

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD-31
Department of Electronics and Communications Engineering
Subject: Introduction to Electronics Engineering (IEE)

ASSIGNMENT-I

Class: BE (CBCS), I Semester, CSE 'A'
2021-2022

Set 1: (1602-21-733-01 to10) and 1602-21-733-062

1. Bring out the necessity of semiconductor in Electronics Industry.
2. Distinguish between drift current and diffusion current of a diode. [CO1, PO1, BTL2]
3. Describe the action of PN junction diode under forward bias and reverse bias conditions. [CO1, PO1, BTL2]
4. A half wave rectifier has a load of $3.5K\Omega$. If the diode resistance and the secondary coil resistance together have a resistance of 800Ω and the input voltage has a signal voltage of peak value 240V, calculate:
 - i) peak, average and rms value of current
 - ii) d.c. power output
 - iii) a.c. power input
 - iv) efficiency and ripple factor of the rectifier [CO1, PO1, BTL3]
5. Mention the doping levels and widths of layers in BJT. [CO2, PO1, BTL1]

Set 2: (1602-21-733-11 to 20) and 1602-21-733-063

1. Mention the importance of silicon in Electronics field. What is the source of it?
2. Name the majority and minority charge carriers in both P and N type semiconductors. [CO1, PO1, BTL1]
3. Show that the PN junction diode works as full wave bridge rectifier, with input and output waveforms. [CO1, PO1, BTL2]
4. List the applications of diode. [CO1, PO1, BTL1]
5. Determine the values of I_C and I_E for the transistor circuit of $\beta = 200$ and $I_B = 0.125mA$. [CO2, PO1, BTL3]

Set 3: (1602-21-733-21 to 30) and 1602-21-733-064

1. What do you mean by doping in semiconductor? Write its necessity. [CO1, PO1, BTL1]
2. Draw the circuit diagram of centre tapped Full Wave Bridge Rectifier, explain its working. Derive expressions for Ripple Factor and Efficiency. [CO1, PO1, BTL1]
3. What is filter? Write its types. Explain working of capacitor input filter with waveforms. [CO1, PO1, BTL2]
4. A voltage of $200\cos(\omega t)$ is applied to HWR with load resistance of $5K\Omega$. Find
 - i) the maximum dc current component
 - ii) RMS current
 - iii) Ripple factor
 - iv) Rectifier efficiency. [CO1, PO1, BTL3]
5. Compare CB, CE and CC configurations of Transistor with respect to voltage gain, current gain and impedance. [CO2, PO1, BTL1]

Set 4: (1602-21-733-31 to 40) and 1602-21-733-065

1. Distinguish between intrinsic and extrinsic semiconductors. [CO1, PO1, BTL2]
2. Explain VI characteristics of PN junction diode. How do you find the static and dynamic resistance of the diode in forward and reverse bias conditions? [CO1, PO1, BTL2]
3. Compare rectifiers. [CO1, PO1, BTL1]
4. Bring out the necessity of filters in rectifiers. Mention their types and their corresponding expressions for ripple factor.
5. Explain the working of Zener diode as a voltage regulator. [CO1, PO1, BTL1]

Set 5: (1602-21-733-41 to 50) and 1602-21-733-066

1. Discuss the following with respect to semiconductors:
 - i) Doping ii) Dopants iii) Donors iv) Acceptors [CO1, PO1, BTL1]
2. A 230V, 60Hz voltage is applied to the primary of a 5:1 step down, centre tapped transformer used in a full wave rectifier having a load of 900Ω . If the diode resistance and secondary coil resistance together has a resistance of 100Ω , determine
 - i) dc voltage across the load
 - ii) dc current flowing through the load
 - iii) dc power delivered to the load
 - iv) PIV across each diode
 - v) rectification efficiency [CO1, PO1, BTL3]
3. Compare different types of filters. [CO1, PO1, BTL1]
4. What is BJT? How are its terminals named? [CO2, PO1, BTL1]
5. Define Alpha and Beta of a transistor. Derive the relation between them. [CO2, PO1, BTL2]

Set 6: (1602-21-733-51 to 61) and 1602-21-733-067

1. Discuss the necessity and types of electronic filters used at the output of rectifiers. [CO1, PO1, BTL1]
2. Explain the VI characteristics of PN junction diode. [CO1, PO1, BTL1]
3. How do you find the static and dynamic resistances of a diode? Explain with the help of a graph.
4. List applications of AC and DC separately.
5. Determine the values of I_C and I_E for the transistor circuit of $\beta=200$ and $I_B=0.125\text{ mA}$. [CO2, PO1, BTL2]