Roll No.....

National Institute of Technology Delhi

Name of the Examination: Mid Semester October-2022 (B. Tech.)

Branch: EE & [redacted] CSE **Semester : III**

Course Name : Analog Electronics **Course Code : ECB- 206**

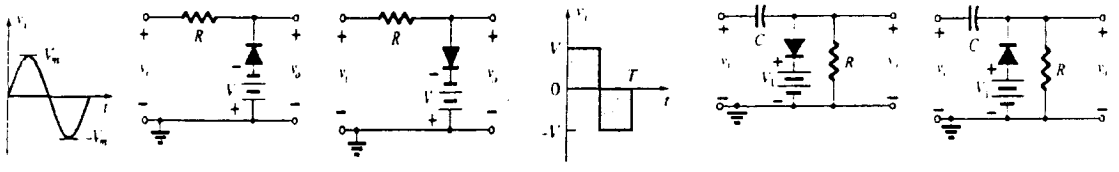
Time: 1:5 Hrs **Maximum Marks: 25**

Note:

- **All Questions are compulsory.**
- **Assume data where ever required.**

Q1) (a) What is a p-n junction. Draw and explain its performance in forward and reverse biased conditions.

(b) Draw the waveforms for clipping and clamper circuits for sinusoidal and square inputs respectively. (5)



Q2) Draw the circuit diagram, voltage waveform and discuss the operation of a full wave diode bridge rectifier. In a center tapped full wave rectifier the load resistance is 1 kΩ, AC voltage supplied to diodes is 300-0-300 (RMS). If diode resistance is 25Ω Determine the RMS current, average current, ripple factor and efficiency. (5)

Q3) (a) Draw the characteristics of Zener diode and explain Zener regulator. (5)

(b) Define DC load line and Q point.

Q4) Discuss transistor characteristics for CE configuration. Explain its behaviour in active and cut-off region. (5)

Q5) (a) Explain voltage divider biasing method of transistor.

(b) For the emitter bias configuration: R_B=1MΩ, R_C=2 kΩ, β=100, V_{CC}=10 V V_{BE}= 0.7 V and R_E=1kΩ. Find I_B, I_C, I_E and V_{CE}. (5)