

6215

BOARD DIPLOMA EXAMINATIONS

OCT/NOV-2019

DAEI – THIRD SEMESTER

DIGITAL ELECTRONICS

Time: 3 hours

Max. Marks: 80

PART – A

3 X 10 = 30

- Instructions:**
1. Answer **all** questions.
 2. Each question carries **Three** Marks.
 3. Answer should be brief and straight to the point and should not exceed Five simple sentences.

1. List the number of two input digital IC logic gates.
2. Draw full adder using basic gates.
3. State three postulate in Boolean algebra.
4. State function of half adder circuits.
5. List the applications of register.
6. List the conditions for eliminating the race around condition.
7. Define sequential logic circuits.
8. Differentiate between synchronous and asynchronous counter.
9. List different ROM and RAM IC's.
10. State the need for A/D converter.

PART – B

5 X 10 = 50

- Instructions:*
1. Answer any **Five** questions
 2. Each question carries **TEN** Marks.
 3. Answer should be comprehensive and criteria for valuation is the content but not the length of the answer.

11. Apply De-Morgan's theorems and postulates to simplify $\overline{ABC} + \overline{AB}C + A\overline{BC}$ and realize the reduced equation with gates.
12. Explain the **AND, OR, NOT, NAND, and NOR** operators with the help of logic circuits and truth table.
13. Realize a half adder circuit using NAND gates only and NOR gates only. 5+5M
14. Explain 2's complement parallel adder/ subtractor circuit.
15. Explain the operation of a MOD 10 asynchronous ripple counter with the help of flip, and timing diagram.
16. Explain about the **SR** flip flop using **NAND** gates and with truth table.
17. Explain the working of shift left register with circuit diagram.
18. Explain about D/A conversion using weighted resistors circuit.