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Question Paper Code : 40977

03/05/18
(A)

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018
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. Write down the importance of transient study in power system planning.
2. What are the effects of transients in power systems ?
3. What is meant by Ferro resonance ?
4. Distinguish between Lightning Surges and Switching Surges.
5. Mention different theories of charge formation.
6. Write down the significance of tower footing resistance.
7. Why step waves are considered to be dangerous to the apparatus ?
8. Define Standing Wave Ratio.
9. What are the effects of load rejection in power system ?
10. What is meant by kilometric fault ?

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 transient's. (8)
- ii) Briefly discuss the various sources of transients on power system. (5)



12. a) With neat sketch explain the capacitance switching with multiple restrikes. (6)
- (OR)
- b) i) Analyze in detail the resistance switching with suitable diagram. (7)
- ii) With neat sketch explain the concept of Current Chopping. (7)
13. a) i) Demonstrate how lightning interact with power system. (9)
- ii) With the use of Simpson's Theory, outline the formation of Thunder clouds. (4)
- (OR)
- b) Explain the lightning protection schemes for transmission lines.
14. a) Derive the reflection and refraction coefficients of a travelling wave. (9)
- (OR)
- b) With neat sketch explain Bewley's Lattice diagram. (4)
15. a) i) Explain voltage transients on closing and reclosing lines. (9)
- ii) Describe the causes of over voltages induced by various faults in a power system. (4)
- (OR)
- b) i) With neat sketch explain switching surges on integrated system. (9)
- ii) Briefly discuss the applications of EMTP for transient computation. (4)

PART - C (1×15=15 Marks)

16. a) With a suitable illustration discuss computation mechanism and algorithms for analysing the transients in integrated power systems. (15)
- (OR)
- b) Propose and discuss the design methods, selection procedure and importance of various protective elements should be used in power systems against transients.