(DEE 422)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICAL & ELECTRONICS ENGINEERING

Paper – II : High Voltage Engineering

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15 x 1 = 15)***

Answer ONE question from each unit ***(4 x 15 = 60)***

1) a) Causes of Transient over voltages.

b) Define the front time of impulse wave.

c) Define Regulation (or) voltage drop on load.

d) Write equation of lightning over voltage wave?

e) Write range of charging Resistors in Multistage Impulse generator?

f) Write purpose of voltage Dividers?

g) Write purpose of capacitance voltage Transformers?

h) Causes for Impulse voltages.

i) Write factors influencing the spark over voltages of sphere gap?

j) Write effect of irradiation?

k) Define Impulse voltages.

l) Define withstand voltage.

m) Define creepage distance?

n) Write about flash over voltage?

o) Write purpose of Impulse Flash over Test.

Unit - I

2) a) Explain with diagrams, different types of rectifier circuits for producing high d.c voltages.

b) A clock croft Walton type voltage multiplies has eight stages with capacitances, all equal to 0.05μF. The supply Transformer secondary voltage is 125 kv at a frequency of 150 Hz. If the load current to be supplied in 5MA,

Find i) The percentage ripple
ii) The regulation
iii) The optimum number of stages for minimum regulation (or) voltage drop.

OR

3) a) What is the principle of operation of resonant transformer?

b) How is resonant transformer advantageous over the cascade connected transformers?

Unit – II

4) a) What is capacitance voltage transformer? Explain with phasor diagrams how a tuned capacitance voltage transformer can be used for voltage measurements in power systems?

b) What is a mixed potential Divider.

OR

5) a) Give the schematic arrangement of an impulse potential divider with an oscilloscope. Connected for measuring impulse voltages. Explain the arrangement used to minimize errors?

b) What are merits and demerits for high voltage a.c measurements?

Unit – III

6) a) Explain the method of impulse testing of high voltage transformers. What is the procedure adopted for locating the failure?

b) What is significance of impulse test?

OR

7) a) Mention the different electrical tests done on isolators and circuit Breakers?

b) What is the significance of partial discharge tests of Bushings?

Unit – IV

8) a) Explain charge simulation method for electrical field computation?

b) Explain finite difference method for electrical field computation?

OR

9) a) Explain charges Bondary element method for electrical field computation?

b) Explain finite element method for electrical field computation?

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