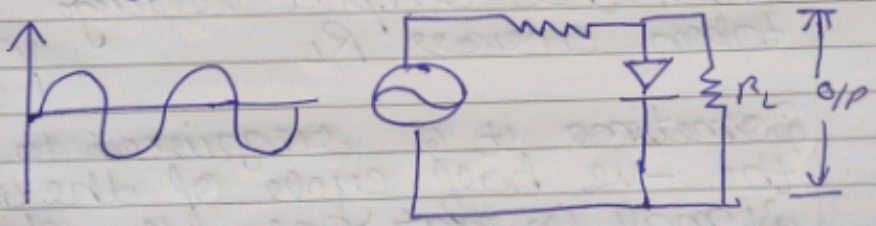
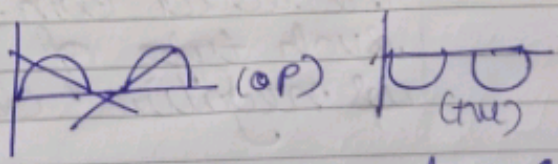
Clipper:

It is a circuit used to change the shape of an input voltage of an input wave by clipping or removing a portion of it & is called clipping ~~of~~ circuit. It is also known as clipper or limiter or slicer. A clipper has the ability to remove signals voltage above or below a specified level and hence change the wave shape of input signal.

Based on it they are of two types:
→ ~~Positive~~ Positive Clipper
→ Negative Clipper.



~~Positive Clipper~~:



Circuit which removes the half cycle of the signal (input voltage) is called positive clipper.

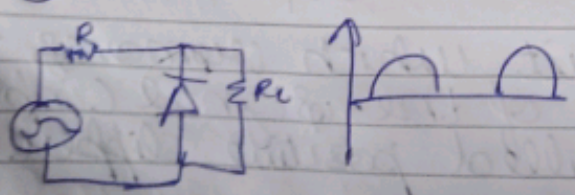
Working:

During +ve half cycle of input voltage the diode is forward biased and conducts heavily. it act as a closed switch and hence the voltage across the diode or the load is zero due to which +ve half cycle clipped off.

During negative half cycle the diode D is reversed biased and behave as an open switch than the current flows through R_L and R which are connected in series in this condⁿ the circuit behave as voltage divider while the output voltage is taken across R_L

(-ve) (OP)

Sometime it is required to remove the -ve half cycle of the input signal in that case the direction or the polarity of the diode across the load can be easily changed such type of clipper is known as negative clipper.



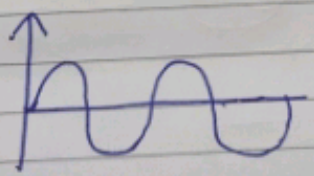
Clamper:

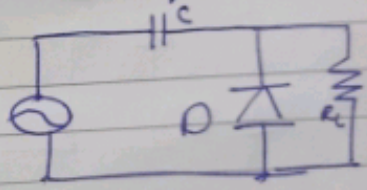
A circuit which shift either positive or negative peak of the signal at a desired DC level is known as a clamping circuit or clamper.

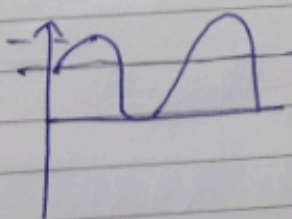
→ Positive Clamper
→ Negative Clamper

Positive Clamper:

A circuit which shift the signal in the positive side in such a way that the negative peak of the signal falls on the zero level is called +ve clamper.





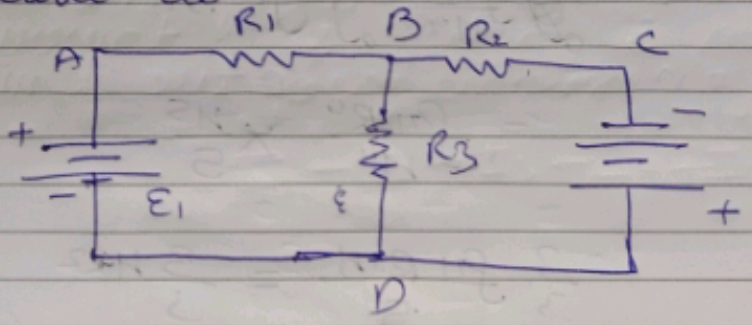


It is also known as level shifts/ amplification of signal.

DC Circuits

Network Analysis / Terms:

Active Element



Active Element → The element which supply energy to the circuit is called active element. E_1 & E_2 are active elements.

Passive Element → The Element which receives energy is called passive element. R_1, R_2, R_3 (Resistor, inductor and capacitor).

in figure 1 R_1, R_2 and R_3 are the passive elements.

Node: It is a point in the network where two or more circuits elements are joint

A, B, C & D.

Junction: It is a point in the network where 3 or more circuit elements are joined in fact it is a point where current is divided. B & D are the points.

Branch: The part of a network which lies between two junction point is called Branch. A & C.

Loop: The closed path of a network is called loop.
ABDA & BCD, ~~ABCD~~

Mesh: The most element are form of a loop which cannot be further divided is called mesh.

Kirchhoff's Law:

Kirchhoff's I^st Law / Current law:

This law relates the current flowing through the circuit. Kirchhoff's current law (KCL) this law states that the algebraic sum of whole the current meeting at a point or junction is zero.