



## VIVA - VOCE

**Q.1.** What is the aim of your experiment ?

**Ans.** To find the capacity of condenser using flashing and quenching of a Argon bulb.

**Q.2.** What is neon/ argon bulb ?

**Ans.** A neon/ argon bulb consists of a small glass bulb filled with neon / argon gas and fitted with two electrodes. The pressure of gas inside the bulb is of the order of  $10^{-3}$  mm of mercury.



**Q.3.** How argon/ neon bulb works?

**Ans.** If a D.C. source is connected between the two electrodes, stray electrons within the bulb are attracted towards the positive electrode. As the voltage is gradually increased the electrons get accelerated and at a particular value of applied voltage the accelerated electrons are fast enough to ionize the gas molecules by collision. At this voltage the lamp begins to conduct charge, which is indicated by glow of bulb, known as flash.

**Q.4.** What is flashing potential ?

**Ans.** The potential at which lamp start to conduct (and begins to glow) is called flashing (or striking) potential. For neon it is about 178 volt.

**Q.5.** What is quenching potential ?

**Ans.** The potential at which lamp stops to conduct (and ceases to glow) is called quenching (or extinction) potential. For neon it is about 130 volt.

**Q.6.** Why the bulb flashes and quenches ?

**Ans.** When a neon / argon bulb is connected across a capacitor and combination is placed across a source of D.C. supply through high resistance of the order of mega ohm, on increasing the voltage slowly the bulb begins to flash and glow when voltage become equal to striking potential ( $V_S$ ). As soon as the neon/ argon bulb flashes it begins to conduct charge through it and condenser is short circuited and begins to discharge. It continues to discharge until the voltage falls to extinction potential ( $V_S$ ) and bulb stops glowing/ conducting.

**Q.7.** What is flashing and quenching time ?

**Ans.** If  $t_1$  is the time taken by the voltage to fall from  $V_S$  to  $V_e$  and  $t_2$  is the time taken by the voltage to rise from  $V_e$  to  $V_S$  then  $(t_1 + t_2)$  is known as flashing and quenching time.

**Q.8.** Why high resistance is needed in series with the circuit ?

**Ans.** A high resistance is used in order to make flashing and quenching time appreciable. As  $t = RC$ , where  $C$  is capacitance in micro-farad, so  $R$  must be large.