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Question Paper Code : 71750

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

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 of transients?
2. Draw the double frequency transient with an example.
3. What is meant by abnormal switching transients?
4. Sketch the restriking waveform of the capacitance switching.
5. What is the significance of tower footing resistance?
6. What is called charge formation?
7. What are standing waves?
8. What is attenuation? How they are caused?
9. What is meant by kilometric fault?
10. What are the effects of load rejection in power systems?

PART B — (5 × 16 = 80 marks)

11. (a) Derive the expression for RL circuit transient with sine wave excitation. (16)

Or

- (b) With suitable examples explain double frequency transients. (16)

12. (a) Describe briefly about characteristic of Ferro resonance. (16)

Or

(b) What is called capacitive switching? With necessary sketches, explain capacitive switching with a restrike and multiple restrike. (16)

13. (a) What are the two theories of charge formation in the clouds. Explain them in detail. (16)

Or

(b) (i) Explain the interaction between lightning and power system. (8)

(ii) With a neat diagram, explain the protection offered by ground wires. (8)

14. (a) Explain Bewley's lattice diagrams with examples. (16)

Or

(b) Explain the behaviour of travelling waves at line terminations for

(i) Open circuited line,

(ii) Short circuited line (8+8)

15. (a) Explain in detail about the switching surges on an integrated power system. (16)

Or

(b) (i) What are the causes of transients on closing and reclosing of transmission lines. Explain. (8)

(ii) Explain about line drooping and load rejection in integrated power system. (8)