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# **B-211**

## B.C.A. EXAMINATION, May 2018

(Second Semester)

(B. Scheme) (Main & Re-appear)

## BCA102B

DIGITAL CIRCUITS AND LOGIC DESIGN

Time : 3 Hours][Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

**Note** : Attempt *Five* questions from given eight and any *one* at least from each Section. All questions carry equal marks.

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**P.T.O.** 

#### Unit I

- (a) Explain the floating point way of representation of numbers.
  5
  - (b) Solve the following using K-Map : 10

 $f(A, B, C, D) = \Sigma(1, 3, 5, 7, 9, 11, 13) + d(2, 12).$ 

 Explain error detecting and correcting codes with the help of an example.
15

## Unit II

3. (a) State and explain De Morgan's theorem.

5

- (b) Explain ASCII and EBCDIC Codes. 5
- (c) What are the Venn diagrams ? Where these are used ? 5
- 4. Convert the following : 15

$$(10011.011)_{2} = ()_{8}$$
$$(245.61)_{8} = ()_{16}$$
$$(4F2.6A)_{16} = ()_{12}$$
$$(10101.1010)_{2} = ()_{10}$$
  
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#### Unit III

- 5. (a) Realize OR, AND and NOT gates with the help of only NAND gates.  $7\frac{1}{2}$ 
  - (b) Explain the working of multi level NAND and NOR Circuits. 7<sup>1</sup>/<sub>2</sub>
- 6. (a) Realize a Excess three Code Converter.  $7\frac{1}{2}$ 
  - (b) Realize Binary to Gray Code Converter.7<sup>1</sup>/<sub>2</sub>

### Unit IV

- 7. (a) Realize XOR gate with the help of only four NAND Gates.5
  - (b) Explain working and design of BCD to Seven Segment decoder. 10

3

- 8. Write short notes on the following : 15
  - (a) Demultiplexer
  - (b) Comparator.

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