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**Question Paper Code : 91467**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Sixth Semester

Electrical and Electronics Engineering

EE 6002 – POWER SYSTEM TRANSIENTS

(Regulations 2013)

(Common to PTEE6002 – Power System Transients for B.E. (Part-Time) – Fifth Semester – Electrical and Electronics Engineering (Regulations 2014))

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 waveform across the circuit breaker following the interruption of fault current.
3. What are the causes of switching surges ?
4. What is meant by current chopping ?
5. Mention different theories of charge formation.
6. Write down the significance of tower footing resistance.
7. What are the damages caused by the travelling waves ?
8. Define crest and front of a travelling wave.
9. What is meant by kilometric fault ?
10. What are the effects of load rejection in power systems ?

PART – B

(5×13=65 Marks)

11. a) Explain the switching transients of RL circuit with sine wave excitation.

(OR)

- b) i) Discuss the various types of power system transients. (8)
- ii) Briefly discuss the various sources of transients on power system. (5)



12. a) Describe briefly about characteristic of Ferro resonance.

(OR)

b) What is called capacitive switching ? With necessary sketches, explain capacitive switching with a restrike and multiple restrike.

13. a) i) Explain how lightning interacts with power system. (7)

ii) Explain the formation of thunder clouds with the aid of Simpson's theory. (6)

(OR)

b) With neat sketch explain the mechanism of lightning strokes.

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) Describe in detail about the causes of over voltages due to various faults occurring in a Power System.

(OR)

b) Examine the computation of Transients in power system using EMTP.

**PART – C**

**(1×15=15 Marks)**

16. a) i) Write a technical note on algorithms used for computation of transient voltages. (8)

ii) Discuss the mechanism of lightning discharge. (7)

(OR)

b) Explain the steps involved in Bewely's lattice diagram construction with an example. (15)