

**AMRERICAN INTERNATIONAL UNIVERSITY-BANGLADESH**

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**ID:17-35214-2**

**SUB: DATA COMMUNICATION**

**Lab Report: 5**

## LAB REPORT: 5

(ID = AB-CDEFG-H) = ID: 17-35214-2

### Answer a:

D = 5 = 0 0 1 1 0 1 0 1

E = 2 = 0 0 1 1 0 0 1 0

F = 1 = 0 0 1 1 0 0 0 1

### Code done by octave:

```
f=5;
```

```
f2=10;
```

```
D=[0 0 1 1 0 1 0 1];
```

```
E=[0 0 1 1 0 0 1 0];
```

```
F=[0 0 1 1 0 0 0 1];
```

```
T = [D E F];
```

```
nt=size(T,2);
```

```
i=1;
```

```
while i<nt+1
```

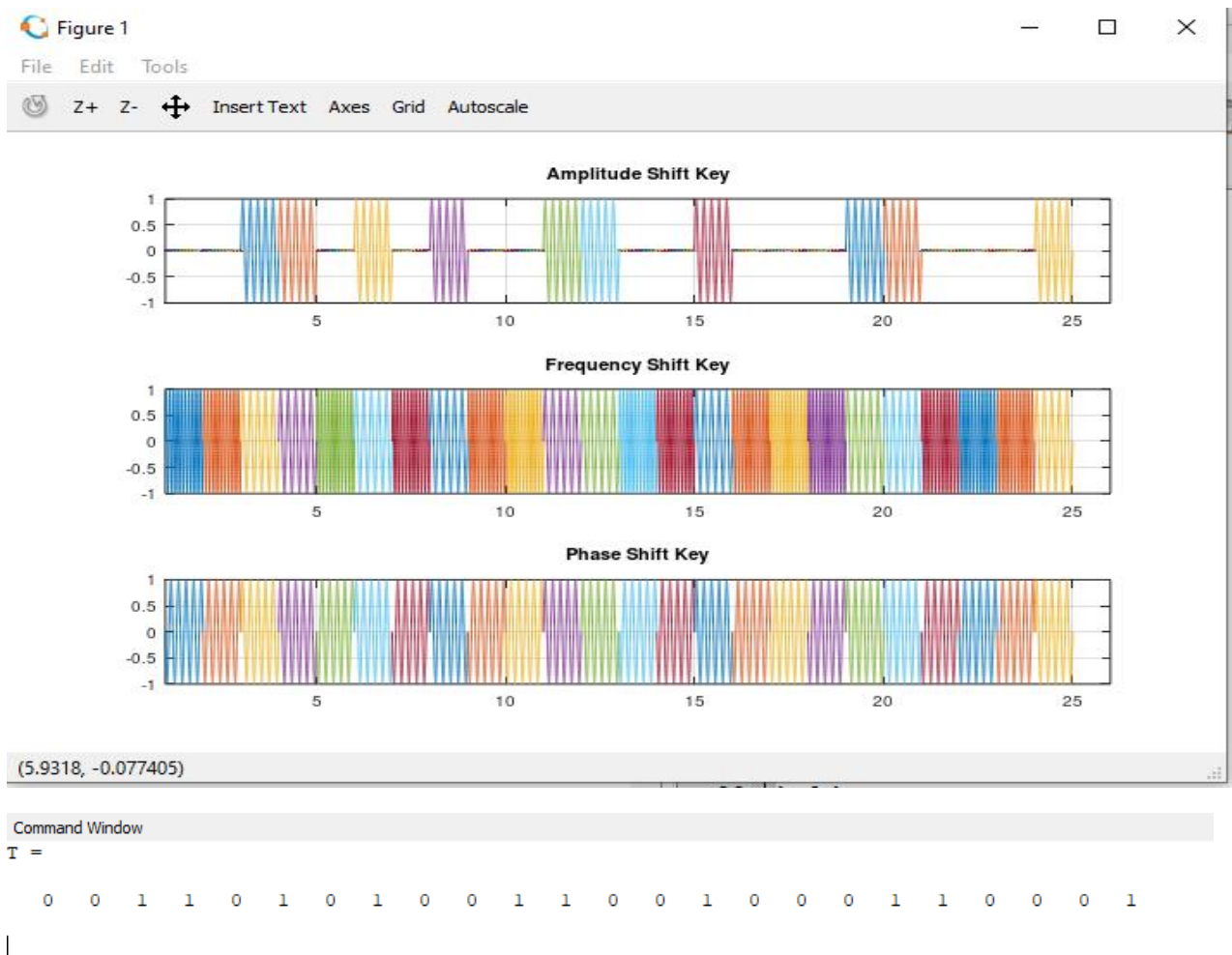
```
t = i:0.001:i+1;
if T(i)==1
    ask=sin(2*pi*f*t);
    fsk=sin(2*pi*f*t);
    psk=sin(2*pi*f*t);
else
    ask=0;
    fsk=sin(2*pi*f2*t);
    psk=sin(2*pi*f*t+pi);
end
subplot(3,1,1);
plot(t,ask);
hold on;
grid on;
axis([1 26 -1 1]);
title('Amplitude Shift Key')
subplot(3,1,2);
plot(t,fsk);
hold on;
grid on;
axis([1 26 -1 1]);
title('Frequency Shift Key')
subplot(3,1,3);
plot(t,psk);
```

```

hold on;
grid on;
axis([1 26 -1 1]);
title('Phase Shift Key')
i=i+1;
end

```

figure1:



## Code done by octave:

```
f=10;
x=[00 11 01 01 00 11 00 10 00 11 00 01];
x1=[0 1 0 0 0 1 0 1 0 1 0 0];
x2=[0 1 1 1 0 1 0 0 0 1 0 1];
nx=size(x1,2)
i=1;
while i<nx+1
    t = i:0.01:i+1;
    if x1(i)==1
        psk1=sin(2*pi*f*t);
    else
        psk1=sin(2*pi*f*t+pi);
    end

    if x2(i)==1
        psk2=sin(2*pi*f*t+pi/2);
    else
        psk2=sin(2*pi*f*t+pi+pi/2);
    end
end
```

```
QPSK = psk1+psk2;
```

```
subplot(3,1,1);
```

```
plot(t,psk1);
```

```
hold on;
```

```
grid on;
```

```
axis([1 14 -1 1]);
```

```
title('PSK1')
```

```
subplot(3,1,2);
```

```
plot(t,psk2);
```

```
hold on;
```

```
grid on;
```

```
axis([1 14 -1 1]);
```

```
title('PSK2')
```

```
subplot(3,1,3);
```

```
plot(t,QPSK);
```

```
hold on;
```

```
grid on;
```

```
axis([1 14 -2 2]);
```

```
title('QPSK')
```

```
i=i+1;
```

```
end
```

figure 2:

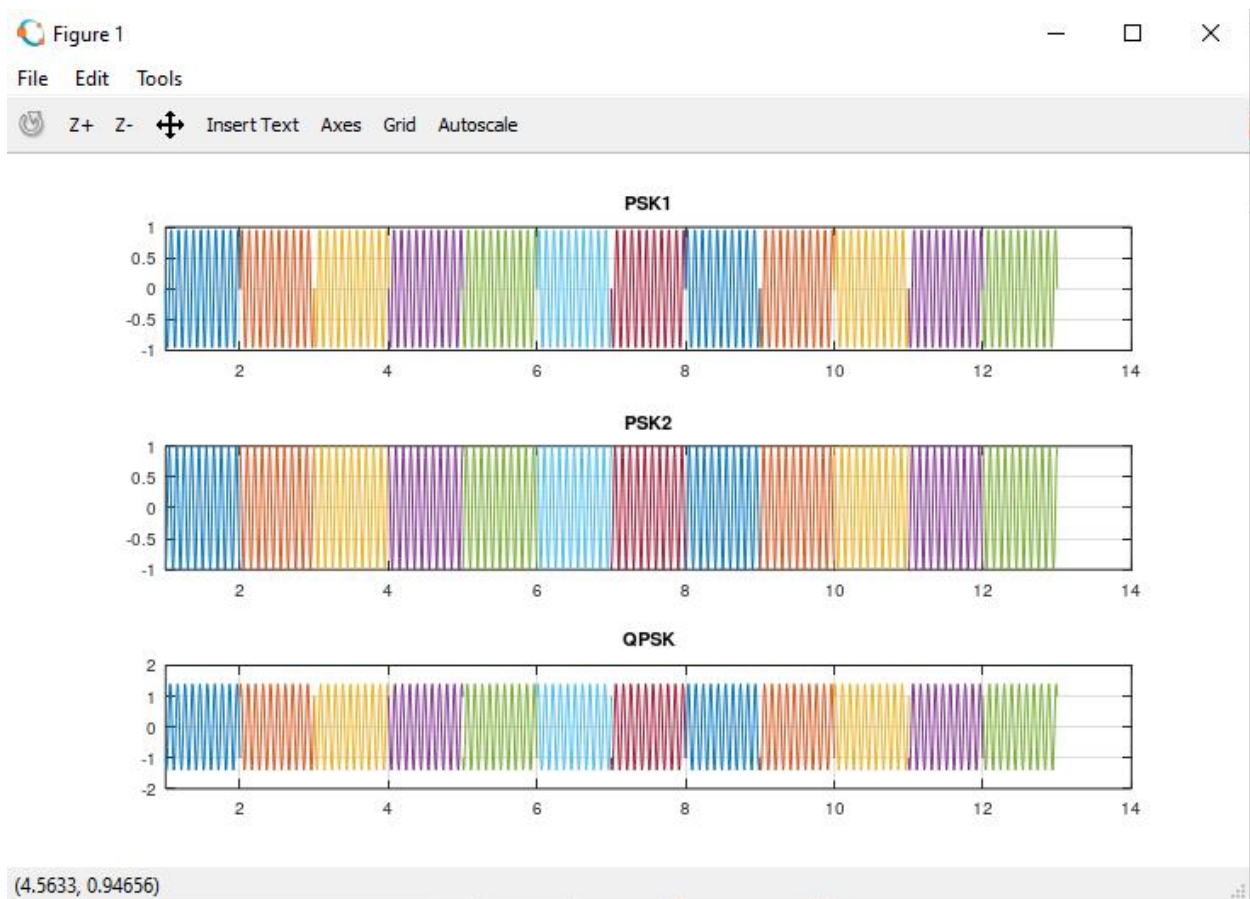


figure 3:

```
x =  
    0  11  1  1  0  11  0  10  0  11  0  1  
nx = 12  
>> |
```