



C16-EC-502

6630

BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

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. Compare Microprocessors and Microcontrollers.
- 2. Describe the functions of PSW.
- 3. Define Machine cycle and T-state.
- 4. Give the differences between the machine level programming and assembly level programming.
- 5. State the use of subroutine in assembly language programming.
- 6. Define the term debugging of a program.
- 7. List the reasons for popularity of LCDs.
- * 8. Draw the interfacing diagram of push button switch with LED to 8051.
- 9. State the need of opto coupler for interfacing.
- 10. State the need for MAX 232.

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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. Draw and explain the functional block diagram of 8051 microcontroller.
12. Explain the various addressing modes of 8051 with examples.
13. Explain the following instructions with examples :
 - (a) DA A
 - (b) XRL A, Rn
 - (c) XCH A, @ Ri
 - (d) SETB bit
 - (e) MUL AB
14. List and explain Call and Return instructions.
15. Write a program to add two-8-bit numbers stored in memory locations 2300H and 2301H. Store the result in 2302H and 2303H.
16. Draw and explain the interfacing of a 4×4 Matrix keyboard with 8051.
17. Write an assembly language program to generate a square wave with a frequency of 10 kHz on pin p2.3 of 8051, using timer 0 in mode1. Assume clock frequency as 12MHz.
18.
 - (a) Draw the interfacing of driver circuit required to run a stepper motor using 8051 microcontroller.
 - (b) Write an assembly language program to run stepper motor continuously.

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