

**K 1202**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2004.

Seventh Semester

Electrical and Electronics Engineering

EE 433 — HIGH VOLTAGE ENGINEERING

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the causes of power frequency over voltages?
2. What is insulation co-ordination?
3. Define Gas law.
4. What is Paschen's law?
5. Give some uses of HVDC?
6. What are the applications of impulse current wave forms of high magnitude?
7. What are the general methods used for measurement of high frequency and impulse currents?
8. What are the high voltage d.c. measurement techniques used?
9. What are the tests conducted on insulators?
10. What are the tests conducted on Bushings?

PART B — (5 × 16 = 80 marks)

11. (i) What are the tests conducted on circuit breakers and isolator switches? Explain about any one of the tests. (8)
- (ii) What are the different tests conducted on cables? Explain any one of them. (8)

12. (a) What are the different methods employed for lightning protection of overhead lines. (16)

Or

- (b) Explain the characteristics of switching surges with typical wave shapes clearly. (16)

13. (a) Explain clearly breakdown in non-uniform fields and corona discharges. (16)

Or

- (b) Classify the various breakdown mechanisms occurring on solid dielectrics and explain them briefly. (16)

14. (a) What are the different forms of high voltages classified? Explain any one method of voltage multiplier circuits. (16)

Or

- (b) Draw and explain the circuits for producing impulse waves. (16)

15. (a) Tabulate the high voltage and high current measurement techniques for different types of voltages and currents. (16)

Or

- (b) Explain sphere gap for measurement of high voltage with diagrams. (16)