6637

C16-EE–505

6637

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2021

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. Subtract $(10101{\cdot}111)_2$ from $(101{\cdot}101)_2$ in 2's complement method.

2. What is the importance of parity bit?

3. Draw half-adder circuit with truth table.

4. List any three applications of multiplexers.

5. Draw NAND latch with truth table.

6. Define modulus of a counter.

7. List any six special function registers of 8051 microcontroller.

8. List the Interrupts in 8051 microcontroller.

9. State the need of timers and counters.

10. What are 8051 instructions as per the length of the instruction?

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 AND, OR, NOT, NAND, NOR and EX-OR gates with truth tables.

12. Draw the full-adder circuit using only NAND gates and explain its operation with truth table.

13. Draw and explain 3 × 8 decoder.

14. Draw and explain the working 4-bit bi-directional shift register.

15. Explain the working of ring counter and list its applications.

16. Describe the four timer modes in 8051 microcontroller.

17. Explain any five logic group instructions of 8051 with one example each.

18. Write an assembly language program of 8051 to sum up N numbers.

★ ★ ★