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C16-EE–505

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BOARD DIPLOMA EXAMINATION, (C-16)

OCTOBER/NOVEMBER—2024

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. Write the truth table of EX-OR gate.

2. Subtract $(1101)_2$ from $(1111)_2$ by using 2's compliment method.

3. Compare the performance of serial adder and parallel adder.

4. Draw the 4×1 multiplexers.

5. Distinguish between synchronous and asynchronous counters.

6. Define modulus of a counter.

7. Draw the PIN diagram of 8051 microcontroller.

8. List the four timer modes in 8051.

9. Compare machine level and assembly level programming.

10. Write the program to find biggest data value in given data array.

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 TTL, NAND gate with totem pole output.

12. Draw and explain 3×8 decoders.

13. Realize full adder using two half adders and OR-gate and write truth table.

14. What is race around condition? Explain about master-slave J-K flip-flop.

15. Draw and explain the working of 4-bit bidirectional shift registers.

16. Explain the registers structure in 8051.

17. Explain five addressing modes of 8051.

18. Explain the logic instructions and recognize the flags that are set or reset for given data conditions.

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