

# Diode as a Rectifier

## CLASS-XII

**SUBJECT : PHYSICS**

**CHAPTER NUMBER: 14**

**CHAPTER NAME : Semi conductor electronics: Materials, devices and simple circuits**

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**CHANGING YOUR TOMORROW**

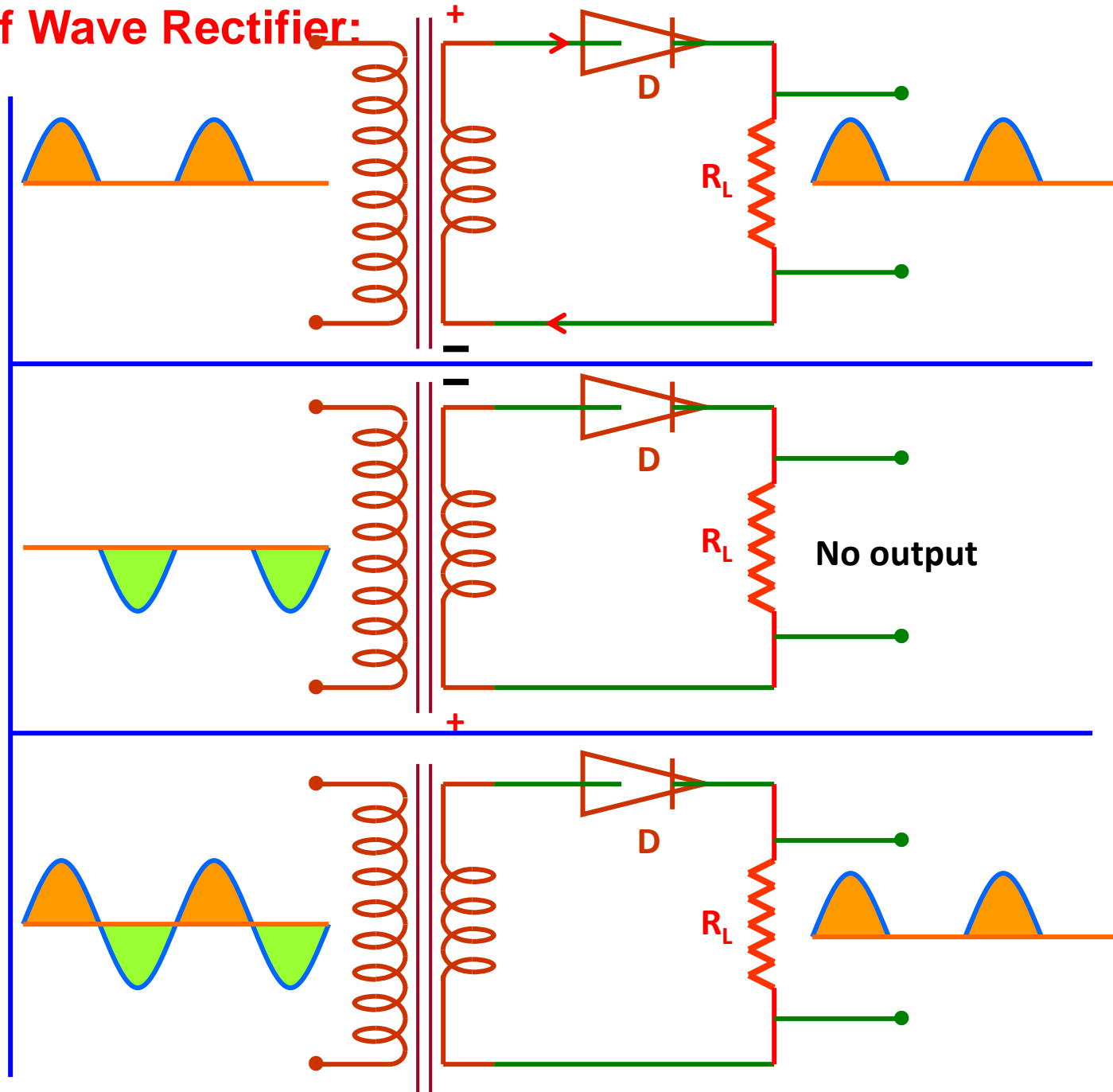
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# PN Junction Diode as a Half Wave Rectifier:

The process of converting alternating current into direct current is called 'rectification'.

The device used for rectification is called 'rectifier'.

The PN junction diode offers low resistance in forward bias and high resistance in reverse bias.

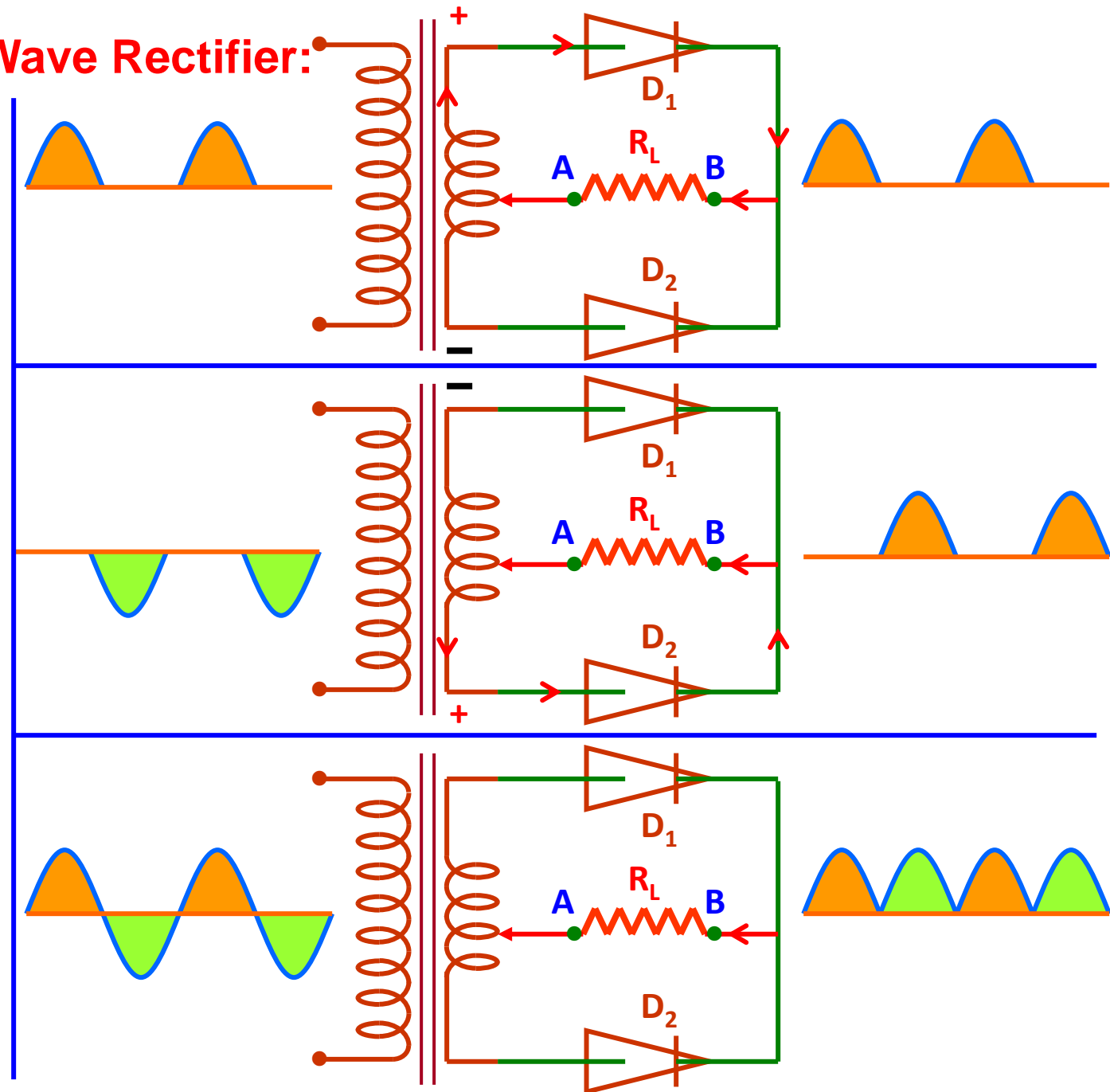


# PN Junction Diode as a Full Wave Rectifier:

When the diode rectifies whole of the AC wave, it is called 'full wave rectifier'.

During the positive half cycle of the input ac signal, the diode  $D_1$  conducts and current is through BA.

During the negative half cycle, the diode  $D_2$  conducts and current is through BA.



## NUMERICAL:

Suppose a pure Si crystal has  $5 \times 10^{28}$  atoms  $m^{-3}$ . It is doped by 1 ppm concentration of pentavalent As. Calculate the number of electrons and holes. Given that

$$n_i = 1.5 \times 10^{16} m^{-3}.$$

**THANKING YOU**  
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