

Total No. of Questions : 6]

SEAT No. :

**P34**

[Total No. of Pages : 2

**APR-17/B.E./Insem. - 38**  
**B.E. (Electrical) (Semester - II)**  
**HIGH VOLTAGE ENGINEERING**  
**(2012 Pattern) (Elective - III (a))**

*Time :1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Use of non programmable calculator is allowed.*
- 2) *Solve Q1 or Q2, Q3 or Q4, Q5 or Q6.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data, if necessary*

**Q1) a)** What is Ionization? How does it take place? Explain ionization by collision. [6]

b) Discuss the various factors which affect the breakdown of gases. [4]

OR

**Q2) a)** Explain the “Streamer theory” of breakdown in air at atmospheric pressure. [6]

b) Derive Townsend’s criterion for breakdown? [4]

**Q3) a)** Explain suspended particle theory in case of liquid dielectrics. [6]

b) What is composite dielectric? What are its properties? [4]

OR

**Q4) a)** Write down any two mechanisms of breakdown in solid insulating materials. [6]

b) What are the factors that influence conduction in pure and commercial liquid dielectrics? [4]

**Q5) a)** Compare between Simpson and Wilson theory of charge formation in clouds. [6]

b) What are the causes for switching and power frequency over voltages? How are they controlled in power system? [4]

OR

**P.T.O.**

- Q6)** a) What is insulation coordination? Explain statistical method of insulation coordination. [6]
- b) Explain with schematic diagram, the development process of Lightning stroke between cloud and ground. [4]

