4(a)

```
A1=72;
A2=27;
CDE=422;
fs=40000;
t=0:5/fs:5-5/fs;
x1=A1*cos(2*pi*(442*100)*t);
n=4;
L=(2^n)-1
```

```
L=(2^n)-1

L =

    15
```

4(b)

```
A1=72;
A2=27;
CDE=422;
fs=40000;
t=0:5/fs:5-5/fs;
x1=A1*cos(2*pi*(442*100)*t);
n=4;
L=(2^n)-1;
delta= (max(x1)-min(x1))/L
```

```
L=(2^n)-1;
delta= (max(x1)-min(x1))/L

delta =

    9.6000
```

c)

```
A1=72;
A2=27;
CDE=422;
fs=40000;
t=0:5/fs:5-5/fs;
x1=A1*cos(2*pi*(442*100)*t);
x=3.2;
n=4;
L=(2^n)-1;
delta= (max(x1)-min(x1))/L;
xq=min(x1)+(round((x-min(x1))/delta)).*delta
```

```
xq =

    4.8000
```

4(d)

```
A1=72;
A2=27;
CDE=422;
fs=80000;
t=0:1/fs:0.005;
x1=A1*cos(2*pi*(442*100)*t);
x=3.2;
n=4;
L=(2^n)-1;
delta= (max(x1)-min(x1))/L;
xq=min(x1)+(round((x1-min(x1))/delta)).*delta;
B = dec2bin((round((x1-min(x1))/delta)))
fid = fopen('binary.txt' , 'w')
fprintf(fid, [repmat('%c',1,size(B,2)) '\r\n'], B.')
fclose(fid)
```

```
      1111

fid =

     3

ans =

        2406

ans =

     0
```