs2/2*(1-1/N2);
plot(freq,abs(fftshift(fft(x_up)))/N2);
title('fft of upsampled signal:');
xlabel('frequency');
ylabel('|X(f)|');
```

Results :-

