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Name..

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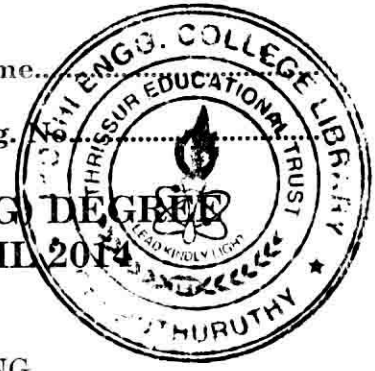
**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE
[SUPPLEMENTARY] EXAMINATION, APRIL 2014**

(2009 Scheme)

EE/PTEE 09 706 L13 – HIGH VOLTAGE ENGINEERING

Time : Three Hours

Maximum : 70 Marks



Part A

Answer all questions.

1. Explain the time lags for breakdown in gases with the help of a graph.
2. What are the properties preferred for gaseous dielectrics for high voltage applications? Give one example.
3. What is the difference between voltage doubler and voltage multiplier circuit?
4. Write a short note on Park's shunt.
5. What is RIV and RI? What are the advantages of measuring RIV?

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. What is stressed oil volume theory? How does it explain the breakdown in commercial liquid dielectrics and how it is differ from other mechanisms of breakdown in liquid dielectrics?
7. How the internal discharge phenomenon leads to breakdown in solid dielectrics?
8. Define the front and tail time of an impulse wave. What are the specifications of impulse voltage waves and impulse current waves as per Indian standards?
9. With a neat sketch explain the method of measurement of high voltage a.c. using series capacitance voltmeter. What are the advantages of series capacitance voltmeter over series resistance voltmeter?
10. What is a capacitive voltage transformer? Explain how it is used for the measurement of high voltage a.c.
11. Explain the various causes of power frequency over-voltages in EHV system.

(4 × 5 = 20 marks)

Turn over

Part C

Answer all questions.

12. Explain the streamer theory of breakdown in gases and how it overcome the drawbacks Townsends mechanism.

Or

13. What are electro negative gases ? Why is the breakdown strength higher in these gases compared to other gases ? Explain with suitable examples.

14. What are the different methods used for generating high d.c. voltages ? Explain each with neat diagram.

Or

15. With neat schematic, explain different arrangements for multistage impulse generators. Explain each components.

16. Explain the constructional details and assembly of a sphere gap. Explain the factors influencing the spark overvoltage of sphere gaps.

Or

17. What are the different methods available for measurement of high current d.c. ? Explain each method with their merits and demerits.

18. What are the different electrical tests conducted on underground cables ? Explain each with neat schematic.

Or

19. What do you mean by insulation co-ordination ? How are the protective devices chosen for optimal insulation level in power system ?

(4 × 10 = 40 marks)