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BOARD DIPLOMA EXAMINATION, (C-16)

AUGUST/SEPTEMBER—2021

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. Draw the block diagram of microcomputer.

2. State the function of counters and timers of 8051.

3. State the need of instruction set.

4. Distinguish between machine cycle and T-state.

5. Compare ACALL and LCALL instructions based on size and address range.

6. Define debugging.

7. Draw the interfacing diagram to interface common cathode seven-segment display to 8051.

8. List the six instruction command code for programming an LCD.

9. State the need of optocouplers for interfacing.

10. Write short notes on RS232 standards.

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. *(a)* Explain ON-chip and OFF-chip memories of 8051.   5

(b) Explain the function of ports of 8051.   5

12. State and explain various addressing modes of 8051.   10

13. Explain the logical instructions of 8051 with examples.   10

14. Write a program to add 3F9BH and 2D18H and save the result in RAM locations starting at 50H.   10

15. *(a)* Explain PUSH and POP instructions.   5

(b) Write a program to clear 10 internal RAM locations at internal RAM address 50H.   5

16. *(a)* Explain the function of the pins of LCD.   5

(b) State the three popularities of LCD.   5

17. Write a program to transmit a message 'APDTE' serially through serial port with a baud rate of 9600 bauds.   10

18. *(a)* Explain the working of a stepper motor.   6

(b) Write an ALP to generate a delay of 3 ms using timer 0 in mode 0 with XTAL frequency of 11·0592 MHz.   4

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