



C09-EC-305

3237

**BOARD DIPLOMA EXAMINATION, (C-09)
SEPTEMBER/OCTOBER - 2020
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 and unweighted codes.
2. State De Morgan's theorems.
3. List any three digital logic families.
4. Draw half-adder circuit and write its truth table.
5. State the need for a tri-state buffer.
6. Define modulus of a counter.
7. Draw the circuit of NAND latch and write its truth table.
8. State the need for preset and clear inputs in a flip-flop.
9. Compare static RAM and dynamic RAM.
10. Define the terms 'resolution' and 'accuracy' for a D/A converter.

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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 the criterion for valuation is the content but not the length of the answer.

- 11.** (a) Realize the basic gates using NAND and NOR gates. 6
(b) Explain the importance of parity bit. 4
- 12.** Draw CMOS NAND gate circuit and explain its operation. 5+5=10
- 13.** (a) Explain the working of a serial adder with block diagram. 7
(b) Compare the performance of serial adder and parallel adder. 3
- 14.** Draw the circuit diagram of BCD to Decimal Decoder and explain its working. 5+5=10
- 15.** (a) Explain the working of level clocked *J-K* flip-flop with truth table and circuit diagram. 7
(b) Write about race around condition. 3
- 16.** Draw and explain the working of 4-bit shift left register. 5+5=10
- 17.** Explain D/A conversion using binary weighted resistors method. 10
- 18.** (a) Define the terms (i) memory read operation, (ii) memory write operation and (iii) memory access time. 6
(b) Distinguish between EEPROM and UVPR0M. 4

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