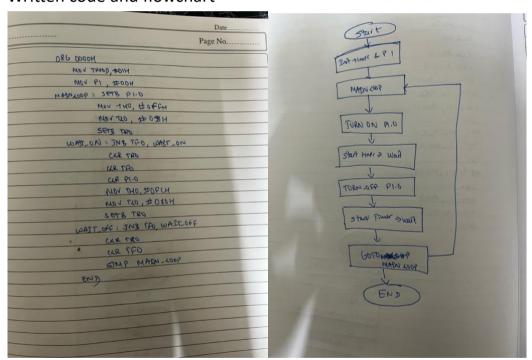
Name and Registration number: 22BCE3799 Apurba Koirala

Each question carries six marks.

The task files should have handwritten flow chart/Algorithm, and written Program, Snapshot of typed program and Snapshot of output.

1. Write an assembly language program to generate a square wave of 1KHz with 20% duty cycle using timer programming.

## Written code and flowchart



Code and Output:

ORG 0000H MOV TMOD, #01H MOV P1, #00H

```
MAIN_LOOP:
SETB P1.0

MOV THO, #0FFH
MOV TLO, #058H
SETB TRO
WAIT_ON:
JNB TFO, WAIT_ON
CLR TRO
```

**CLR P1.0** 

CLR TF0

MOV THO, #0FCH
MOV TLO, #080H
SETB TRO
WAIT\_OFF:
JNB TFO, WAIT\_OFF
CLR TRO

SJMP MAIN\_LOOP

CLR TF0

**END** 

```
q1.asm
       1 ORG 0000H
       2 MOV TMOD, #01H
       3 MOV P1, #00H
       4
       5 MAIN LOOP:
       6
             SETB P1.0
       7
       8
             MOV THO, #OFFH
       9
             MOV TLO, #058H
      10
             SETB TRO
      11 WAIT ON:
      12
             JNB TFO, WAIT ON
             CLR TRO
      13
             CLR TFO
      14
      15
             CLR P1.0
      16
      17
      18
            MOV THO, #OFCH
             MOV TLO, #080H
      19
             SETB TRO
      20
      21 WAIT OFF:
             JNB TFO, WAIT OFF
      22
      23
              CLR TRO
             CLR TFO
      24
      25
      26
             SJMP MAIN LOOP
      27
      28 END
15.40805 s 15.40857 s 14200058 14200540
                     0. d 0
15.40975 s. d 1.176215 ms
14201624, d 1084
              E Logic Analyzer
         Q1.ssn
21 WALT OFF:
22 JNS TFO, WALT_OFF
23 CLR TRO
24 CLR TFO
25
```

Name

□ ♀ Q1

→ P1

→ TF0

→ TH0

→ TMOD

Project Registers

command

Running with Code Size Limit: 2K

Load "C:\\Users\\Sarphu\\Omebrive - vit.ac.in\\Desktop\\Objects\\try"
Lh 'Pl

ASM ASSIGN BreakDisable BreakEnable BreakKill BreakList BreakSet BreakAccess COVERAGE COVTOFILE

2. Write an assembly language program using interrupts to do the following operations simultaneously: (a) Receive the data serially and send it to P1 (b) Have port P0 read and transmitted serially and a copy given to P2 (c) Make Timer 0 to generate a square wave of 3KHz frequency on P1.1. with 66.67% duty cycle. Assume that XTAL = 11.0592Mhz. Set the baud rate at 4800.

```
Code:
```

**ORG 0000H** 

MOV TMOD, #01H

MOV P1, #00H

MAIN\_LOOP:

**SETB P1.0** 

MOV THO, #0FFH

MOV TL0, #058H

SETB TRO

WAIT ON:

JNB TF0, WAIT\_ON

**CLR TRO** 

CLR TF0

**CLR P1.0** 

MOV THO, #0FCH

MOV TL0, #080H

**SETB TRO** 

WAIT\_OFF:

JNB TFO, WAIT\_OFF

**CLR TRO** 

CLR TFO

## SJMP MAIN\_LOOP

END