Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 40468

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electrical and Electronics Engineering

EE 8010 – POWER SYSTEMS TRANSIENTS

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the effects of transients in power systems?

2. Define transient recovery voltage.

3. What is resistance switching?

4. Give a power system example for the occurrence of ferroresonance.

5. Write the equation for tower footing resistance.

6. What is the rate of charging of thunder clouds?

7. What are the specifications of travelling wave?

8. What are the standing waves?

9. Define reflection coefficient.

10. What are the effects of load rejection in power system?

PART B — (5 × 13 = 65 marks)

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

Or

(b) Discuss the significance of transient studies in power system planning.

12. (a) Discuss the control of transient over voltages in power system.

Or

(b) Explain the control of switching surges and highlight how switching surges affects capacitive current.

13. (a) Sketch the characteristics of lightning strokes and also discuss parameters of lightning flash.

Or

(b) Derive an expression for the mathematical model for lightning.

14. (a) Explore the steps involved in Bewely's lattice diagram construction with an example.

Or

(b) Describe briefly about standing waves and Standing Wave Ratio (SWR) and natural frequency.

15. (a) Examine the switching surges in a power system and also outline the concept of line dropping and load rejection in an power system.

Or

(b) Describe in detail about the causes of over voltages induced by various faults occurring in a power System.

PART C — (1 × 15 = 15 marks)

16. (a) Derive an expression for the transient current in RLC.

Or

(b) Evaluate the reflection and transmission coefficient in an integrated power system.

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