



C16-EE-505

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BOARD DIPLOMA EXAMINATION, (C-16)

NOVEMBER—2020

DEEE—FIFTH SEMESTER EXAMINATION

DIGITAL ELECTRONICS AND MICRO CONTROLLERS

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 binary number 1011101.10101 into octal and hexadecimal numbers.

2. Write the classifications of digital logic families.

3. Compare the performance of serial and parallel adders.

4. Draw a half-adder using NAND gates only.

5. Distinguish between synchronous and asynchronous counters.

6. Compare static and dynamic RAMs.

7. List any six registers in 8051 microcontroller.

8. Define Program Status Word in 8051.

9. List various addressing modes of 8051.

10. Define the terms opcode and operand of an instruction.

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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 the criteria for valuation are the content but not the length of the answer.

- 11.** Explain the following characteristics of digital ICs :
- (a) Logic levels
  - (b) Propagation delay
  - (c) Noise margin
  - (d) Fan-in
  - (e) Fan-out
- 12.** Draw and explain BCD of decimal decoder.
- 13.** Draw and explain the operation of  $4 \times 1$  multiplexer.
- 14.** Draw and explain clocked SR flip-flop with present and clear inputs.
- 15.** Explain the working of basic dynamic MOS RAM cell with diagram.
- 16.** Draw the pin diagram of 8051 Microcontroller and specify the purpose of each pin.
- 17.** Explain any five branch group instructions of 8051 microcontroller with one example each.
- 18.** Write an assembly language program to find biggest data value in a data array.

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