

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’ 07
 condition.
- Q.4 A Explain with neat sketches, cockroft Walton voltage multiplier circuit explain clearly its operation when 08
 circuit is i) Loaded ii) Unloaded
 B Draw a neat exact equivalent circuit of impulse generator and indicate the significance of each parameter 07
 being used.
- 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 07 advantages.
- 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 (any three) 15
- a) Partial discharge measurement
 - b) Natural cause of over voltage
 - c) CRO measurement
 - d) Testing of cables