- (iv) A free-running multivibrator starts with -----? (a trigger/ an external circuit/ an input signal / nothing)
- If the comparator input is a sine wave, the output is _____ (rectangular wave // sine wave / sawtooth wave / ramp wave)
- (vi) In an Op-amp, negative feedback -(increases the Ri and Ro increases R and BW, decreases Ro and BW, does not affect impedance and BW)
- (vii) A level shifter is used in the internal circuit of the Op-amp (for adjustment of the DC voltage / to increase the internal impedance / to provide high gala / to decrease input resistance)
- (viii) In an op-amp the clipping level is determined by _____ (AC supply voltage / Control voltage / Reference voltage / Input voltage)
- (ix) The phase-locked loop tracks any change in input frequency in running state / Capture state / Phase locked state / All of the mentioned)
- The period during which in a sample and hold circuit, the voltage across capacitor is equal to Hold period / Delay period / Charging period)

GROUP B

Answer any SIX questions.

- of internal Draw the block diagram construction of op-amp, and explain the function of each block in detail.
 - What is CMRR? Find an expression for it. How can we improve the CMRR?

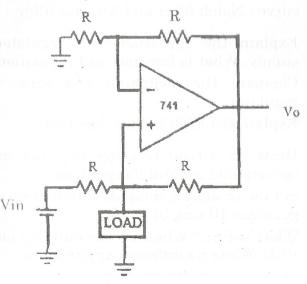
We inverting amplifier with $R_1 = 20 \text{ K}\Omega$, $V_1 = 3V$ drives a $2K\Omega$ load Assume $I_Q=0.5$ mA, find i_{CC} , i_{EE} and i_0 (ii) Find the power dissipated inside the fil in mappamp.

Implain the terms as applied to op-amp: Input offset voltage, Slew rate, PSRR.

What is a voltage follower? What are the advantages of a voltage follower circuit?

For an non inverting floating load V-I converter with $V_1 = 5 \text{ V}$, and $R = 10 \text{ K}\Omega$, with Lagrange $V_{\text{sat}}=\pm 13\,V$, and a resistive load R_L . For the circuit find the io the voltage compliance and the maximum permissible value of R_L. (5)

- (b) How offset voltage compensation can be done in III 001 practice?
- For a V-1 convener, Vin = 5 V, $R = 10 K\Omega$, V₁ = 1 V, find the load current and output Illian voltage Vo.



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