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 :

Section A

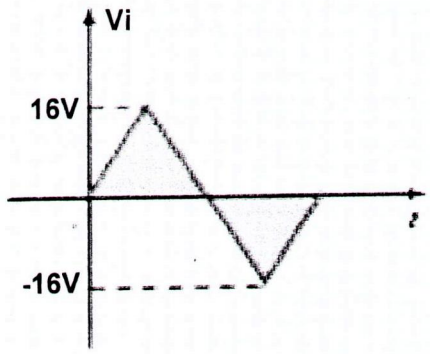
Attempt any two **4 × 2 = 8**

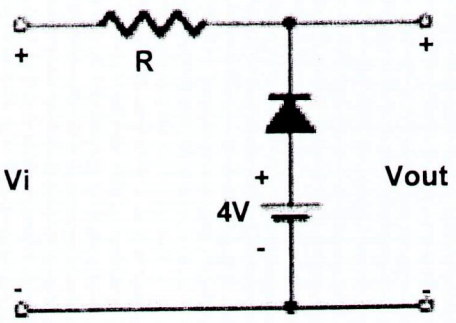
1) Discuss half wave and full wave voltage doubler circuit?
2) Explain construction and working of common emitter NPN transistor configuration?
3) Discuss full wave bridge rectifier?

Section B

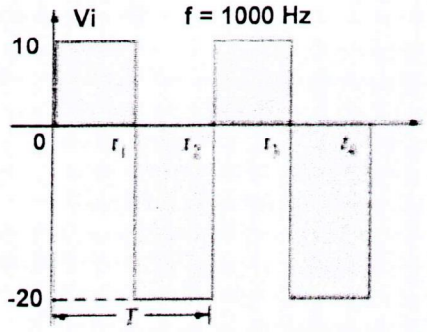
Attempt any two **4 × 2 = 8**

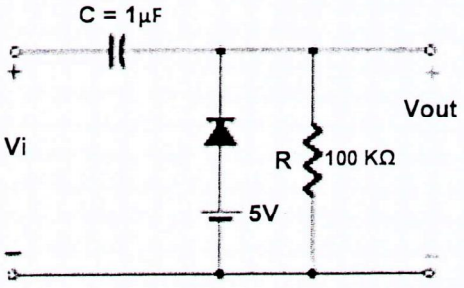
4) A transistor operating in CB configuration of I_c = 2.98 mA, I_E = 3 mA, and I_{co} = 0.01 mA. What current will flow in the collector circuit of this transistor when connected in CE configuration with a base current of 30 μA?
5) Determine Vout for the network?





6) Determine Vout for the network?



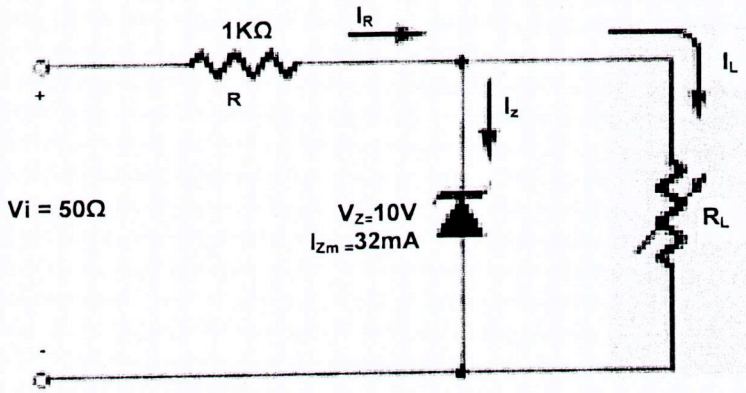


7) Explain the working of PN junction with its I-V characterstics.

Section c

Attempt any three **3 × 3 = 9**

8) The reverse leakage current of the transistor when connected in CB configuration is 0.2 μA and it is 18 μA when the same transistor is connected in CE configuration. Calculate α and β of the transistor?
9) Derive the relationship among α, β and γ? The transistor has I_E = 10 mA and α = 0.98. Determine the value of I_c and I_B ?
10) (a) For the network as shown in figure, determine the range of R_L and I_L that will result in VR_L being maintained at 10V.
(b) Determine the maximum wattage rating of the diode.



11) A10V regulated dc power supply has a regulation of 0.002. Find the magnitude of variation in o/p volt.