



C09-EC-603

3759

**BOARD DIPLOMA EXAMINATION, (C-09)**  
**OCT/NOV—2013**  
**DECE—SIXTH SEMESTER EXAMINATION**  
**MICROCONTROLLERS**

Time : 3 hours ]

[ Total Marks : 80

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**PART—A**

- 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. Compare microcontroller and microprocessor. 1+1+1=3
2. Specify any six registers of 8051 microcontroller.  $\frac{1}{2} \times 6 = 3$
3. Give the instruction format of 8051. 3
4. State any three data transfer group of instructions. 1+1+1=3
5. Classify the instruction set of 8051. 3
6. Write a program to subtract two 8-bit numbers. 3

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7. Define a subroutine and explain its use. 1+2=3
8. State the needs for interfacing. 1+1+1=3
9. State the features of programmable DMA controller 8257. 1+1+1=3
10. Draw the figure showing the connections of RS-232C bus standard with 8051. 3

**PART—B**

**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 block diagram of 8051 and explain the function of each block. 5+5=10
12. Explain the following : 2×5=10
- (a) Fetch cycle
- (b) Execute cycle
- (c) Instruction cycle
- (d) Machine cycle
- (e) T-state
13. Define and explain different types of addressing modes of 8051 with examples. 10

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- 14.** (a) Explain branch group of instructions briefly. 5  
(b) Explain Boolean group of instructions briefly. 5
- 15.** (a) Write an assembly language program to generate 5 milliseconds time delay. Assume 8051 crystal frequency is 11.0592 MHz. 5  
(b) Explain the of push and pop instructions. 5
- 16.** (a) Write a program to find the product of two 8-bit numbers. Assume the two numbers are 32H and 68H. 5  
(b) Explain the principles of single-step and break-point debugging. 5
- 17.** Draw and explain the block diagram of 8255 PPI. 5+5=10
- 18.** (a) Draw and explain interfacing of 8257 with 8051. 2+3=5  
(b) Draw the functional block diagram of 8251. 5

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