Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 70484

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electrical and Electronics Engineering

EE 6701 – HIGH VOLTAGE ENGINEERING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Name the sources of switching surges.
2. What is the use of protective device?
3. What is ionization by collision?
4. Define Gas law.
5. What is a tesla coil?
6. What is cascaded transformer?
7. Mention the applications of CVT.
8. List the disadvantages of series resistance micro ammeter method.
9. What is the difference between type and routine test?
10. State the importance of insulation coordination in power system.

PART B — ($5 \times 13 = 65$ marks)

11. (a) (i) Explain the mechanism of lightning stroke. (8)

(ii) Give the mathematical model for lightning discharges and explain them. (5)

Or

(b) Explain the different methods employed for lightning protection of overhead lines. (13)

12. (a) Explain the breakdown mechanism involving in solid dielectrics breakdown. (13)

Or

(b) (i) Explain the Townsends criterion for a spark. (7)

(ii) List out the problems caused by corona discharges. (6)

13. (a) Explain the different schemes for cascade connection of transformers for producing very high a.c. voltages. (13)

Or

(b) Describe with a neat sketch the working of a Vande Graff generator. What are the factors that limit the maximum voltage obtained? (13)

14. (a) Explain the operation of electrostatic voltmeter with neat sketch.

Or

(b) Explain the factors affecting the measurement of high voltage through sphere gap arrangement.

15. (a) Explain in detail the power frequency and impulse voltage test need to be conducted on bushings with necessary diagrams.

Or

(b) Discuss in detail the dielectric power factor test and partial discharge test procedures for high voltage cables.

PART C — (1 × 15 = 15 marks)

16. (a) Explain the method of determining primary and secondary ionization coefficients with experimental setup.

Or

(b) Draw and explain the modified Marx impulse generator from the basic impulse circuit.

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