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Roll No

EC-112-CBCS

B.E. I & II Semester

Examination, June 2020

Choice Based Credit System (CBCS)

Electronics - I

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, causal and non causal signals.
b) Draw and explain unit step and unit ramp and unit impulse functions.
2. a) What do you understand by Boolean function, truth table and timing diagram? explain.
b) Construct the following function using logic circuits
$$Y = \overline{AC} + ACD + EFG$$
3. a) Explain the operation of NOR gate draw the logic symbol and write the truth table for NOR gate.
b) Realize the following gates using minimum number of NAND gates
 - i) AND
 - ii) OR
4. a) Explain the working of a full wave rectifier with suitable diagrams. What are the disadvantages and advantages of full wave rectifier.
b) Convert the following:
 - i) $(10101.0101)_2$ into Octal
 - ii) $(7FD6)_{16}$ into Decimal
 - iii) $(11.75)_{10}$ into Binary

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5. a) Explain evaluation of Fourier coefficients of the trigonometric Fourier series.
b) State and prove the following properties of continuous time Fourier series.
 - i) Time Shifting property
 - ii) Time Differentiation property
6. a) Draw V-I characteristics of Zener diode and explain its operation.
b) Describe the working of PN Diode as Rectifier.

OR

With reference to semiconductor diode, explain the following terms:

- i) Depletion layer
 - ii) Breakdown voltage
 - iii) Peak inverse voltage
7. a) Find the complement of the functions:
 $F1 = x'yz' + x'y'z$ and
 $F2 = x(y'z' + yz)$.
b) What is a Clipper circuit? Take a suitable example and explain its application.

OR

- a) Explain the postulates and laws of Boolean Algebra.
 - b) State and prove De Morgan's theorem using two variables.
8. Write short notes on any two of the following:
 - a) Classification of signals
 - b) Biasing and operation of PN diode
 - c) Logic symbol, truth table and working of XOR gate
