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**Question Paper Code : 57305**

**B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016**

**Sixth Semester**

**Electrical and Electronics Engineering**

**EE 6002 – POWER SYSTEM TRANSIENTS**

**(Regulations 2013)**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**PART – A (10 × 2 = 20 Marks)**

1. What are the causes for transients ?
2. Draw the TRV wave form across the circuit breaker following the interruption of fault current.
3. Define current chopping.
4. Draw the resistance switching circuit.
5. Give the measurement details of induced voltage on overhead lines due to lightning.
6. What is the significance of tower footing resistance ?
7. Draw the diagrams of meeting of two positive current waves in opposite directions.
8. Draw the neat sketch of Bewley's Lattice diagram.
9. Write an expression for amplitude of the over voltage with circuit diagram during the load rejection.
10. Write a short note on EMTP.

**PART – B (5 × 16 = 80 Marks)**

11. (a) Explain the double frequency transient in a power system with a circuit diagram, wave forms and expressions.

**OR**

- (b) Briefly explain the importance of study of transients in planning.

12. (a) (i) Explain load switching with equivalent circuit and wave forms. (8)  
(ii) Explain in detail 'ferro resonance' with circuit and wave form diagrams. (8)

**OR**

- (b) Explain capacitance switching with circuit and waveforms showing the effect of source regulation, one and multiple restrikes.

13. (a) (i) Discuss in detail about the lightning flash parameters. (10)  
(ii) Differentiate between direct and indirect lightning strokes. (6)

**OR**

- (b) (i) What are the factors that contribute to good line design? Discuss in detail. (8)  
(ii) How the ground wires protect the transmission line from lightning transients? Explain. (8)

14. (a) Describe the transient response of systems with series and shunt distributed parameters.

**OR**

- (b) Derive the reflection and refraction coefficients of a travelling wave with diagrams.

15. (a) Discuss in detail about the kilometric fault with necessary diagrams, expressions and voltage and recovery voltage wave forms.

**OR**

- (b) Explain the voltage transients on closing and reclosing of lines and switching surges on integrated system.