

ELECTRONICS ENGINEERING

Time : 3 Hours]

[Total Marks : 100

- 1 Attempt any four parts : $5 \times 4 = 20$
 - 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 : $10 \times 2 = 20$
 - 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_g , I_E , I_c and V_{CE} .
- 3 Attempt any two parts : $10 \times 2 = 20$
 - 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 : $10 \times 2 = 20$
 - 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 : $10 \times 2 = 20$
 - a) Explain the functional elements of communication system in detail.
 - b) Define modulation What is the need for modulation?
 - i) A 400 wait 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 μ 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?