

Roll No :

National Institute of Technology, Delhi

Name of the Examination: B. Tech.

Branch : EEE

Semester : III

Title of the Course : Analog Electronics

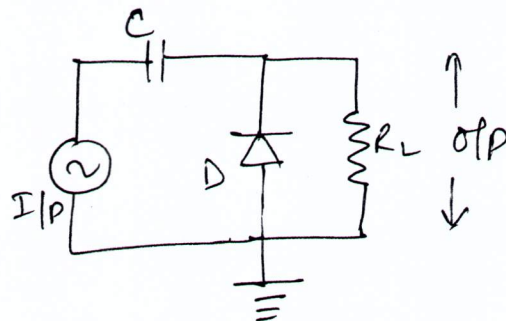
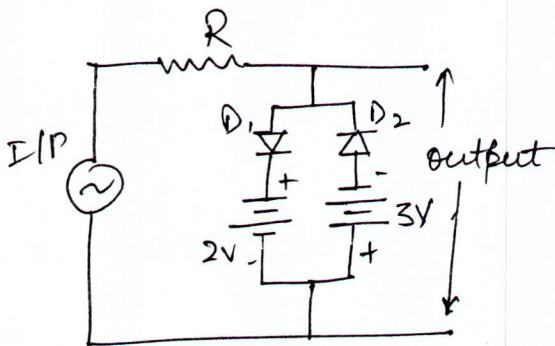
Course Code : ECB-206

Time: 2 Hours

Maximum Marks: 25

Note: Attempt ALL Questions. Each question carries equal marks.

- Q: 1 (a) Explain the working of Zener diode as voltage regulator. (2)
- (b) A half wave rectifier is used to supply 12 V dc to a resistive load of 500Ω . If the crystal diode has a forward resistance of 25Ω , determine the value of ac voltage supplied to the circuit. (3)
- Q: 2 In a fixed biasing circuit, a supply of $-6V$ and a load resistance of $1 k\Omega$ is used. Determine the value of base resistor R_B so that a germanium transistor with $\beta = 25$ and $I_{CBO} = 2\mu A$ draws a collector current of 2 mA. What will be the error if we neglect the leakage current and base emitter voltage? Also determine the value of I_C if the transistor parameters are changed to $\beta = 40$ and $I_{CBO} = 10\mu A$ due to rise in temperature. Comment on the results. (5)
- Q: 3 Show that the maximum rectification efficiency of a Full wave rectifier is 81.2% with the help of suitable circuit diagrams and waveforms. (5)
- Q: 4 Draw circuit diagram and output characteristic of a simple transistor in CE configuration and explain its principal of operation along with equation of DC load line. (5)
- Q: 5 (a) Why biasing is provided by biasing circuits and not by the batteries? (2)
- (b) Trace the output waveform for the given Clipper and Clamper circuit. (3)



*****All The Best*****