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SUBJECT CODE-19
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (EE/EEP) Examination Nov/Dec 2015
High Voltage Engineering
(Revised)

[Time: Three Hours] **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

N.B i) Q.No.1 and Q.No.6 are compulsory.
ii) Attempt any two questions from the remaining questions of each section.
iii) Assume suitable data wherever necessary.

SECTION-A

Q1. Solve any five. 10
i) Define electric field intensity.
ii) What is the principle of charge simulation method?
iii) State the application of insulating material in rotating machine.
iv) What is the time lag in break-down of dielectrics?
v) What is treeing and tracking.
vi) State intrinsic breakdown
vii) Draw the circuit diagram of simple voltage doubler.
viii) Define front time and fail time.

Q.2 A Explain the procedure to control electric field intensity in HV equipment. 07
B What is "finite element method"? Give the outline of this method for solving the field problems. 08

Q.3 A Explain various theories of breakdown mechanism of commercial liquid dielectrics 08
B State and explain paschen's law how do you account for the minimum voltage breakdown under a given 'p.d' condition. 07

Q.4 A Explain with neat sketches, cockroft Walton voltage multiplier circuit explain clearly its operation when circuit is i) Loaded ii) Unloaded 08
B Draw a neat exact equivalent circuit of impulse generator and indicate the significance of each parameter being used. 07

Q.5 (Solve any three) short notes. 15
a) Townsend's criteria of breakdown in gases
b) Estimation and control of electric stress.
c) Electrostatic generator
d) Application of insulating material in bushing

SECTION-B

Q.6 Solve any five. 10

a) Why capacitive voltage dividers used for AC high voltage measurement.

b) Draw the circuit diagram of capacitance potential divider.

c) What are the general methods used for measurement of high frequency and impulse current?

d) What are different methods for lightening protection of overhead line?

e) Define insulation co-ordination.

f) What is significance of impulse test?

g) What is loss factor?

h) Define creepage distance

Q.7 A Explain methods for protection against lightening over voltage. 07

B Explain various aspects of insulation design and insulation co-ordination adopted for EHV system. 08

Q.8 A Discuss the different methods of measuring high d.c voltages. What are the limitations of each method? 08

B Draw a neat schematic diagram of electrostatic voltmeter and explain its principle of operation also write its advantages. 07

Q.9 A Explain various testing methods of insulators and bushing. 07

B State and explain dielectric constant and loss factor. 08

Q.10 Write short notes (<u>any three</u>) 15

a) Partial discharge measurement

b) Natural cause of over voltage

c) CRO measurement

d) Testing of cables