

Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

Program/ Course: **B.Tech. (Sem. 5th)**
MICROPROCESSORS and MICROCONTROLLERS
Subject Code: **PCEE-111**
Paper ID: **16463**

13-01-2022(E)

Time Allowed: 02 Hours

Max. Marks: 60

Note:

- 2) Attempt any **six** questions.
- 3) Any missing data may be assumed appropriately

[Marks: 10 each]

- Q1.** Draw 8051 header circuit. Enlist the pins of 8051 apart from 4 ports. Write briefly about each pin.
- Q2.** The lists of following commands are given below. Find an error if any in them. Mention to which addressing mode the command is referring. Explain what happens when each of the following commands is executed:
- a) MOV B,20H
 - b) MOV A,#257
 - c) MOV DPTR,A
 - d) MOV @R2,B
 - e) MOV A,@A+DPTR
- Q3.** For an 8051 with a crystal frequency of 11.0592MHz, generate a delay of 1 sec. Write the program in assembly/C language.
- Q4.** Write an assembly language program to convert Binary-to-ASCII conversion. Also explain the significance of this program and write its application use.
- Q5.** State difference between Assembly language and C language citing their advantages and disadvantages.
Draw the diagram showing the RAM allocation in 8051. Explain in brief.
- Q6.** Mention the steps to program in mode 2.
Find a) The frequency of the square wave generated in the following code
b) The duty cycle of this wave

```
MOV    TMOD,#2H           ;Timer 0, Mode 2
MOV    TH0,#-100
REPEAT: SETB  P1.1        ;P1.1=1
        ACALL DELAY
        CLR   P1.1        ;P1.1=0
        ACALL DELAY
        ACALL DELAY
        SJMP REPEAT
```

```

DELAY:      SETB    TR0                ;Start Timer 0
           AGAIN:  JNB    TF0,AGAIN    ;Stay until timer rolls over
           CLR     TR0                ;Stop Timer 0
           CLR     TF0                ; Clear TF for next round
           RET

```

- Q7.** State difference between interrupt and polling.
 Enlist six interrupts in 8051. Write briefly about them.
 What happens when RESET button is pressed?
- Q8.** Draw a 16 x 2 LCD connection diagram with 8051 microcontroller.
 Note: 1. Port pins P3.5- P3.7 are connected to control pins. Port 2 is connected to data pins of LCD.
 Also write a program to display G.N.D.E.C, LDH in the centre of 1st line. You may write program in assembly or C language.
- Q9.** Write the steps that must be followed for data conversion by the ADC 0804 and draw its read and write timing diagram. Also draw the connection diagram of 8051 with ADC0804 with clock from XTAL2 of 8051. What is the use of D Flip-Flops?
