(c) Describe the construction, principle of operation and application of a multistage Marx's Surge Generator.

3. Answer any **two** parts of the following : **(5×2=10)**

(a) Explain clearly the procedure for measurement of :

(i) impulse

(ii) a.c. high voltages, using sphere gap with neat sketches.

(b) Draw Chubb-Fortescue circuit for measurement of peak value of ac voltages and discuss its advantages over other methods.

(c) Discuss various methods of measuring high d.c. and a.c. currents.

4. Answer any **two** parts of the following : **(5×2=10)**

(a) Explain the various tests to be carried out on insulator and give brief account of each test.

(b) Explain the procedure for performing :

(i) IR test

(ii) Stability test and

(iii) Partial discharge test.

(c) What is non-destructive testing of insulating materials ? Explain briefly the characteristics of these methods.

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2495 **Roll No.**

B.Tech.

(SEM. VI) EVEN THEORY EXAMINATION 2012-13

HIGH VOLTAGE ENGINEERING

Time : 2 Hours *Total Marks : 50*

Note :– Attempt **all** questions.

1. Answer any **four** parts of the following : **(5×4=20)**

(a) Explain the mechanism of development of anode and cathode streamers and explain how these lead to breakdown.

(b) Explain clearly suspended particle mechanism of liquid breakdown.

(c) What are treeing and tracking ? Explain clearly two processes in solid dielectrics.

(d) Explain Penning effect when refered to gaseous discharges.

(e) Derive expressions for $(pd)_{min}$ and $V_{b\,min}$ in Paschen's law.

(f) Explain various mechanism of vacuum breakdown.

2. Answer any **two** parts of the following : **(5×2=10)**

(a) Derive an expression for the voltage output under load condition. Hence deduce the condition for optimum number of stages if a maximum value of output voltage is desired.

(b) Explain with neat diagram the basic principle of reactive power compensation in high voltage a.c. testing of insulating materials.