Operational Amplifier :- (OP AMP)

OPAMP is general purpose linear integrated circuit. It was developed by Robert Widlar in 1964. It is a direct coupled, high gain, differential input amplifier.

The term operational signifies that various mathematical operations such as addition, subtraction, integration, differentiation can be performed by using op-amp.

It can be used in →
- waveform forming
- active filters
- oscillators
- A/D and D/A converters.

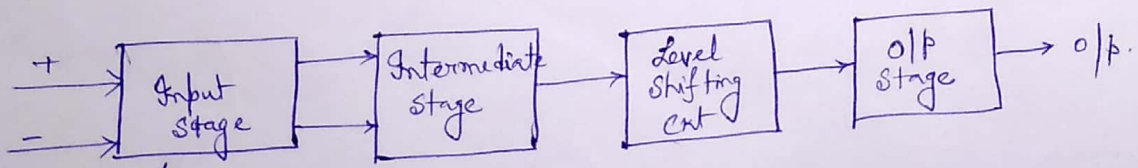
Advantages :-

→ Here -ve feedback is applied so performance of the op-amp with negative feedback is controlled by the feedback elements independent of the characteristics of the transistors and other elements that constitute of the ~~amp~~ op-amp.

→ Feedback elements are usually passive so ckt operation is very stable and predictable.

→ IC of ~~op~~ op-amp is inexpensive and have temperature stabilization.

Block diagram of OP-AMP :-



Dual input, balanced output diff. amp.
Provides most voltage gain & i/p resistance of op-amp.

(2) Dual i/p unbalanced o/p diff. amp.
It is driven by the o/p of the 1st stage.
It provide dc voltage well above ground level.

(3) Emitter follower ckt to shift dc level at the o/p of the intermediate stage downward to zero volt w.r to ground.

(4) Push pull complementary amplifier.
Increases o/p voltage swing, Current supplying capability of of - amp ↑
It provides low o/p resistance.