



C09-AEI-305

3215

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2017

DAEI—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. Subtract 1001·11 from 1011·01 using 2's complement method of subtraction.
2. State the uses of codes in digital electronics.
3. Draw the block diagram of serial-adder.
4. Draw full-adder using two half-adders and OR gate.
5. What is RACE-AROUND condition?
6. Draw the decade counter.
7. Draw 3-bit asynchronous counter.
8. List various types of memories.
9. Compare between static RAM and dynamic RAM.
10. Draw the circuit of counter-type of A/D 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) Develop AND, OR operations using NOR gates. 4
(b) Simplify the function f (1, 2, 3, 4, 5, 6) using K-map. 6
- 12.** (a) Explain AND, OR, NOT operators with truth table. 7
(b) Simplify $\bar{A}\bar{B}\bar{C}$ $\bar{A}\bar{B}C$ $\bar{A}B\bar{C}$ $\bar{A}BC$. 3
- 13.** (a) Draw and explain the 4×1 multiplexer circuit with truth table. 7
(b) Differentiate series and parallel adders in any three aspects. 3
- 14.** (a) Explain the working of 4×2 encoder with truth table. 7
(b) Draw the circuit of simple TRI STATE BUFFER. 3
- 15.** (a) Draw and explain RS latch. 5
(b) Explain RS latch as a debouncing switch. 5
- 16.** (a) Explain T flip-flop in detail with truth table. 5
(b) Differentiate between synchronous and asynchronous counters. 5
- 17.** (a) Explain the working of shift left register. 6
(b) Explain data transfer from register to register. 4
- 18.** (a) Explain D/A conversion using weighted resistors. 7
(b) Define the term accuracy of a D/A converter. 3
