IOT LAB
PORT
PROGRAMMING

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Q-1

WRITE ALP TO GENERATE A SQUARE WAVEFORM ON PIN P3.3

Code:

```
REPEAT:
  SETB P3.3
  LCALL DELAY
CLR P3.3
LCALL DELAY
SJMP REPEAT
DELAY:
MOV R3, #05H
HERE: DJNZ R3, HERE
RET
```

Output:

Q-2

WRITE ALP TO GENERATE A RECTANGULAR WAVEFORM ON PIN P3.3

Code:

```
REPEAT:
SETB P3.3
LCALL DELAY1
CLR P3.3
LCALL DELAY2
SJMP REPEAT

DELAY1:
MOV R3, #05H
HERE1:
NOP
DJNZ R3, HERE1
RET

DELAY2:
MOV R3, #05H
HERE2: DJNZ R3, HERE2
RET
```
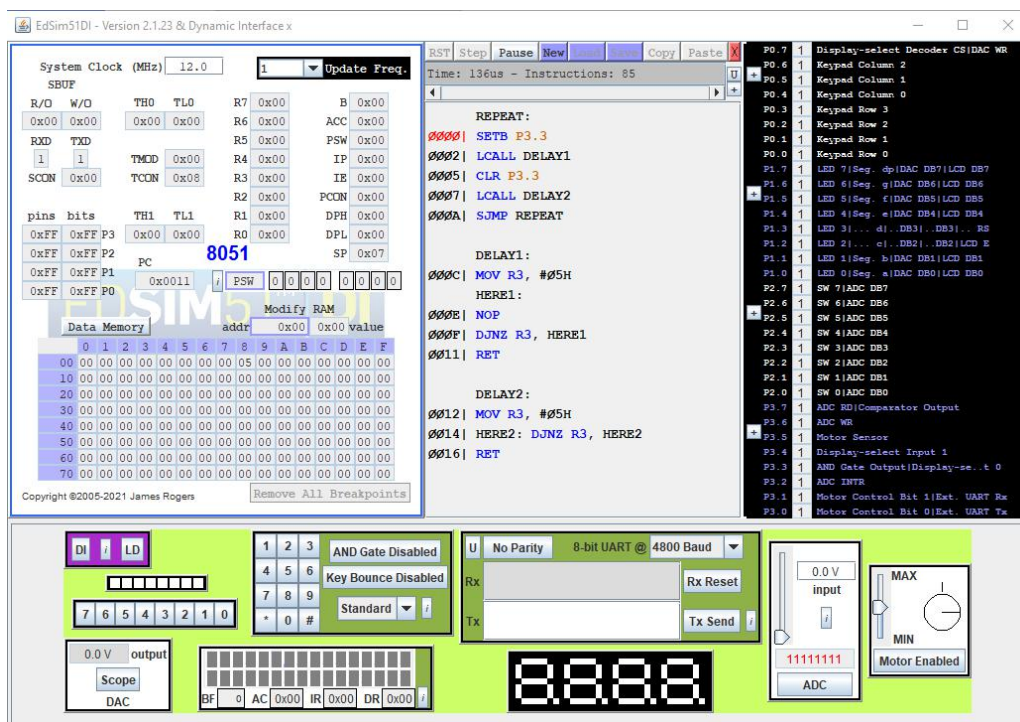
Output:

Q-3

WRITE ALP TO GENERATE A SQUARE WAVEFORM ON PORT P1 USING DAC

Code:

```
CLR Po.7
REPEAT:
MOV P1, #0FFH;5v
LCALL DELAY
MOV P1, #33H;1V
LCALL DELAY
SJMP REPEAT

DELAY:
MOV R3, #10H
HERE1:
DJNZ R3, HERE1
RET
```

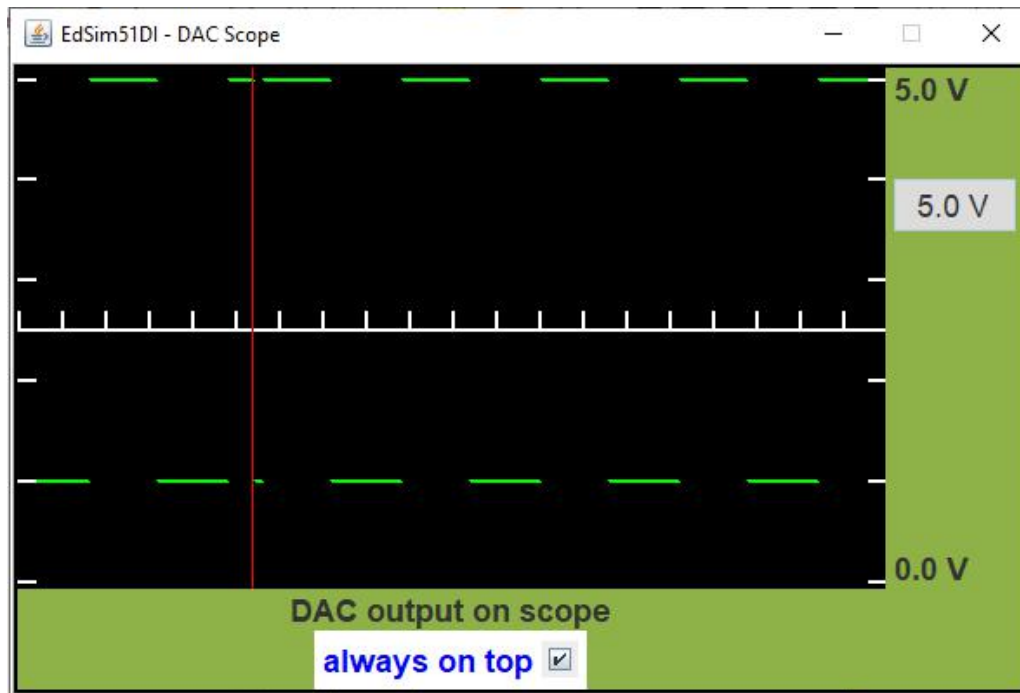## Output:

Q-4

WRITE ALP TO GENERATE A RECTANGULAR WAVEFORM ON PORT P1 USING DAC

Code:

```
CLR P0.7

REPEAT: MOV P1, #66H;5v
LCALL DELAY
MOV P1, #33H;1V
LCALL DELAY1
SJMP REPEAT

DELAY: MOV R3, #10H
HERE1:
NOP
DJNZ R3, HERE1
RET

DELAY1:    MOV R3, #10H
HERE:
DJNZ R3, HERE
RET
```

Q-5

Code:

```
CLR P0.7

REPEAT:
MOV P1, #0FFH
LCALL DELAY1
MOV P1, #33H
LCALL DELAY2
SJMP REPEAT

;700
DELAY1:
MOV R3, #0FFH ;1
HERE1: DJNZ R3, HERE1 ;2 =255*2=510
MOV R3, #5DH;1
HERE2: DJNZ R3, HERE2 ;186
RET ;2ms

;300
DELAY2: MOV R3, #94H;1
NOP;1
HERE3: DJNZ R3, HERE3;2
RET;2
```

Output:

DAC output on scope

Q-6

Write ALP to generate a step waveform, each step is of 1v and the step delay is common for all steps

Code:

```
CLR P0.7

AGAIN:
MOV P1, #33H;1v
MOV A, #33H

REPEAT:
LCALL DELAY
ADD A, #33H
MOV P1, A
CJNE A, #0FFH, REPEAT
REPEAT2:
LCALL DELAY
SUBB A, #33H
MOV P1, A
CJNE A, #33H, REPEAT2

SJMP AGAIN

DELAY:
MOV R1, #0AH
HERE:
DJNZ R1, HERE
RET
```

Q-7

Write an ALP to generate triangular wave
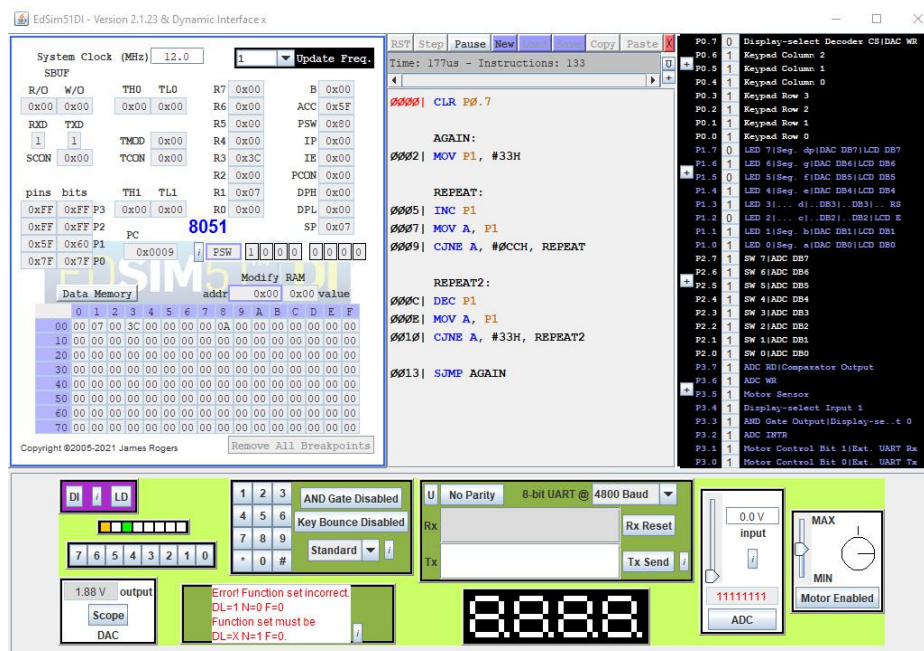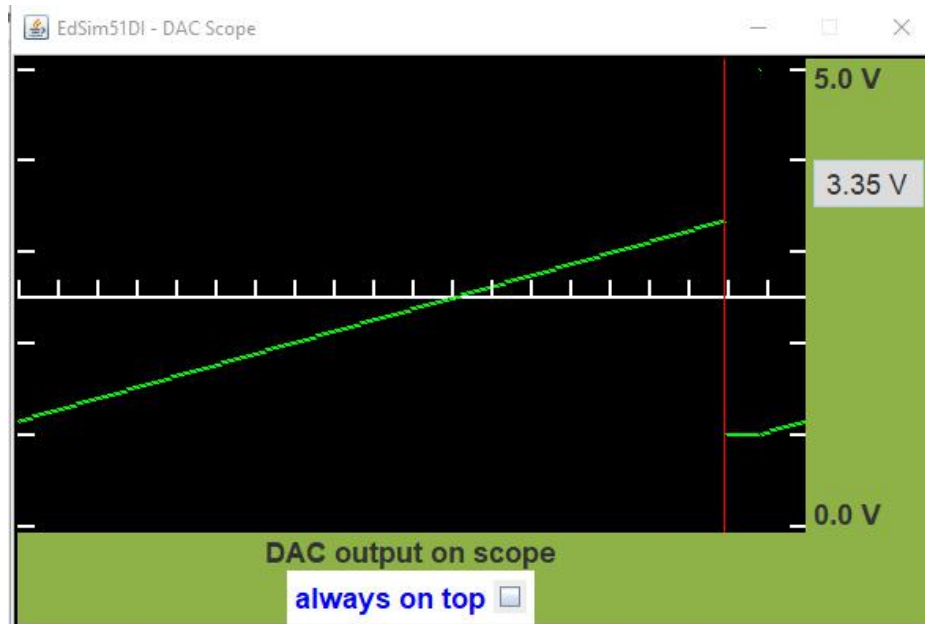
Code:

```
CLR Po.7

AGAIN:
MOV P1, #33H

REPEAT:
INC P1
MOV A, P1
CJNE A, #0CCH, REPEAT

REPEAT2:
DEC P1
MOV A, P1
CJNE A, #33H, REPEAT2

SJMP AGAIN
```

Output:

DAC output on scope

THANK YOU!!