



C09-EC-305

3237

**BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—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. Convert the gray code 101100 into binary code.
2. Find 2's complement of the following binary numbers.
(a) $(10100010)_2$ (b) $(1110011)_2$
3. List any three digital logic families.
4. Give any three applications of decoders.
5. Draw the half-adder circuit and write its truth table.
6. Draw clocked SR flip flop using NAND gates.
7. Distinguish synchronous and asynchronous counters.
8. State the need for preset and clear inputs in flip flops.
9. State need for A/D and D/A converters.
10. Distinguish between static RAM and dynamic RAM.

*

PART-B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each questions carries **ten** marks.
(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

- 11.** (a) State any five Boolean postulates.
(b) Draw the logic circuits for realization of AND, OR, NOT operations using NOR gates only.
- 12.** Draw the CMOS NAND gate circuit and explain its operation.
- 13.** Draw and explain working of 1 to 4 De-multiplexer.
- 14.** Draw and explain working of TWO bit digital comparator.
- 15.** Draw and explain working of 4bit asynchronous counter.
- 16.** Draw and explain working of 4bit shift left register.
- 17.** Draw and explain the working of basic dynamic MOS RAM CELL.
- 18.** Draw and explain working of D/A converter using R-2R ladder network.

* * *