

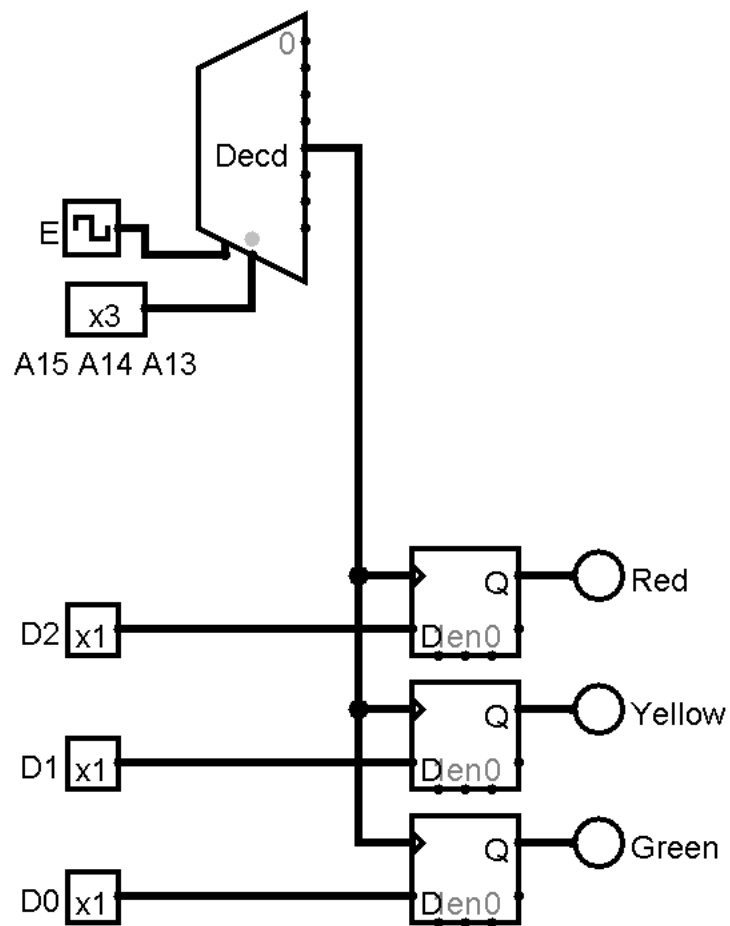
# Homework 8

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## Problem 1

### Question 1



### Question 2

```
Red on:
ADDA    #1
STAA    8000
```

```
Red off:
SUBA    #1
STAA    8000
```

```
Yellow on:
ADDA    #2
STAA    8000
```

```
Yellow off:
SUBA    #2
STAA    8000
```

```
Green on:
ADDA    #4
STAA    8000
```

```
Green off:
SUBA    #4
STAA    8000
```

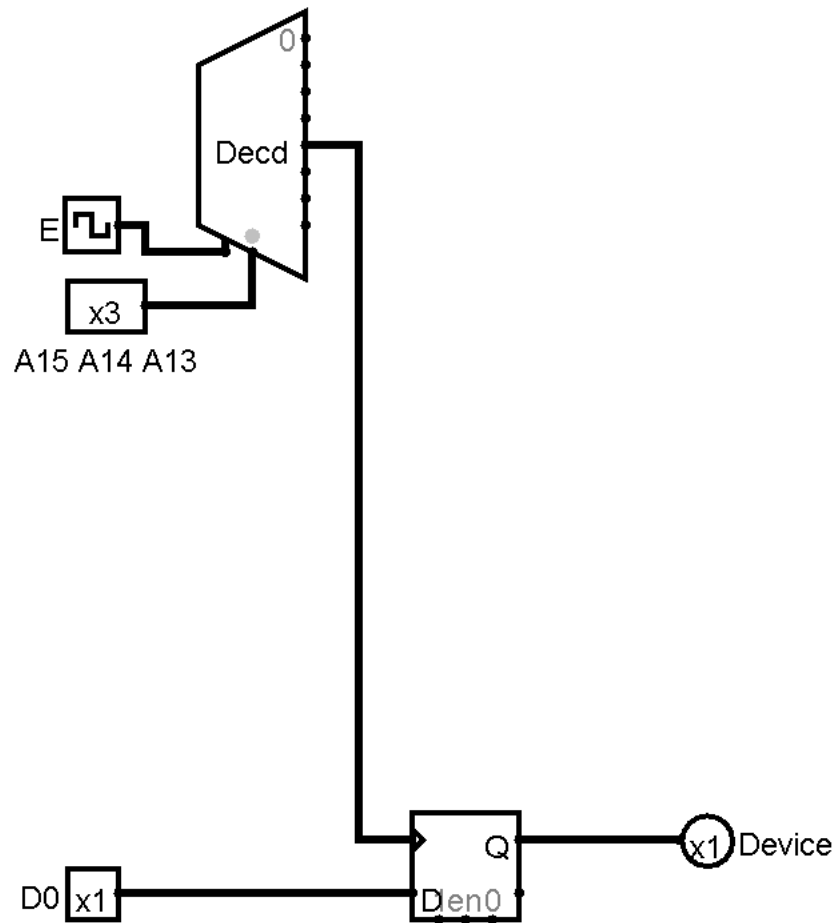
### Question 3

```
                ORG    0000
loop: LDAA    #4
      STAA    8000
      JMP     C027
      JMP     C027
      JMP     C027

      LDAA    #2
      STAA    8000
      JMP     C027

      LDAA    #1
      STAA    8000
      JMP     C027
      JMP     C027
      JMP     C027
      JMP     loop
```

### Problem 2



```

      ORG      0000 ;program starts at memory address 0000
      LDAA    #0    ;initialize ACCA to 0000
loop: STAA    8000 ;send the current value of ACCA to the data bus
      INCA    ;increment ACCA
      CMPA    #64   ;check if ACCA holds 0064 (100 decimal)
      BNE     loop  ;if ACCA does not hold 0064 continue the loop

```

This program will increment ACCA 100 times starting at the value 0000. This causes the first bit of the value to flip between 0 and 1 every time ACCA is incremented, resulting in 0-1-0-1-0-...1-0-1 being sent to D0 for a total of 100 alternating bits.