C09–AEI–**403**

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BOARD DIPLOMA EXAMINATION, (C–09)
MARCH/APRIL—2017
DAEIE—FOURTH SEMESTER EXAMINATION

MICROCONTROLLERS AND ITS 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 interrupts of 8051.

2. List the ports of 8051 microcontroller.

3. List any three differences between microprocessor and microcontroller.

4. Define fetch cycle, execute cycle and instruction cycle.

5. Distinguish between machine cycle and *T*-state.

6. Give the differences between machine level and assembly level programming.

7. Write an assembly language program to add two 8-bit numbers 32 H and 1 CH.

8. Define flowchart and draw any two symbols of flowchart.

9. Draw the format of control word register of 8255.

10. Draw the diagram of printer interface with 8051 microcontroller.

<div align="center">PART—B</div>   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. Describe internal memory and external memory organization of 8051 microcontroller.

12. Explain about the arithmetic instructions and give two examples.

13. Explain about the following instructions :

(a) ORL A,@Ri

(b) LCALL 16-bit address

(c) RET

(d) DJNZ Rn,offset

(e) NOP

14. *(a)* Explain the terms 'nesting' and 'multiple ending' in subroutines.   6

(b) Write the instructions to set up time delay.   4

15. *(a)* Define the term 'debugging' a program.   4

(b) State the use of PUSH and POP instructions in a program.   6

16. Write an assembly language program to arrange the given series of ten 8-bit numbers in ascending order. Let the given series of 8-bit numbers begins from the location 2400 H.

17. Draw and explain the functional block diagram of 8255.

18. Draw and explain the interfacing of stepper motor control interface with 8051 microcontroller.

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