

www.rgpvonline.com

EE-7201**B.E. VII Semester**

Examination, December 2016

High Voltage Engineering*Time : Three Hours**Maximum Marks : 70*

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
 ii) All parts of each question are to be attempted at one place.
 iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
 iv) Except numericals, Derivation, Design and Drawing etc.

Unit-I

www.rgpvonline.com

1. a) What is ionization processes?
 b) What is collision processes?
 c) Describe the current growth phenomenon in a gas subjected to uniform electric fields.
 d) Explain the experimental set-up for measurement of pre-breakdown current in a gas.

OR

Explain the streamer theory of breakdown in air at atmospheric pressure.

Unit-II

www.rgpvonline.com

2. a) Classify the liquid dielectrics.
 b) Explain electrical properties of liquid dielectrics.
 c) What are commercial liquid dielectrics, and how are they different from pure liquid dielectrics?
 d) Explain the phenomena of electrical conduction in liquids. How does it differ from that in gases?

OR

Explain the various theories that explain breakdown in commercial liquid dielectrics.

Unit-III

3. a) What is the use of Tesla coil?
 b) Draw the Cascade transformer connection.
 c) What is a trigatron gap? Explain its functions.
 d) Explain one method of controlled tripping of impulse generators. Why is controlled tripping necessary?

OR

Describe with a neat sketch, the working of a Van de Graff generator. What are the factors that limit the maximum voltage obtained?

Unit-IV

4. a) What is high voltage measurement techniques?
 b) What is sphere gap?
 c) Discuss the applications of CRO for high voltage measurement.
 d) Explain the principle and construction of an electrostatic voltmeter for very high voltages. What are its merits and demerits for high voltage a.c. measurements?

OR

What is a mixed potential divider? How is it used for impulse voltage measurement?

Unit-V

5. a) What are the different power frequency tests done on insulators?
 b) Explain the terms:
 i) Withstand voltage.
 ii) Flashover voltage.
 c) What is the significance of impulse tests? Explain the impulse testing of insulators.
 d) Explain the partial discharge tests on high voltage cables. How is a fault in the insulation located in their test?

OR

What is meant by insulation co-ordination? How are the protective devices chosen for optimal insulation level in power system?