



C16-AEI-303

6215

BOARD DIPLOMA EXAMINATION, (C-16)

OCT/NOV—2017

DAEI—THIRD SEMESTER EXAMINATION

DIGITAL ELECTRONICS

Time : 3 hours ]

[ Total Marks : 80

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**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  $(11001)_2$  from  $(10100)_2$  using 2's complement method.
2. State the importance of parity bit.
3. State the function of full adder.
4. List the applications of multiplexers.
5. Construct SR flip-flop using NAND gates.
6. Define a sequential logic circuit.
7. Define the counter.
8. Draw the diagram of shift left register.
9. List the types of ROMs.
10. Define the terms 'resolution' and 'monotonicity'.

**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) Convert  $(101010.1011)_2$ ,  $(22.74)_8$  and  $(F5.E)_{16}$  to decimal. 6  
(b) Convert 845 decimal number to BCD 2  
(c) Convert  $(1001101)_2$  to gray code. 2
12. Explain the working of NAND and NOR gates using truth table with diagrams.
13. Realize half adder using NAND and NOR gates.
14. Explain 3×8 decoder with truth table and list the applications.
15. Distinguish between synchronous and asynchronous sequential logic circuits.
16. Explain the working of synchronous counter (MOD-16) with diagram.
17. Explain the working of universal shift register with diagram.
18. Explain D/A conversion using weighted register with diagram.

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