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BOARD DIPLOMA EXAMINATION, (C-16)

OCTOBER/NOVEMBER—2023

DECE - FIFTH 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. List any six special function registers of 8051.

2. List the interrupts of 8051 microcontroller and mention their vector addresses.

3. Write any three Boolean instructions and their functions.

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

5. Define subroutine and state its use.

6. List various symbols used in drawing flow charts.

7. What is key-bouncing List key-debouncing solutions.

8. Draw the interfacing diagram of LED and push button switch with 8051.

9. What is the use of MAX 232?

10. What is the use of stepper motor?

PART—B   10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain the internal memory organization of 8051 microcontroller.   10

12. Explain the following instructions :   10

(a) RR A

(b) RL A

(c) RLC A

(d) RRC A

(e) SWAP A

13. Explain various addressing modes supported by 8051 microcontroller with suitable examples.   10

14. *(a)* What is debugging a program?   2

(b) Write and explain important steps in writing and troubleshooting a program.   8

15. Write an assembly language program to add 10 bytes of data present in internal memory locations from 50H and store the result from 60H and 61H.   10

16. Draw and explain the interfacing of LCD module with 8051 microcontroller.   10

17. Write an 8051 assembly language program to transmit the message DECE serially with 9600 baud rate.   10

18. *(a)* State the need of relays and Opto-couplers for interfacing.   10

(b) Explain the interfacing of solid state relay with 8051 to drive mains operated motor.   10

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