Pseudo code

RTI function
Increase accumulator
If accumulator == minute/freq of RTI
{" Send pulse to CPLD "I"
If minute == 59
{" Minute = 0
Increase hour
}
Else
{" Increase minute
}
Update LCD time display
Accumulator = 0
} Return from interrupt

Main
// Setting alarm/clock
If Button A pressed
{" Wait for B or C

Delay
M
N
C
A
B
B or C?
Q1
Q2
Q3
alarm off
N
A?
N
N
N
Y
Y
Y
Y
If B is pressed
{
    If A is pressed, alarmset = 0
    Else
        Wait for A
            If B, increase ahour, update LCD
            If C, increase aminute, update LCD
            If A, alarmset = 1
            Break loop
    
}

If C is pressed
{
    Wait for A
    
    If B, increase hour, update LCD, 60 pulses to CPLD
    If C, increase minute, update LCD, 1 pulse to CPLD
    If A, break

}

// Alarm
If (alarm set)&&(hour==alarmhour)&&(minute==alarmminute)
{
    Random alarm on
    Loop
        Random question 1 displayed
        If question 1 is correct
            Random question 2 displayed
            If question 2 is correct
                Random question 3 displayed
                If question 3 is correct
                    Alarm off
                    Break loop
                Else return to loop
            Else return to loop
        Else return to loop
    }
 Else return to loop
}