

B.E. Seventh Semester (Electrical & Electronics Engineering) (CGS)  
**10405 : Elective - I : High Voltage Engineering : 7 EX 05**

P. Pages : 2

Time : Three Hours



**AU - 2916**

Max. Marks : 80

- Notes : 1. Due credit will be given to neatness and adequate dimensions.  
2. Use of pen Blue/Black ink/refill only for writing the answer book.

1. a) Explain Townsend's criterion for spark. 7  
b) Explain the difference between photoionization & photoelectric emission. 7

**OR**

2. a) Explain streamer theory of breakdown in air at atmospheric pressure. 7  
b) Explain the properties of important HV insulating media. 7  
3. a) How do the temperature and moisture affect the breakdown strength of solid dielectric. 7  
b) What is a composite dielectric and what are its properties. 6

**OR**

4. a) Explain the breakdown due to internal voids in solid insulating material. 7  
b) What are the pure liquid dielectrics and how are commercial liquid dielectric different from them. 6  
5. a) Explain the principle and function of lightning arrestor and Rod gaps. 6  
b) Explain the effect of lightning stroke on the top of transmission line tower. 7

**OR**

6. a) Explain the insulation coordination and advantages of ground wires in lightning protection of overhead lines. 7  
b) Describe about protection devices used for overhead line, against lightning stroke. 6  
7. a) Explain with neat circuits for producing switching surge voltages. 7  
b) Explain generation of impulse voltage. 6

**OR**

8. a) Explain with neat sketch generation of high impulse current. 7  
b) What is cascaded transformer? Explain why cascading is done. 6

9. a) Explain with neat sketch, how partial discharge measurement done ? 7  
b) Explain measurement of high voltage using sphere gap. 6

OR

10. a) Explain measurement of high capacitance using schering bridge. 7  
b) State the methods of measurement of high voltage, explain any one in short. 6
11. a) Explain high voltage testing of bushing. 7  
b) Explain : 7  
i) Disruptive discharge voltage  
ii) Withstand voltage  
iii) 50% flashover voltage w.r.t. testing.

OR

12. a) Explain electric shock & threshold current in connection to EHV lines. 7  
b) What are the significant of power factor test & partial discharge test on bushing? 7

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