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C16–EC–**502**

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BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2018

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 the any six features of microcontrollers.

2. Distinguish between machine cycle and T-state.

3. List any three logical instructions of 8051.

4. Mention the interrupts and their priorities of 8051.

5. Define a subroutine and explain its use.

6. What is debugging?

7. Explain key press and detection mechanism.

8. Draw the interfacing diagram of LCD module with 8051.

9. Write the instructions to set up time delay using a timer.

10. Mention the RS 232 pins of DB-9 connector.

PART—B 10×5=50

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

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

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

11. Draw the functional block diagram of 8051 microcontroller and explain about each block.

12. Explain about any five data transfer instructions with examples.

13. *(a)* Mention the differences between assembly level and machine level programming.

(b) Explain ROTATE instructions with sketches.

14. Write the important steps in writing and trouble shooting a program.

15. Write an assembly language program to find the sum of 10 bytes in internal data memory locations beginning at 40H. Store the 16-bit sum in locations 50H and 51H (MSB).

16. Write a program to access key code from matrix keyboard.

17. *(a)* Explain the interfacing of solid state relay with 8051 to drive a mains operated motor.

(b) State the need of optocoupler for interfacing with 8051.

18. *(a)* Explain PWM for controlling the speed of small DC motor.

(b) Draw a driver circuit required to run stepper motor.

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