

UE25EC141A - Electronic Principles and Devices (4-0-0-4-4)
Session 2025-26
Assignment Questions

1.	Show that the ripple factor of a HWR is 1.21.
2.	Show that the ripple factor of a bridge rectifier is 0.48.
3.	A Bridge rectifier with ideal diodes has an ac source of RMS value 220 V, 50Hz connected to the primary of transformer. If the load resistance is 200Ω and turns ratio of transformer is 4:1, find the dc output voltage, dc output current and output frequency.
4.	A Bridge rectifier with Silicon diodes has an ac source of RMS value 220 V, 50Hz connected to the primary of transformer. If the load resistance is 200Ω and turns ratio of transformer is 4:1, find the dc output voltage, dc output current and output frequency.
5.	In a Two diode FWR using ideal diodes, the RMS voltage across each half of the transformer secondary is 100V. The load resistance is 975Ω and each diode has a forward resistance of 25Ω . Find (i) Average current (ii) Average output voltage (iii) PIV of diode.
6.	In a Two diode FWR using Silicon diodes, the RMS voltage across each half of the transformer secondary is 100V. The load resistance is 975Ω and each diode has a forward resistance of 25Ω . Find (i) Average current (ii) Average output voltage (iii) PIV of diode.
7.	A full wave bridge rectifier is constructed with Si diodes & source of $V_{rms} = 120V$ has a load resistor of $R_L = 1k\Omega$. Determine a) DC voltage available across R_L b) PIV rating of each diode c) find the maximum current through each diode during conduction d) what is the required power rating of each diode?
8.	A centre tapped full wave rectifier constructed with Ideal diodes has the secondary coil voltage of $V_{RMS} = 20V$ with the load resistor of $1.5k\Omega$. Determine a) I_m b) I_{dc} & c) V_{RMS} across R_L .
9.	A full wave bridge rectifier constructed with Ideal diodes has the secondary coil voltage of $V_{RMS} = 20V$ with the load resistor of $1.5k\Omega$. Determine a) I_m b) I_{dc} & c) V_{RMS} across R_L .
10.	A centre tapped full wave rectifier constructed with Si diodes has the secondary coil voltage of $V_{RMS} = 20V$ with the load resistor of $1.5k\Omega$. Determine a) I_m b) I_{dc} & c) V_{RMS} across R_L .
11.	A full wave bridge rectifier constructed with Si diodes has the secondary coil voltage of $V_{RMS} = 20V$ with the load resistor of $1.5k\Omega$. Determine a) I_m b) I_{dc} & c) V_{RMS} across R_L .

12. A diode whose internal resistance is 20Ω is to supply power to a $1K\Omega$ load from a 110 V source of supply.
Calculate (i) the peak load current
(ii) r.m.s load current
(iii) peak inverse voltage
(iv) output DC voltage.
Draw the circuit diagram with all the component values.