

6234

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER/NOVEMBER—2023
DECE - 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. Convert the following binary numbers into hexadecimal :
 - (a) $(10100010)_2$
 - (b) $(1110011)_2$
 - (c) $(00111011)_2$
2. State any three Boolean postulates.
3. Write Excess-3 code for a decimal number 54.
4. Define the terms (a) propagation delay and (b) noise margin of digital ICs.
5. List the applications of multiplexer.
6. Draw the logic circuit of half-adder using NOR gates only.
7. State the need for preset and clear inputs in flip-flops.
8. Differentiate between level clocking and edge triggering.
9. Define modulus of a counter. What is the modulus of 4-bit counter?
10. Compare static RAM and dynamic RAM.

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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. Explain the basic logic gates (AND, OR and NOT) with truth tables.
12. Write the Boolean expression of sum of minterms from the following truth table and simplify it using K-map :

Inputs			Output
A	B	C	Y
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	0

13. Explain the working of totem pole output TTL NAND gate with circuit diagram.
14. Draw full-adder circuit using basic gates and explain its operation with truth table.
- * 15. Draw and explain the working of decimal to BCD encoder.
16. Explain master slave JK flip-flop with necessary diagrams and truth table.
17. Draw and explain the working of 4-bit synchronous counter.
18. Draw and explain the working of 4-bit bidirectional shift register.

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