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D 12010 (Pages : 2) Name..................................

Reg. No..................................

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

Electronics

ELE 3C 05—DIGITAL ELECTRONICS

(2019—2020 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A

Answer at least **eight** *questions.*
Each question carries 3 marks.
All questions can be attended.
Overall Ceiling 24.

1. What are alphanumeric codes ? For what they are used ?

2. What is 1' complement representation method ?

3. State and prove associative law of Boolean algebra.

4. What is a Maxterm ?

5. Can a multiplexer be used to realize logic functions ? If yes, in what ways this realization is better than realization using logic gates ?

6. What is an Encoder ?

7. What do you mean by toggling ?

8. What are the types of loading in a shift register ?

9. What are the asynchronous inputs of a flip-flop ?

10. List any four applications of counters.

11. What are RAMs ? How they differ from ROMs ?

12. Is ROM a volatile memory ? Explain.

(8 × 3 = 24 marks)

Turn over

Section B

13. Given $A\bar{B} + \bar{A}B = C$, show that $A\bar{C} + \bar{A}C = B$.

14. Discuss hexadecimal number system.

15. Realize the logic expression using MUX. $F1 = \sum m\,(1, 3, 4, 7, 12, 14, 15)$.

16. Realize a full adder using NAND gates only.

17. With neat diagrams, explain the working of 4-bit ring counter.

18. With neat diagrams, explain the operation of T and D flip-flops.

19. What are the different types of ROMs ? Explain.

(5 × 5 = 25 marks)

Section C

20. What are the different types of gates ? Explain in detail each of them.

21. Design a 3 bit synchronous up counter.

(1 × 11 = 11 marks)