Roll No .....

EC-111-CBCS

B.E. I & II Semester

Examination, June 2020

Choice Based Credit System (CBCS)

Fundamentals of Electronics Engineering

Time : Three Hours

Maximum Marks: 60

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Define periodic and non periodic signals, Energy and power signals.
   b) Draw and explain unit step and unit ramp functions.

2. a) Draw a block diagram of communication system and explain all the elements in detail.
   b) What is Modulation? Explain the need of Modulation.

3. a) What is Boolean Algebra? Define some of the theorems of Boolean Algebra.
   b) Define duality and complementation of Boolean functions.

4. a) Explain Zener diode with its VI characteristics.
   b) Explain Bridge full wave rectifier with diagram and analysis.

5. a) Convert the following.
      i) $(10011101.11)_2$ to octal
      ii) $(3A9)_{16}$ to Decimal
      iii) $(42510)_{10}$ to Hexadecimal
   b) Find 1's and 2's compliment of
      i) 1010
      ii) 11001
      iii) 0001

6. a) Explain binary addition with appropriate example.

   b) Draw the logic symbol of NAND gate. Explain its operation and also write its truth table.

OR

   a) Describe difference analog and digital signal in detail.

   b) How analog signal can be converted in to a digital one? Describe.

7. Draw and explain Ex-OR gate. Why Ex-OR gate is called an ODD gate?

OR

   a) Explain signed numbers and floating numbers.

   b) Simplify the following logic operations.

      i) $\overline{A}B + AB + BC$

      ii) $(\overline{A} + B + \overline{B}A)D$

      iii) $A + \overline{A}B$

8. Write short notes on any two of the following.

   a) Classification of materials with their energy band

   b) Biasing of PN diode

   c) Clipping and Clamping Circuits

   d) Octal to Hexadecimal conversion and Vice Versa

   e) Frequency modulation

   f) Guided and Unguided propagation

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