



C16-EC-305

5461

BOARD DIPLOMA EXAMINATION, (C-16)
MARCH/APRIL—2018
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. Compare weighted codes with unweighted codes.
2. (a) Convert $(9AF.3)_{16}$ into binary number.
(b) Convert decimal number 873 into hexadecimal number.
3. Realize the EX-OR gate using NAND gates only.
4. Define the terms 'power dissipation', 'fan-in' and 'fan-out'.
5. Distinguish between serial adder and parallel adder.
6. Draw the 2's complement adder-subtractor circuit.
7. Construct *J-K* flip-flop using *S-R* flip-flop.

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8. State the need for a register.
9. Distinguish between static RAM and dynamic RAM.
10. Define the terms 'access time' and 'word length' with respect to memories.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Why are NAND and NOR gates called universal gates? Realize basic gates using NAND and NOR gates.
12. Draw a CMOS NAND gate circuit and explain its operation.
13. Explain the working of full-adder with truth table and circuit diagram.
14. Draw and explain 4 2 encoder and decimal to binary encoder circuits.
15. Explain the operation of master-slave *J-K* flip-flop with neat sketch.
16. Draw and explain the operation of (a) shift-left register and shift-right register.
17. Explain the working of simple diode ROM with circuit diagram.
18. Explain the working of 3-bit UP/DOWN synchronous counter.

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