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C09-EC-603

3759

BOARD DIPLOMA EXAMINATION, (C-09)  
SEPTEMBER/OCTOBER - 2020  
DECE—SIXTH SEMESTER EXAMINATION

MICROCONTROLLERS

Time : 3 hours ]

[ Total Marks : 80

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. Draw the block diagram of a microcomputer.
2. Explain the functions of program counter and data pointer register.
3. List the different addressing modes available in 8051.
4. List any three logical groups of instructions.
5. Explain the following instructions :
  - (a) MUL AB
  - (b) SETB C
6. Explain the term debugging a program.
7. Define subroutine and explain its use.

- \* 8. Classify the types of interfacing peripherals.
9. Draw the serial communication through 8051 using RS-232C.
10. Write any three features of 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 criterion for valuation is the content but not the length of the answer.

11. Draw the pin diagram of 8051 microcontroller and explain the functions of each pin.
12. (a) Draw the program status word (PSW) register of 8051. 4  
(b) Write about timers and counters in 8051. 6
13. What is an instruction format? Explain one-byte, two-byte and three-byte instructions with examples.
14. Explain any five arithmetic instructions and mention the effect of flags on these instructions.
15. Explain the concept of nesting, multiple ending and common ending in subroutines.
16. Write a program to add two 8-bit numbers stored in 2400 H and 2401 H and store the result in 2402 and 2403 H.
- \* 17. Draw and explain the block diagram of 8255 PPI.
18. Draw and explain the functional block diagram of 8251.

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