



C-16/C-16S-EC-305

5461

BOARD DIPLOMA EXAMINATION, (C-16/C-16S)
JUNE / JULY - 2020
DECE - III 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) Answer should be brief and straight to the point.

- 1 State the De-Morgan's theorems.
- 2 Distinguish between weighted and unweighted codes.
- 3 Define the basic logic gates AND, OR and NOT gates with truth tables and symbols.
- 4 Define the following terms.
 - (a) Fan-in
 - (b) Fan-out
 - (c) Propagation delay
- 5 State the need for tri-state buffer. Give its symbolic representation.
- 6 Draw the 3 to 8 decoder circuit.
- 7 Explain the NAND Latch with truth table.
- 8 Write the need for preset and clear inputs.
- 9 Compare static RAM and dynamic RAM.
- 10 Distinguish between synchronous and asynchronous counters.

PART - B

10×5=50

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

- 11 (a) Explain the importance of parity bit 3
- (b) Draw the logic circuits for the realization of AND, OR and NOT operations using NAND and NOR gates. 7
- 12 Draw totem pole TTL NAND gate circuit and explain its working.
- 13 Draw the diagram of 2's complement adder/subtractor circuit and explain the working.
- 14 (a) Compare serial and parallel binary adders. 4
- (b) Draw the logic circuit of 4×1 multiplexer and give its truth table. 6
- 15 (a) Explain race around condition in JK-Flip flop. 3
- (b) Explain the operation of JK-Master slave flip flop with neat sketch. 7
- 16 Explain parallel-in parallel-out shift register with necessary diagrams.
- 17 Explain the working of 4 bit asynchronous counter with a circuit and timing diagram.
- 18 (a) Distinguish between ROM and RAM. 4
- (b) What is Decade counter ? Draw the circuit diagram of asynchronous decade counter. 6