Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

EX-7201 (GS)

B.E. VII Semester

Examination, December 2017

Grading System (GS)

High Voltage Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Total number of questions are eight.
ii) Attempt any five questions.
iii) All questions carry equal marks.

1. a) Briefly explain the advantages of transmitting electrical power at high voltages. 7
   b) Define Townsend's first and second ionization coefficients. How is the condition for breakdown obtained in a Townsend discharge? 7

2. a) Explain the streamer theory of breakdown in air at atmospheric pressure. 7
   b) What is Paschen's law? How do you account for the minimum voltage for breakdown under a given 'p×d' condition? 7

3. a) Explain the phenomena of electrical conduction in liquids. How does it differ from that in gases? 7
   b) Why is it preferable to use isolating transformers for excitation? With cascade transformer units, if the power requirement is large. 7

4. a) Why is a Cockcroft-Walton circuit preferred for voltage multiplier circuits? Explain its working with a schematic diagram. 7
   b) What is a Tesla Coil? How are damped high frequency oscillations obtained from a Tesla Coil? 7

5. a) Discuss the different methods of measuring of high d.c. voltages. What are the limitations in each methods? 7
   b) 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? 7

6. a) What is a mixed potential divider? How is it used for impulse voltage measurements? 7
   b) What is the significance of impulse tests? Briefly explain the impulse testing of insulators. 7

7. a) Explain the partial discharge tests on high voltage cables. How is a fault in the insulation located in this test? 7
   b) Explain the method of impulse testing of high voltage transformers. What is the procedure adopted for locating the failure? 7

8. Write a short notes on any two of the following: 7 each
   a) Surge current
   b) Tests on isolators
   c) Introduction to HV technology.

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