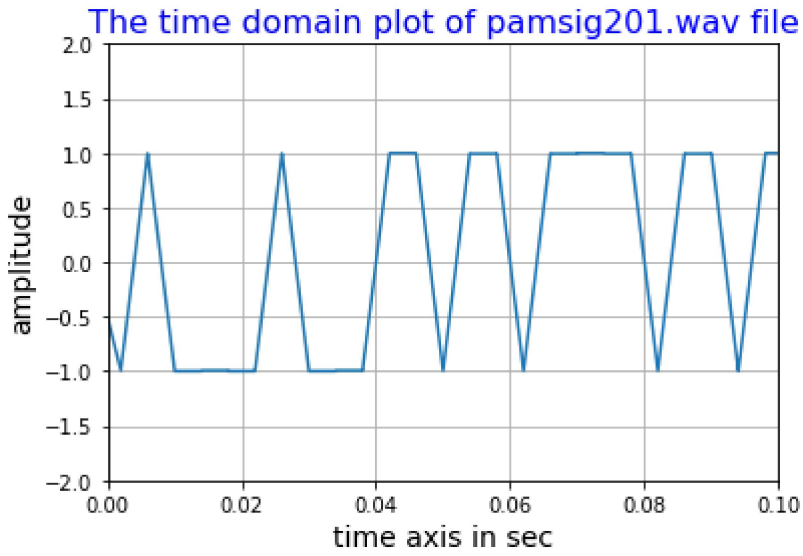
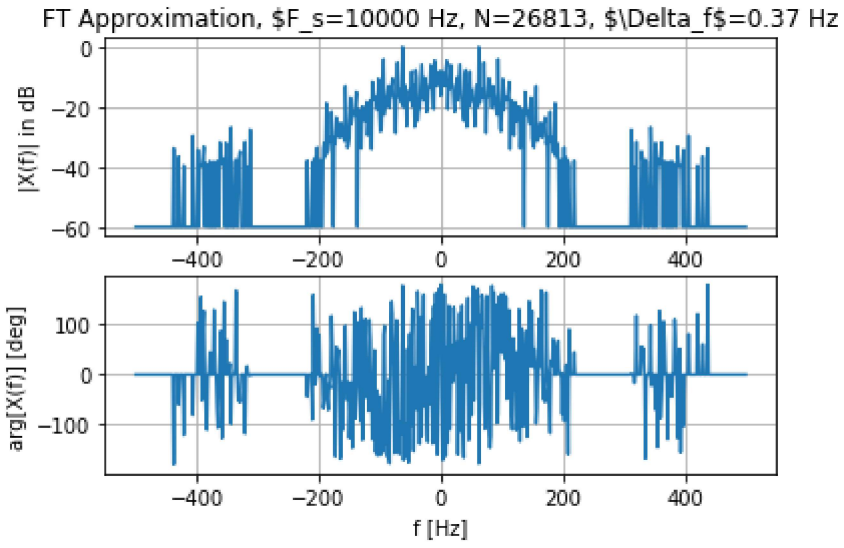
Experiment 3, Q3(a)

Calculating the baud rate and plotting the graph of pamsig201 in the time and frequency domain

In [7]:
```
run Q3A
```

```
The bit rate is below
253.44827586206895
```





The p(t) used in this case was triangular

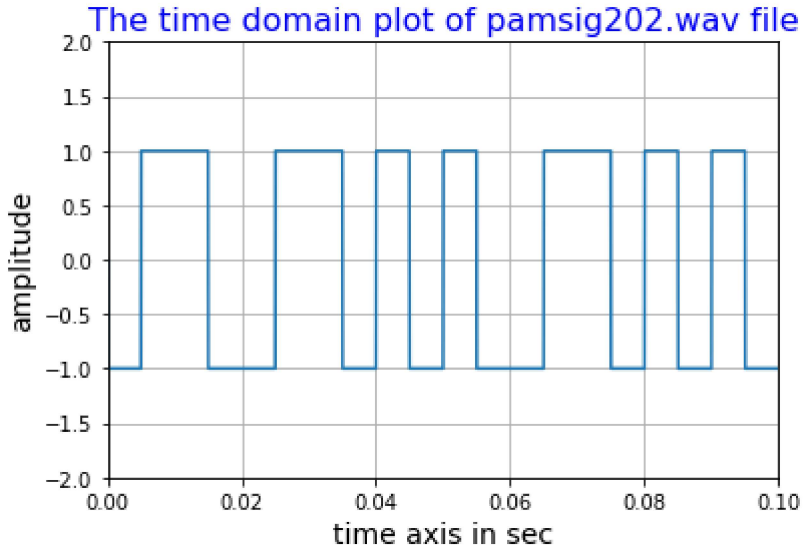
In [8]:
```
from pylab import *
import ascfun as af
import wavfun as wf
fs, rt  = wf.wavread("pamsig201.wav")
fb= 251
tb = 1/float(fb)
bits = 8
n = int(floor(len(rt)/float(fs)/tb))  #number of recieved bits
rt= list(rt)

######### getting sample of rt signal #######
dnhat=[]
for i in range(n):                        # getting sample of rt signal
    dn_sample = rt[i*round(fs*tb):int(((i+1))*round(fs*tb))]
    avg = sum(dn_sample) / round(fs*tb) # averaging out the one bit window and t
    if avg > 0.5:                         # Quantisation of the bits
        dnhat = dnhat + [1]
    else:
        dnhat = dnhat + [0]
#########################################################
dnhat = array(dnhat,int8)    # converting list into binary array

print("")
print('The content of the wav file is "%s"' %af.bin2asc(dnhat))
print("")
```

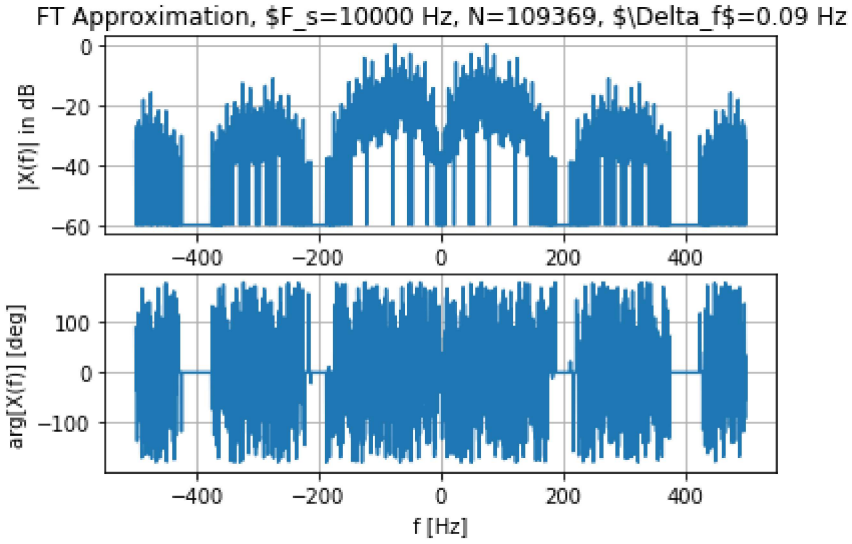
```
The content of the wav file is "□low`ng`n`@@f@L@"
```

Calculating the baud rate and plotting the graph of pamsig202 in the time and frequency domain.

In [3]:
```
run Q3A
```

```
The bit rate is below
201.36986301369862
```





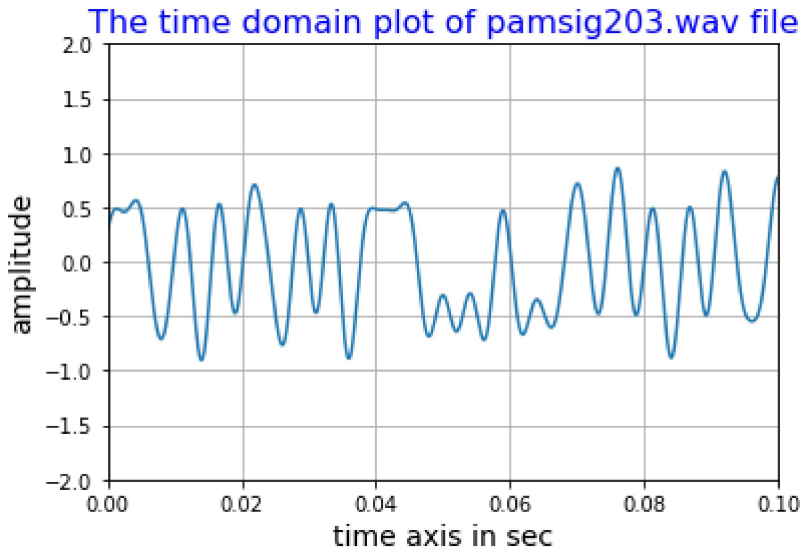
In [4]:
```
from pylab import *
import ascfun as af
import wavfun as wf
fs, rt  = wf.wavread("pamsig202.wav")
fb= 200
tb = 1/float(fb)
bits = 8
n = int(floor(len(rt)/float(fs)/tb))  #number of recieved bits
rt= list(rt)

######### getting sample of rt signal #######
dnhat=[]
for i in range(n):                        # getting sample of rt signal
    dn_sample = rt[i*round(fs*tb):int(((i+1))*round(fs*tb))]
    avg = sum(dn_sample) / round(fs*tb) # averaging out the one bit window and t
    if avg > 0.5:                         # Quantisation of the bits
        dnhat = dnhat + [1]
    else:
        dnhat = dnhat + [0]
#########################################################
dnhat = array(dnhat,int8)    # converting list into binary array

print("")
print('The content of the wav file is "%s"' %af.bin2asc(dnhat))
print("")
```

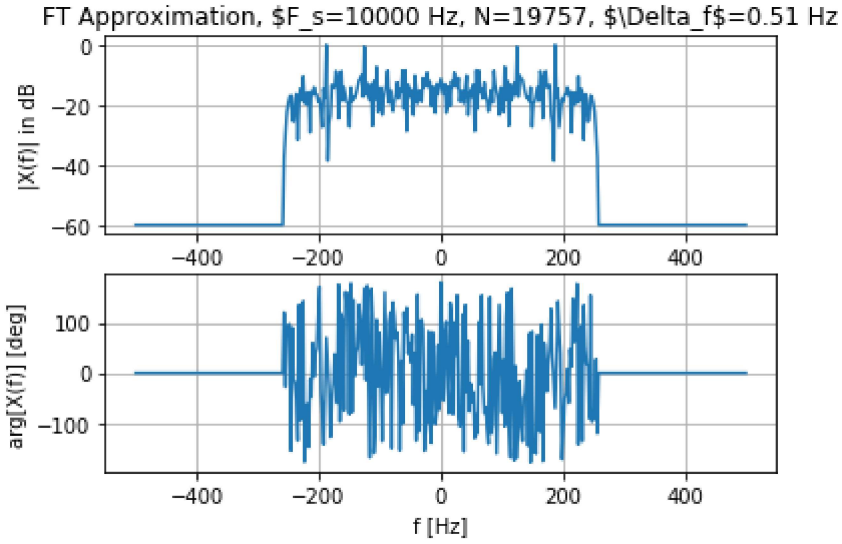
```
The content of the wav file is "feej□ifiYj©ifI@@□D@□@D@□@□□A□@A□@AD@□ÔÊÔÌÒ²Ô
ª²ªÔÌÔJÓ´ÔÌÒ´Ô"
```

calculating the baud rate and plotting the graph of pamsig203 in time and frequency domain

In [9]:
```
run Q3A
```

```
The bit rate is below
490.0
```





The p(t) used is sinc pulse

In [7]:
```
from pylab import *
import ascfun as af
import wavfun as wf
fs, rt  = wf.wavread("pamsig203.wav")
fb= 500
tb = 1/float(fb)
bits = 8
n = int(floor(len(rt)/float(fs)/tb))  #number of recieved bits
rt= list(rt)

######### getting sample of rt signal #######
dnhat=[]
for i in range(n):                        # getting sample of rt signal
    dn_sample = rt[i*round(fs*tb):int(((i+1))*round(fs*tb))]
    avg = sum(dn_sample) / round(fs*tb) # averaging out the one bit window and t
    if avg > 0.5:                         # Quantisation of the bits
        dnhat = dnhat + [1]
    else:
        dnhat = dnhat + [0]
##############################verting list into binary array

print("")
print('The content of the wav fi#########################
dnhat = array(dnhat,int8)    # conle is "%s"' %af.bin2asc(dnhat))
print("")
```

```
The content of the wav file is "@@D@"@HJLH@D@D@H@@□"
```

Q3(b)

i was only able to find the bit rate of the multiplexed signal and was not able to decipher the message

In [4]:
```
run Q3B
```

```
The bit rate is below
201.36986301369862
```

In [ ]:

In [ ]: