



C09-AEI-305

3215

BOARD DIPLOMA EXAMINATION, (C-09)
MARCH/APRIL—2021
DAEIE - THIRD SEMESTER EXAMINATION
DIGITAL ELECTRONICS

Time : 3 hours]

[Total Marks : 80

PART—A

4×5=20

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **four** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Perform binary addition of the numbers $(1101)_2$ and $(1100)_2$.
2. Write the 1's complement of a binary number $(11001101)_2$.
3. Write the truth table for a half adder.
4. List any two applications of multiplexer.
5. What is a race round condition in JK flip-flop?
6. State the need for preset and clear inputs in flip-flops.
7. List any two differences between synchronous and asynchronous counters.
8. Mention any two types of ROMs.
9. State the need for a register.
10. Define the term Resolution pertaining to D/A converter.

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PART—B

15×4=60

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

11. Explain AND, OR, NOT operations with truth tables.
12. State any five postulates in Boolean algebra.
13. Draw half adder circuit using exclusive OR gate and an AND gate.
14. Draw and explain 2×4 decoder.
15. Explain JK flip-flop with the help of truth table.
16. Explain the working of a decade counter.
17. Explain the working of shift left register.
18. Explain A/D conversion using successive approximation method.

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