



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 199129

Roll No.

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## B. Tech.

(SEM. I) (ODD SEM.) THEORY  
EXAMINATION, 2014-15

### ELECTRONICS ENGINEERING

Time : 3 Hours]

[Total Marks : 100

- 1 Attempt any four parts : 5×4=20
- a) Explain the V-I characteristics of PN-junction diode.
  - b) How zener diode acts as voltage regulator? Explain with suitable circuit.
  - c) Elucidate the operation of half wave rectifier in detail and derive the expression for ripple factor.
  - d) Draw a simple clipping circuit with suitable waveform and Explain types of clippers.
  - e) Illustrate how LCD is differs from LED.
  - f) Explain with suitable circuit that how diode acts as a voltage multiplier?
- 2 Attempt any two parts : 10×2=20
- a) Explain the operation of common collector configuration with suitable characteristics in detail.
  - b) Describe the VI characteristics of JFET with different operating regions in detail.
  - c) Explain the operation of voltage divider bias circuit and write down the approximate Equations of  $V_B$ ,  $I_E$ ,  $I_C$  and  $V_{CE}$ .

- 3** Attempt any two parts : **10×2=20**
- a) Analyse the differential amplifier with suitable circuit in two modes of operation.
  - b) Show that how input voltage is gets reversed using operational amplifier. And also derive the expression for voltage gain using inverting amplifier.
  - c) Describe in detail account on Integrator and Differentiator with suitable circuit.
- 4** Attempt any two parts : **10×2=20**
- a) Explain the functioning of a ramp type digital voltmeter.
  - b) Enumerate with a block diagram of various elements involved in Digital Multimeter to measure the various range of Voltage and Current.
  - c) Describe the construction and working of internal structure of CRT display.
- 5** Attempt any two parts : **10×2=20**
- a) Explain the functional elements of communication system in detail.
  - b) Define modulation. What is the need for modulation?
  - c)
    - i) A 400 watt carrier is modulated to a depth of 75 percent. Calculate the total power in the modulated wave.
    - ii) The tuned circuit of the oscillator in a simple AM transmitter employs a 50  $\mu\text{H}$  coil and 1-nF capacitor. If the oscillator output is modulated by audio frequencies up to 10 kHz, what is the frequency range occupied by the sidebands?
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