UNIT - II

2 (a) Explain construction, characteristics and working principles of thermistor. 8

(b) Explain how zener diode maintains constant voltage across the load also draw the equivalent circuit of an ideal zener in the breakdown region. 8

OR

2 (a) Explain construction, characteristics and applications of unijunction transistor. 8

(b) Draw the circuit of phototransistor. Explain why the radiation is concentrated near with junction. 8

UNIT - III

3 (a) Explain thermal resistance and thermal stability of a power transistor circuit. What is the power dissipation condition to prevent thermal runaway. 8

(b) Draw the transfer characteristics of transistor and indicate the cut off, cut in, active and saturation region indicate the cut in active and saturation region. 8

OR

3 (a) Describe the various methods used for transistor biasing. State their advantages and disadvantages. 7

(b) Find the value of I_C for potential divider method if $V_{CC} = 9V$, $R_E = 1K\Omega$, $R_1 = 39K\Omega$, $R_2 = 10K\Omega$, $R_C = 2.7K\Omega$, $V_{BE} = 0.15V$ and $\beta = 90$. 4

(c) Derive relationship between α and β for a BJT. 5