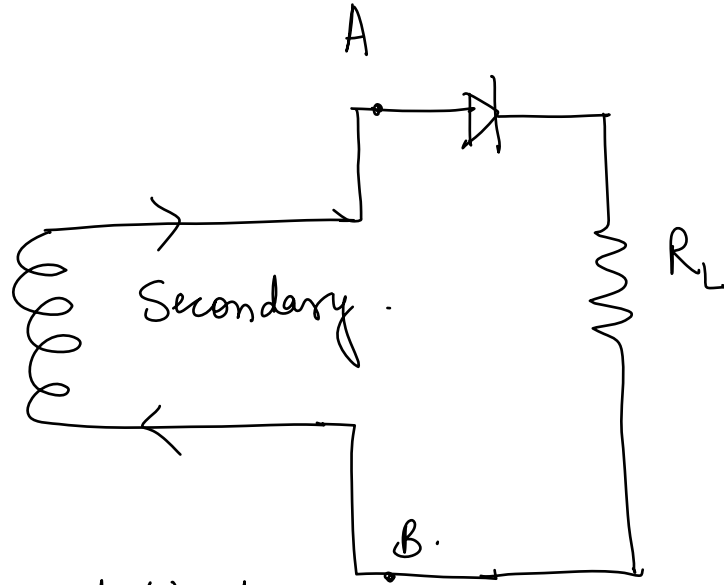
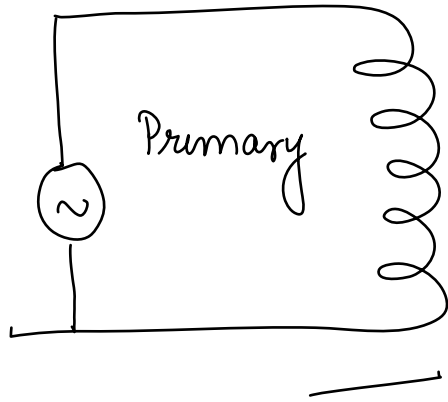


Rectifier:

Imp:



- Current only flows when diode is forward biased.
- This property of diode helps in rectifying alternating voltage and the circuit is used called rectifier.

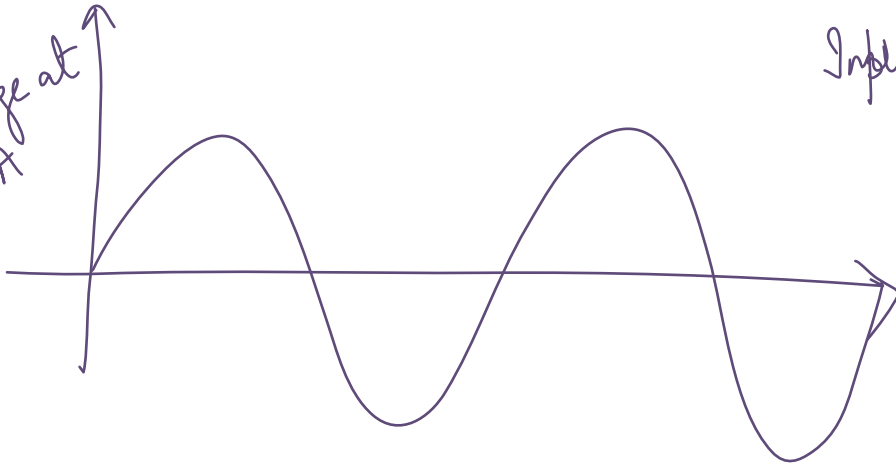
- If alternating voltage is applied across a diode in series with a load, a voltage (pulsating voltage) would appear across the load only during half cycles of the AC input when the diode is forward biased. Such rectifier is called half-wave rectifier.
- The secondary of transformer supplies the Alternating Current Voltage across terminals A and B. When the voltage at A is positive, the diode is forward biased and the current will flow through it.

- When A is negative, the diode is reverse-biased and it does not conduct.

The reverse saturation current of a diode is negligible and the current can be considered to be equal to zero.

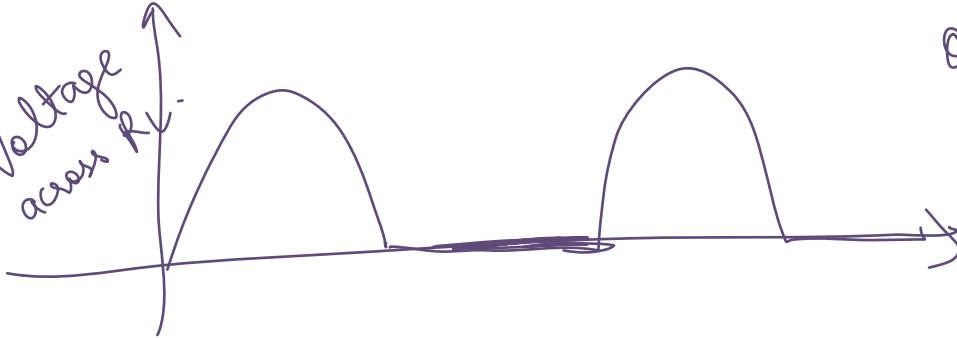
- So, only in the positive half cycle of alternating current, there is a current through the load resistance R_L and an output voltage is achieved, while in the negative half cycle, there is no current flowing.
As, the rectified output is only for the half of the input cycle, therefore it is called half wave rectifier.

Voltage at
A



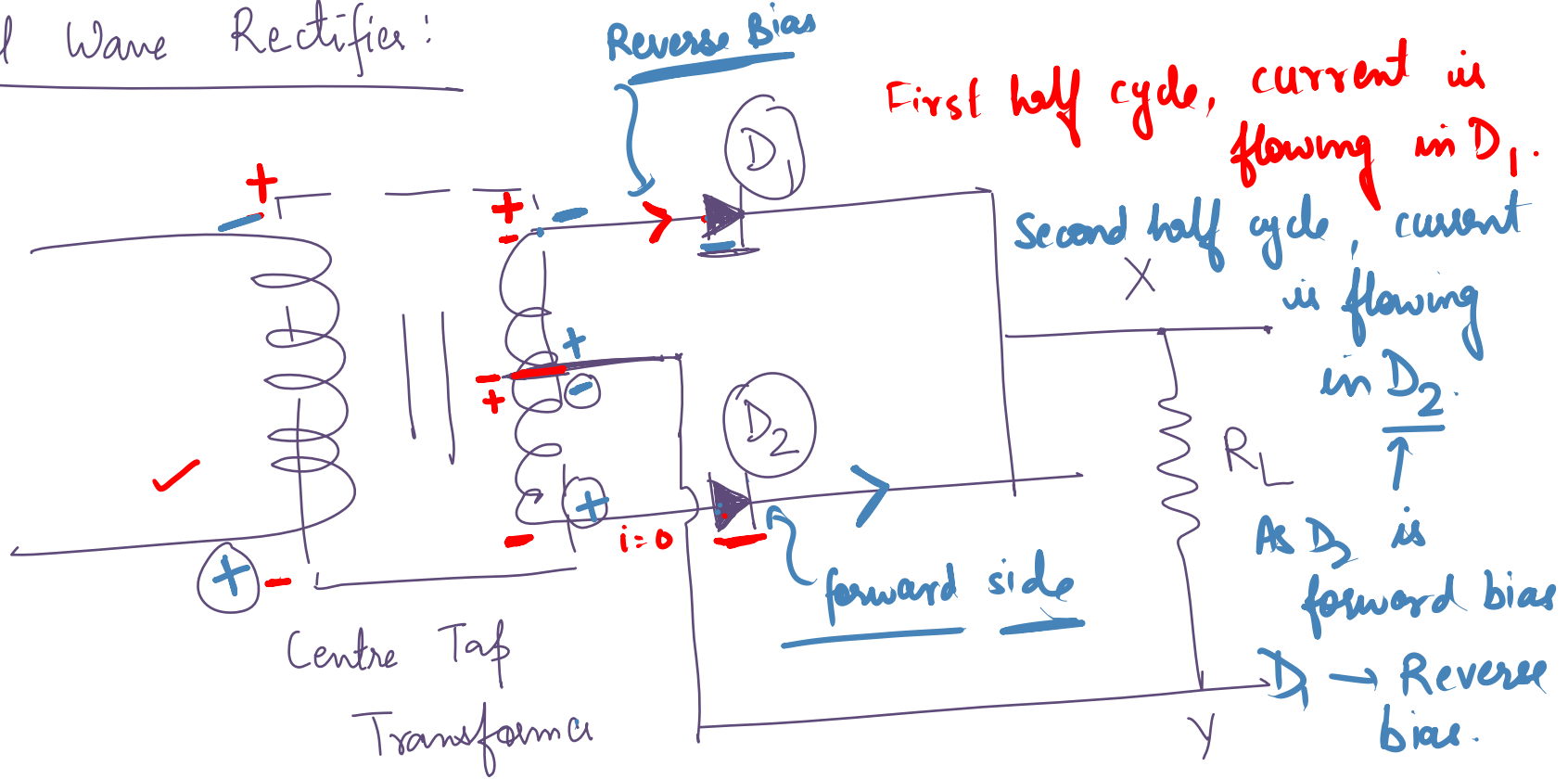
Input AC. ✓

Voltage
across RL



Output voltage ✓

Full Wave Rectifier:



• The circuit using two diodes gives output rectified voltage corresponding to both the positive as well as negative half cycle. Hence, it is called full wave rectifier.

• Here, in this case, the p-side of the ^{two} diodes two diodes are connected to the ends of the secondary of the transformer.

The n-side of the diodes are connected together and the output is taken between the common point of diodes and the centre of the secondary of the transformer.

- The secondary of the transformer is provided with a centre tapping and so it is called centre-tap transformer.
- Each diode rectifies only for half of the cycle but the two do so for alternate cycles.
- When the input voltage at A is positive with respect to the centre tap, voltage at B will be negative. So, diode D_1 will be forward biased and conducts - D_2 will be reverse biased. So, an output current will be obtained for the positive half cycle.

- Now, when A becomes negative with respect to the centre tap, the voltage at B would be positive. In this cycle, diode D_1 would not conduct but diode D_2 would give an output current & voltage across load resistance during the negative half cycle of the input alternating current. Thus, we get output voltage during both the positive as well as the negative half cycle.

