Ashish Kumar 2019UCO1518 DC practical

Ques a : matrix computation :

// code

```
clc ;
clear ;

matrix1 = [1 2 3; 4 5 6; 7 8 9];
matrix2 = [9 8 7; 6 5 4; 3 2 1];
matrix1
matrix2
add = matrix1 + matrix2;
add
sub = matrix1 - matrix2;
sub
mul = matrix1*matrix2;
mul
transposeOfMatrix1 = matrix1';
transposeOfMatrix1
inverseOfMatrix1 = inv(matrix1);
inverseOfMatrix1
element_mul = matrix1 .*matrix2;
element_mul
concat = [matrix1, matrix2];
concat
```

// output :

Matrix1 :

1	2	3
4	5	6
7	8	9

Matrix2 :

9	8	7
6	5	4
3	2	1

Add :

10	10	10
10	10	10
10	10	10

Sub :

-8	-6	-4
-2	0	2
4	6	8

Mul :

30	24	18
84	69	54
138	114	90

TransposeOfMatrix1 :

1	4	7
2	5	8
3	6	9

InverseOfMatrix1 :

3.1525e+15	-6.3050e+15	3.1525e+15
-6.3050e+15	1.2610e+16	-6.3050e+15
3.1525e+15	-6.3050e+15	3.1525e+15

Element_mul :

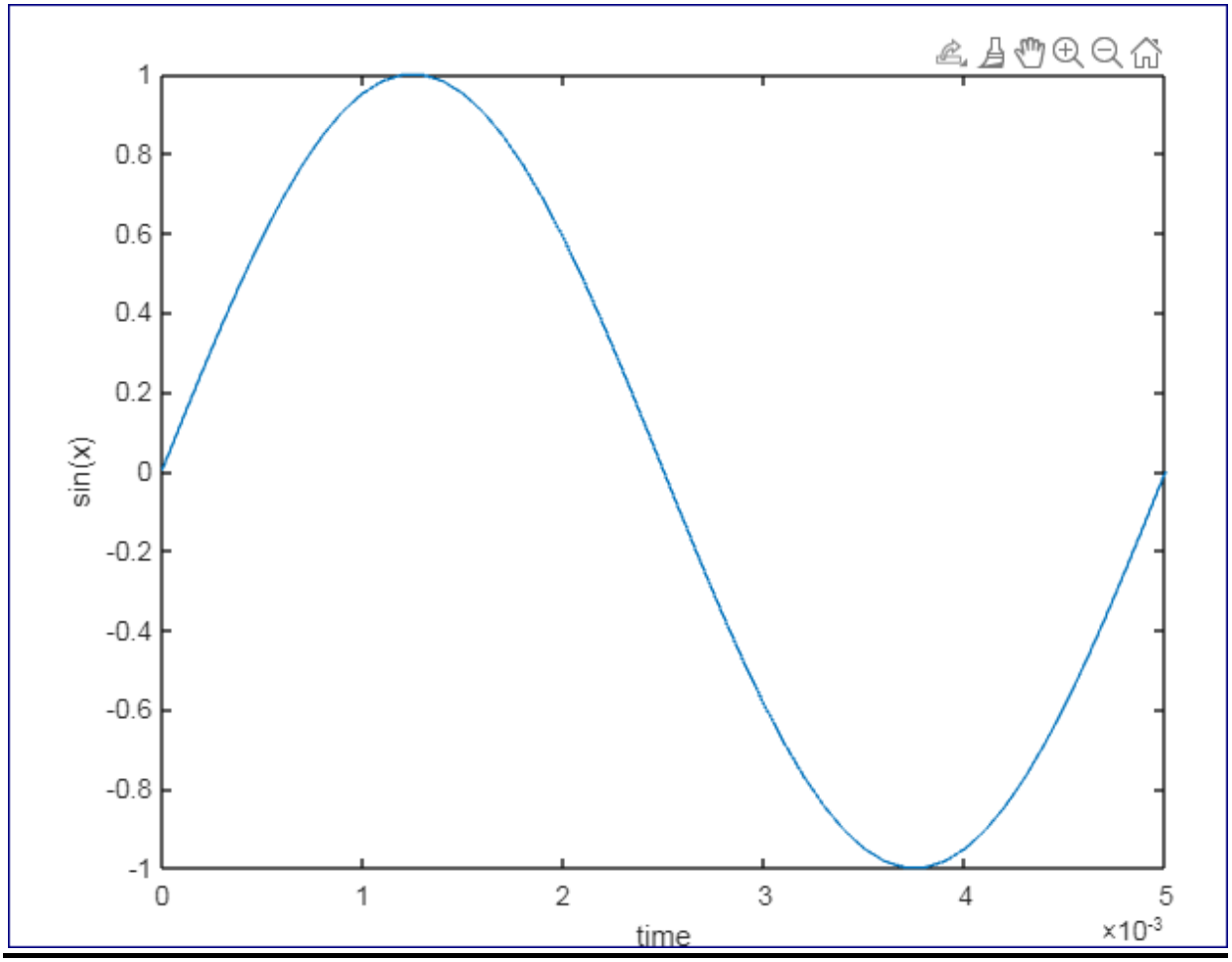
9	16	21
24	25	24
21	16	9

Concat :

1	2	3	9	8	7
4	5	6	6	5	4
7	8	9	3	2	1

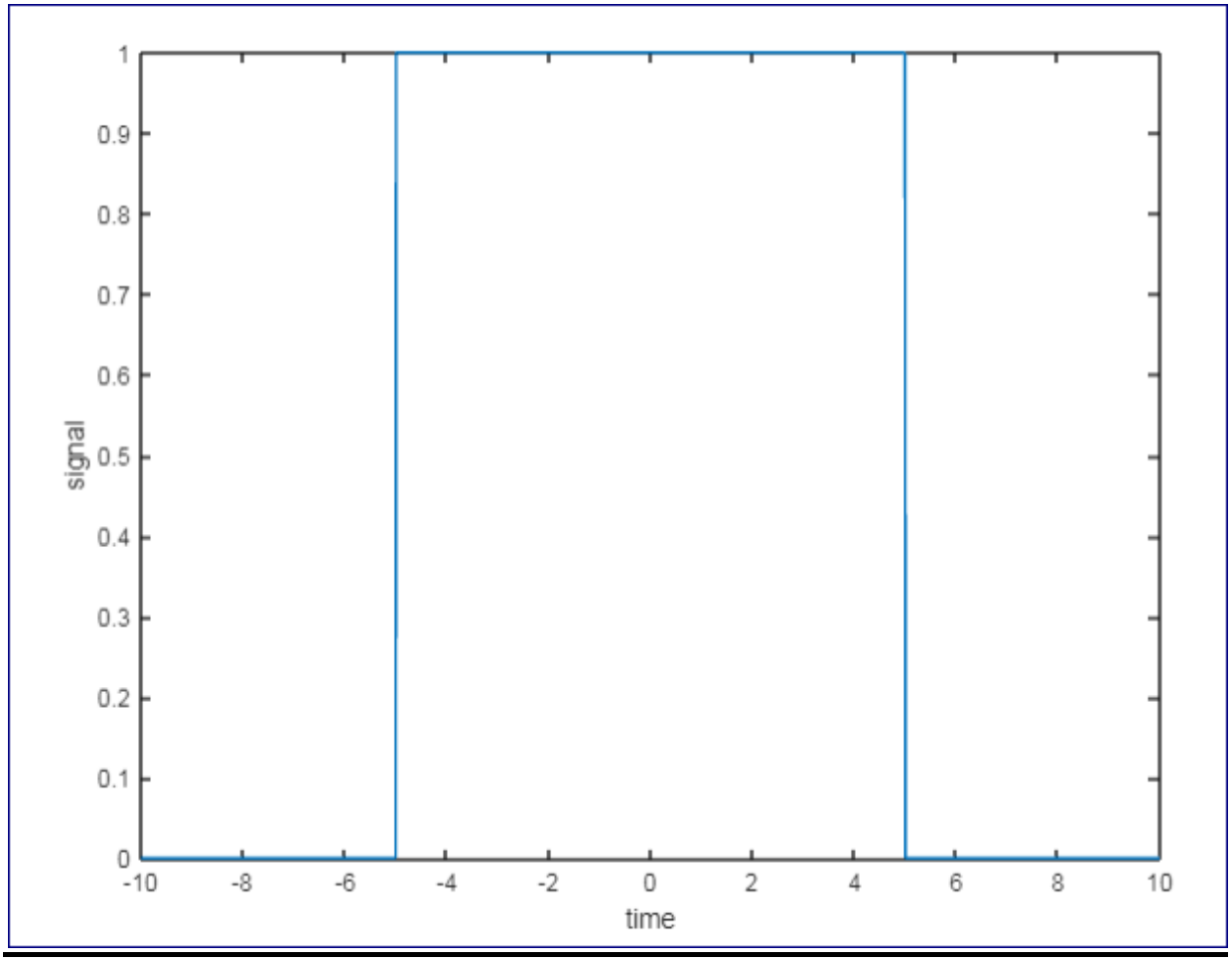
Question b : sine wave of freq 200 Hz

```
t=[0:0.0001:0.005];
f=200;
x=sin(2*pi*f*t);
plot(t,x);
xlabel("time");
ylabel("sin(x)")
```



Question c : pulse of width 10

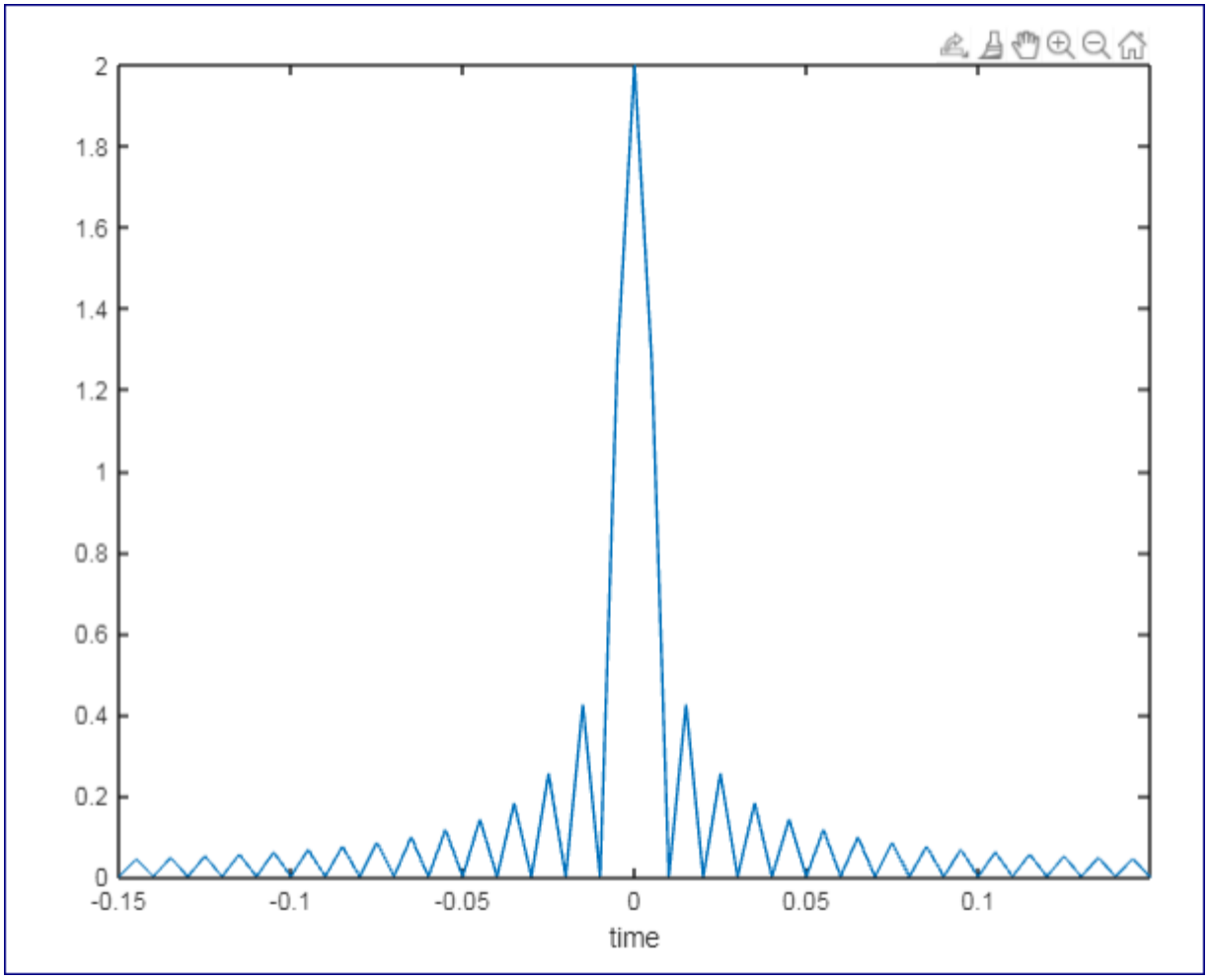
```
clc;
clear;
t = -10:0.005:10;
y = sign(t+5) - sign(t-5);
%y = rectpuls(t , 10);
y = y*0.5;
plot(t, y);
xlabel("time");
ylabel("signal");
```

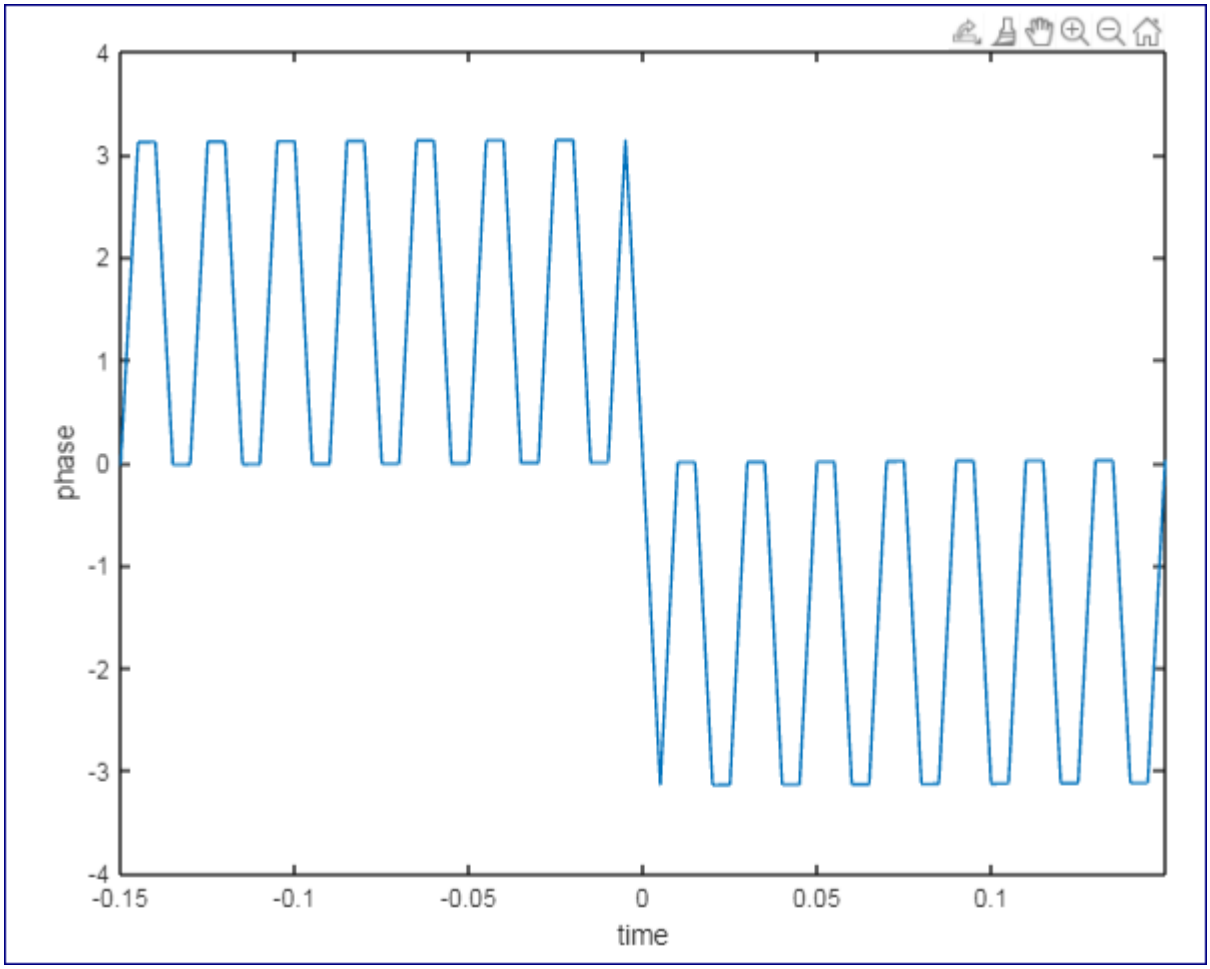


Question d : spectrum (Amplitude and phase) of pulse generated

```
%Amplitude:
t = -10:0.005:10;
y = sign(t+5) - sign(t-5);
y = y*2;
amp = fft(y);
amp = fftshift(amp);
plot(t, abs(amp)/length(t));
axis([-0.15 0.15 0 2]);
xlabel("time");

%phase
t = -10:0.005:10;
y = sign(t+5) - sign(t-5);
y = y*2;
phase = fft(y);
phase = fftshift(phase);
phase = angle(phase);
plot(t, phase);
axis([-0.15 0.15 -4 4]);
xlabel("time");
ylabel("phase");
```


2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.15
-0.1
-0.05
0
0.05
0.1
time


4
3
2
1
0
-1
-2
-3
-4
phase
-0.15
-0.1
-0.05
0
0.05
0.1
time