



*

C16-EE-505**6637**

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER/NOVEMBER—2023
DEEE - FIFTH SEMESTER EXAMINATION

DIGITAL ELECTRONICS AND 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. Convert the binary number 11011011.101 into Octal and Hexadecimal numbers.
2. State De-Morgan's theorems in Boolean algebra.
3. Draw the half adder circuit and write its truth table.
4. Draw 3 × 8 decoder.
5. List any three applications of flip-flops.
- * 6. Distinguish between synchronous counter and asynchronous counter.
7. List various special function registers in 8051 microcontroller.
8. Write the interrupts in 8051.
9. List various addressing modes of 8051.
10. Write the difference between machine level and assembly level programming.

/6637

1

[Contd...

*

*

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.** Realize AND, OR, NOT operations using NAND, NOR gates. 10
- 12.** Draw the full adder circuit and explain its operation with truth table. 10
- 13.** (a) Draw and explain the operation of 4×1 multiplexer, write its applications. 7
(b) List any three applications of decoders. 3
- 14.** Explain master slave JK flip-flop with circuit diagram and truth table. 10
- 15.** Draw and explain asynchronous decade counter. 10
- 16.** Draw the block diagram of 8051 microcontroller and explain the function of each block. 10
- 17.** Explain any five logical instructions of 8051 microcontroller with one example each. 10
- 18.** Write an assembly language program to multiply two 8-bit numbers stored at locations 20H and 21H and store the result at 30H and 31H. 10

*

★ ★ ★

*