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C20-AEI-303

7216

**BOARD DIPLOMA EXAMINATION, (C-20)
JUNE/JULY—2022**

DAEI - THIRD SEMESTER EXAMINATION

DIGITAL ELECTRONICS

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. State the use of alphanumeric codes.
2. Compare weighted and unweighted codes.
3. State De Morgan's theorems.
4. Draw the diagram of half-adder.
5. List the applications of multiplexers.
6. Define combinational logic circuit.
7. State the race around condition.
8. Define counter.
9. List different RAM and ROM ICs.
10. State the need for A/D converter.

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PART—B

8×5=40

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Develop AND, OR, NOT gates using NAND, NOR gates.

(OR)

Explain binary, octal, hexadecimal number system and compare with decimal system.

12. Draw and explain 4-bit parallel adder.

(OR)

Draw and explain one-bit digital comparator.

13. Explain JK master/slave flip-flop with truth table with diagram.

(OR)

Explain synchronous ripple counter (MOD 16) with flip-flop and gates.

14. Explain basic working principle of ROM.

(OR)

Explain serial IN and parallel OUT register.

15. Explain D/A conversion using weighted registers.

(OR)

Explain D/A conversion using R-2R ladder network.

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PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and criterion for valuation is the content but not the length of the answer.

16. Construct asynchronous MOD-12 counter using flip-flops.

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