**Part # A**

**Frequency=24MHz**

Generate signal of frequency = 0.5K Hz.

duty cycle=25%

Time period is,

t=1/f , t=1/0.5K , t=2ms

Duty cycle = [(uptime) / (total time)] \* 100

uptime=[(duty cycle / 100)] \*(total time)

uptime= (25 / 100) \*2ms

uptime= 0.5ms

uptime=2\*500usec=1000

(1000)10=(3E8)16

UP\_DELAY= ffff-3E8

=( FC17)16

so off-time=total time - uptime

off-time=(2-0.5)ms

off-time=1.5msec

off-time=2\*1500usec=3000us

(3000)10=(BB8)16

UP\_DELAY= ffff-BB8

=( F447)16

**Part # B**

Generate signal of frequency = 1KHz.

duty cycle=50%

Time period is,

t=1/f , t=1/1K , t=1ms

Duty cycle = [(uptime) / (total time)] \* 100

uptime=[(duty cycle / 100)] \*total time

uptime= (50 / 100) \*1ms

uptime= 0.5ms

uptime= 2\*500usec =1000us

(1000)10=(3E8)16

UP\_DELAY= ffff-3E8

=( FC17)16

so off-time=total time - uptime

off-time=(1-0.5)ms

off-time=0.5ms

off-time=2\*500us=1000us

(1000)10=(3E8)16

UP\_DELAY= ffff-3E8

=( FC17)16

**Part # C**

Generate signal of frequency = 2KHz.

duty cycle=75%

Time period is,

t=1/f , t=1/2K , t=0.5ms

Duty cycle = [(uptime) / (total time)] \* 100

uptime=[(duty cycle / 100)] \*total time

uptime= (75 / 100) \*0.5ms

uptime= 0.375ms =375us

uptime= 2\*375us=750us

(750)10=(2EE)16

UP\_DELAY= ffff-2EE

=( FD11)16

so off-time=total time - uptime

off-time=(0.5-0.375) ms

off-time=0.125ms=125us

off-time=2\*125us=250us

(250)10=(FA)16

UP\_DELAY= ffff-FA

=( FF05)16