C09–AEI–**403**

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BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2016
DAEIE—FOURTH SEMESTER EXAMINATION

MICROCONTROLLER 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. Draw the block diagram of a microcomputer.

2. List any three special function registers with their functions.

3. Mention the importance of the following 8051 registers :

(a) Accumulator (A)

(b) PSW

(c) TCON

4. List any two differences between machine level and assembly level programming.

5. Write the instruction format of 8051.

6. State the function of fetch cycle, execute cycle and instruction cycle.

7. Define the term 'debugging'.

8. List any three conditional JUMP instructions.

9. Draw the bit pattern of CWR (Control Word Register).

10. Mention any three applications of 8051 microcontroller.

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PART—B   10×5=50

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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 and explain the internal architecture of 8051 microcontroller.   5+5

12. What are various addressing modes available in 8051? Explain with examples.   10

13. Explain about the following instructions of 8051 :   5×2=10

   (a) MOV A, # 98H

   (b) XRL A, R_n, where A = 08H, R_n = F0H

   (c) RL A, where A = 48H

   (d) INC DPTR, where DPTR = 16 FFH

   (e) SUBB A, source byte, where source byte = 23H, A = 45 H and C_y =1

14. Write an ALP to transfer a block of data which lies at 30H–37H to new location 50H–57H.   10

15. *(a)* Illustrate the concept of calling a subroutine and returning from it.   5

(b) Explain the function of PUSH and POP instructions.   5

16. List various types of symbol used in drawing the flow charts. Draw the flow chart to find the addition of two 8-bit numbers.   5+5

17. Draw the functional block diagram of 8255 and explain the functions of each block.   4+6

18. Draw and explain the schematic diagram of stepper motor interface with 8051 microcontroller.   4+6

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