



C09-EC-603

**3759**

**BOARD DIPLOMA EXAMINATION, (C-09)**

**JUNE—2019**

**DECE—SIXTH SEMESTER EXAMINATION**

**MICRO CONTROLLERS**

*Time : 3 hours ]*

*[ Total Marks : 80*

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**PART—A**

3×10=30

**Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. List the features of 8051 microcontroller.
2. Define fetch cycle, execution cycle and instruction cycle.
3. Define opcode and operand with example.
4. List the different addressing modes of 8051.
5. Describe XRL 30A and MUL AB.
6. Write a program to find the 2's compliment of an 8-bit number.
7. Explain the concept of nesting of a subroutine.
8. Explain the operating modes of 8255.

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9. Explain the <sup>\*</sup>synchronous mode word format of 8251.
10. List any three features of DMA controller (8257).

**PART—B**

10×5=50

**Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. Draw the pin diagram of 8051 microcontroller. Explain the function of each pin.

12. State any five special function registers of 8051 and explain the function of each register.

13. Classify the instruction set into various groups and explain them with two examples of each.

14. Explain the following instructions :

- (a) XCH A, direct                      (b) SUBB A, @Ri  
(c) ORL A, # data                      (d) SETB PO.5  
(e) DJNZ R4, addr

15. Write a program to find largest data byte among given numbers.

\* 16. (a) Define a subroutine and explain its uses. 5  
(b) Explain the principles of single step and break point debugging techniques. 5

17. Draw the block diagram of 8251 and explain the working of each block.

18. Explain the interfacing of 8255 with 8051 microcontroller.

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