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Roll No.

Total Pages : 3

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Dec. 2021

**B.Tech. (EL) - VII SEMESTER
High Voltage Engineering (ELPE-714)**

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) Enlist various methods of conduction and breakdown in solid dielectrics. (1)
(b) What do you understand by Photo ionization? (1)
(c) What are the various methods of generation of high voltage DC in EHV labs? (1)
(d) Write the properties of liquid dielectrics. (1)
(e) Enumerate various causes of Corona in transmission line. (1)

- (f) Differentiate between pure liquids and commercial liquids. (1)
- (g) What is the function of Surge Diverter? (1)
- (h) Enlist different methods to measure the high direct currents. (1)
- (i) Write the safety precautions should be followed in H.V. labs. (1)
- (j) Give the classification of tests performed on cables. (1)

PART - B

- 2. (a) Explain the Townsend's theory of ionization of gas dielectric using suitable diagram. Write the Townsend's current growth equation. (2.5)
- (b) Describe the streamer theory of breakdown in gases by mentioning the limitations of Townsend's theory. (2.5)
- 3. Explain with suitable diagram, how cascade connection of transformers is used for generation of high alternating voltage. (5)
- 4. (a) Explain the process of Electromechanical breakdown in solid dielectric. (2.5)

- (b) Discuss any *one* method of conduction and breakdown in liquid dielectric. (2.5)

- 5. (a) Describe the working of Cathode ray oscillographs for impulse voltage and current measurements. (2.5)
- (b) Explain the method of Impulse testing of transformers. (2.5)
- 6. Explain the complete mechanism of lightning stroke, by explaining the charge formation in clouds. Draw appropriate diagram and distinguish between Stepped leader and Dart leader. (5)
