VOLTAGE REGULATOR USING IC 723

AIM: - To design and test the IC 723 voltage regulator.

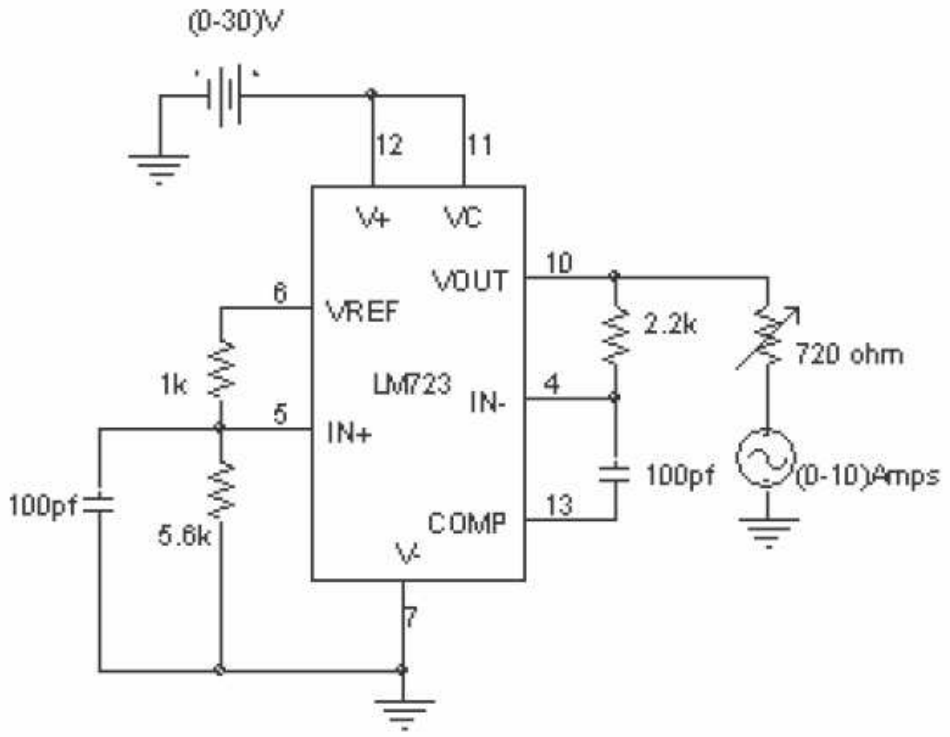
APPARATUS REQUIRED:-

IC 723, capacitors, resistor, power supply, CRO, function generator, multimeter, etc.

PROCEDURE: -

1. Connect the circuit as per the circuit diagram.
2. Switch on the power supply and note down the output from CRO.
3. Vary the input voltage from 7V, note down corresponding output voltage.
4. Draw the regulation charectistics.

CIRCUIT DIAGRAM: - (LOW VOLTAGE)



DESIGN:-

For LM723 $V_{ref} = 7.15V$

$$V_O = 7.15\left[\frac{R_2}{R_1 + 2}\right]$$

Let the devider current I_O through the resistor R_1 & R_2 is 1mA. Since error amplifier draws very little current, we will neglect its input bias current.

$$\text{Hence } R_1 = \frac{V_{ref} - V_O}{I_D} = \frac{7.15 - 6}{1\times10^{3}} = 1.1K\Omega$$

$$R_2 = \frac{V_O}{I_D} = \frac{6}{1\times10^{3}} = 6K\Omega$$

$$R_3 = \frac{R_1R_2}{R_1 + R_2} = \_\_\_\_\_$$

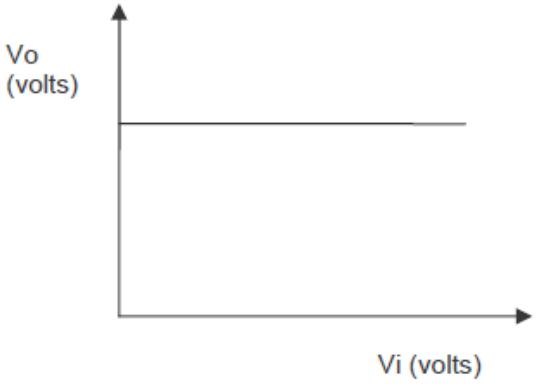
Assume $C_1 = 0.1\mu F$ & $C_2 = 100PF$

PROCEDURE:-

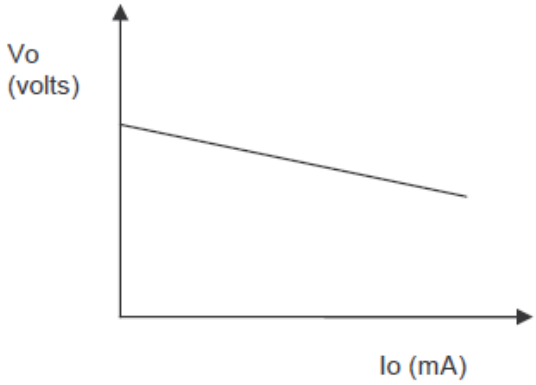
1. Connect the circuit as per the circuit diagram.
2. For line regulation vary the input voltage from 7V, note down the corresponding output voltage.
3. Draw the transfer characteristics.
4. For load regulation note down the output current.
5. Draw the transfer characteristics.

GRAPH:-

(i) Line Regulation



(ii) Load Regulation



OBSERVATION:-

(i) Line Regulation			(ii) Load Regulation	
Vi (volts)	Vo (volts)		Vi (volts)	Vo (volts)