(3 Hours) **[Total Marks : 80]**

N.B : (1) Question **No 1 is compulsory.**
    (2)Attempt **any three** out of the remaining.
    (3)Assume **suitable data**, if necessary.

Q1 Attempt **any four**. (20)
    (a) Explain the Properties of SF6 gas as good gaseous dielectrics
    (b) What is primary ionization process.
    (c) What are testing transformers.
    (d) Explain the test done for insulation resistance.
    (e)Explain treeing phenomenon in solid dielectrics.

Q2(a) What do you mean by pure and commercial liquids? Explain the conduction and Breakdown in Pure liquids. (10)
    (b) A steady current of 400µamp flows through flat electrodes separated by distance of 5mm,when voltage of 10kv is applied. Determine first ionization coefficient if current of 50µA flows when distance of seperation reduces to 1mm and field is kept contant as previous. Find γ (10)

3 (a) What do you mean by term partial discharge. Derive the derivation for void cavity present in solid dielectrics. (10)
    (b) Explain with a neat diagram construction and working of
        Cockroff Walton voltage multiplier circuit. (10)

4 (a) Explain existence of uniform and nonuniform fields between two various shapes of electrodes. (10)
    (b)State the various methods of High voltage DC and HV AC. (10)

5 (a) Explain power frequency voltage withstand test for bushings. (10)
    (b) Explain corona discharge. (10)

6(a)State properties of good transformer oil. Explain with a neat diagram transformer oil test procedure. (10)
    (b)Write a note on "Earthing of HV Laboratory". (10)

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