BAPURAO DESHMUKH COLLEGE OF ENGINEERING,SEVAGRAM
DEPARTMENT OF ELECTRICAL ENGINEERING

Name of the Course: HIGH VOLTAGE ENGG **Course code: BEELE704T**
Semester: VII Sem (CBS) **Branch: Electrical Engineering**
Name of the Teacher: Prof. K. N. Sawalakhe **Academic Year: 2022-23**

ASSIGNMENT –I

Date of submission:10/10/2022

Q.1 Explain the factors which decides the dielectric strengths of transformer oil.

Q.2 What is Composite Dielectric ? Compare the effect of layer thickness and number of layers in composite dielectric.

Q.3 How does the internal discharge phenomena leads to breakdown in solid dielectrics?
A) What are the desirable properties of liquid dielectrics?
B) Explain the mechanism for vacuum breakdown.
C) Explain the classification of lightning stroke to their effect on power system.

Q.4 Explain the purpose of grounding wires, counter poise and ground rods in respect of lightning.

Q.5 What is the difference between surge absorber and surge diverter. Explain in brief the Ferranti surge absorber and metal oxide surge diverter?

Q.6 Explain the phenomenon of lightening in detail.

Q.7 A solid dielectric specimen of dielectric constant 4 has internal void of a thickness 1mm. The specimen is 1cm thick and it is subjected to voltage of 100 KV peak value. If the void is billed with air.
i) Find whether an internal discharge can occur
ii) If Yes Find the voltage at which internal discharge start
iii) In order to avoid the internal discharge what would be the maximum operating voltage.

Q.8 What is Pachen's law justify the existence of two values of [pxd] corresponding to the same breakdown voltage in Pachen's curve.
I)Determine [pxd] minimum and V_b minimum for Pachen's law
if constant for air are A = 15, B = 425 and r = 0.015 .
II) Determine (p×d) min and Vbmin for Paschen's Law
if constants for air are A = 12, B = 365 and r = 0.02.

Course outcome covered:
CO.1:The students get the knowledge about breakdown mechanism in solid, liquid and gaseous insulation along with related theories.
CO.2:The students get the knowledge about lightning and switching over voltage phenomenon in power system and their protection.

Correlation with CO's

Que. No.	1	2	3	4	5	6	7	8
CO1	x	x	x				x	x
CO2				x	x	x		