C14–AEI–**504**

# 4610

**BOARD DIPLOMA EXAMINATION, (C–14)**

**MARCH/APRIL—2017**

**DAEIE—FIFTH SEMESTER EXAMINATION**

MICROCONTROLLERS AND APPLICATIONS

*Time* : 3 hours ]　　　　　　　　　　　　　　　[ *Total Marks* : 80

**PART—A**　　　　　　　3×10=30

*Instructions* : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

**1.** List any three differences between microprocessors and microcontrollers.

**2.** List any three interrupts of 8051.

**3.** Write the importance of TMOD and TCON registers.

**4.** List the instruction formats of 8051.

**5.** Draw the timing diagram for memory. Write operation of 8051.

**6.** Define the terms machine language, assembly language and mnemonics.

**7.** Define the term subroutine.

**8.** Write an ALP to add two 8-bit numbers 17 H and 21 H. Store the result in R1 register.

**9.** Draw the control word register (CWR) of 8255.

**10.** List any three features of 8257 DMA controller.

## PART—B

10×5=50

*Instructions* : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

**11.** Draw the pin diagram of 8051 microcontroller and specify the purpose of each pin.

**12.** List and explain the addressing modes of 8051 with examples.

**13.** Explain the arithmetic group of instructions with examples.

**14.** Write an ALP to generate 10 m sec of time delay by using timers of 8051. Assume clock frequency of 8051 is 12 MHz.

**15.** *(a)* List and explain unconditional and conditional call instructions. 6

*(b)* Explain the term debugging a program. 4

**16.** Explain PUSH and POP instructions and its use in program.

**17.** Draw and explain the interfacing of 8255 with 8051 micro-controller.

**18.** Draw and explain the interfacing of traffic light controller with 8051.

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