

[Time: 3 Hrs]

[Marks: 80]

Please check whether you have got the right question paper.

- N.B: (1) Question no: 1 is Compulsory.
(2) Solve any three questions out of remaining.
(3) Assume suitable data if required and Specify the same.

- Q. 1 Answer the following: - (20)**
a) What is thermal breakdown in solid dielectric and how it is practically more significant than other mechanism
b) Discuss different method of measuring high dc voltages
c) Explain impulse test on insulators
d) Explain with diagram different types of rectifier circuit for producing high dc voltages
- Q. 2** a) Discuss various factors which affect breakdown of gases. (10)
b) Discuss the basic philosophy associate with charge simulation method for evaluation of electric field distribution (10)
- Q. 3** a) What are Treeing and tracking? Explain clearly the two processes in solid dielectric (10)
b) A steady current of 600 micro amp flows though the plane electrode separated by a distance of 0.5 cm when a voltage of 10 kv is applied. Determined Townsend's first ionization coefficient if a current of 60 micro amp flows when the distance of separation is reduce to 0.1.cm and the fields is kept constant at the previous value (10)
- Q. 4** a) Give the application of gases and gas mixtures as insulating medium in High Voltage switch gear and High voltage power cables (10)
b) A cockcroft-walton type voltage multiplier as 8 stages with capacitance s, all equal to 0.05 Micro farad. The supply transformer secondary voltage is 125 KV at 150 Hz if the load current To be supplied is 5milli amp. Find percentage ripple, regulation and optimum number of stages For minimum regulation or voltage drop. (10)
- Q. 5** a) Explain different methods of high current measurement with relative merits and demerits (10)
b) Why is a cock-croft-walton circuit preferred for voltage multiplier circuit? Explain it working with schematic diagram. (10)
- Q. 6** a) Explain partial discharge test on high voltage cable (10)
b) Why grounding is very important in a hv lab? Describe typical grounding system (10)
