Exp. No. : Date :

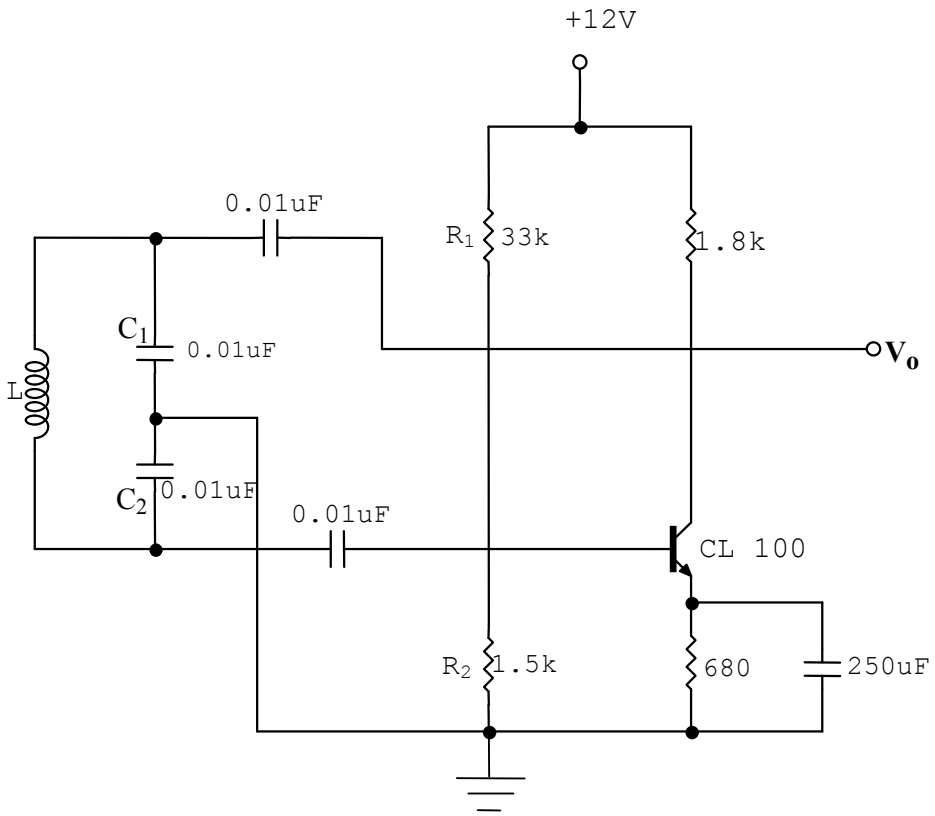
COLPITTS OSCILLATOR

AIM: To obtain the frequency of the Colpitts oscillator.

APPARATUS :

S.No.	Name of the Apparatus	Range	Quantity
1.	CL100	-	1No.
2.	Power Supply	0-30V	1No.
3.	Resistors (Ω)	33K, 1.8K &1.5K	Each 1No.
4.	Capacitor	0.01μF,	4No.
		250μF	1No.
5.	Inductor	Decade Inductance Box	1No.
6.	CRO	-	1No.

CIRCUIT DIAGRAM:



PROCEDURE:

1. Connect the circuit as shown in figure.

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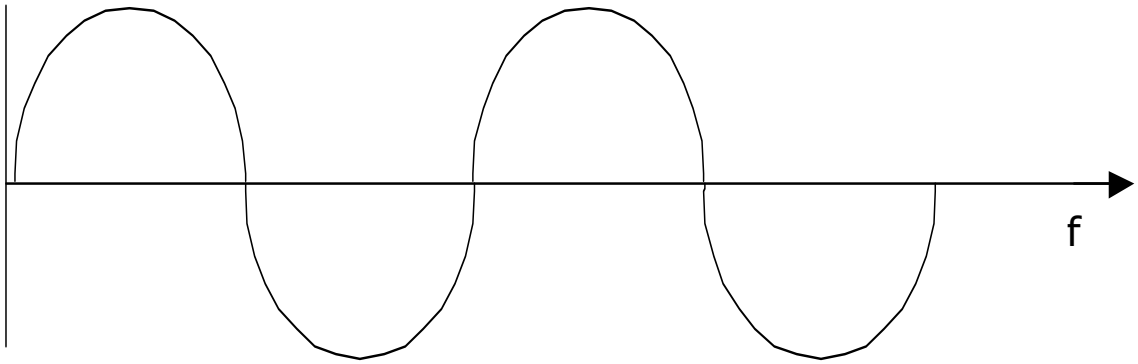
2. Set V_{CC}=12V.

3. For different values of capacitance (μF range) measure the frequency from CRO.

MODEL WAVE FORM:



CALCULATIONS:

Theoretical frequency $f_0 = \frac{1}{2\Pi\sqrt{L\,C_{eq}}}$ =

where $C_{eq} = \frac{1}{C_1} + \frac{1}{C_2} = \frac{C_1 C_2}{C_1 + C_2}$ =

Tabulation :

Inductance (L) (μH)	**Capacitance(C_{eq})** (μF)	**Time Period (T)** (mS)	**Practical Frequency** (KHz) **f = 1/T**	**Theoretical Frequency**(KHz) $f_0 = \frac{1}{2\Pi\sqrt{L\,C_{eq}}}$

RESULTS: