Question Paper Code : X 20465

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

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. Define current chopping.

4. What is meant by resistance switching ?

5. What are the factors contributing to a good line design ?

6. Mention different theories of charge formation.

7. Why step waves are considered to be dangerous to the apparatus ?

8. Define Standing Wave Ratio.

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   (5×13=65 Marks)

11. a) Examine the sources of transients. Also explain how transients affect the power systems.

(OR)

b) Explain the concept of double frequency transients in power system.

12. a) With neat sketch, explain the capacitance switching with multiple restrikes.

(OR)

b) i) Explain the resistance switching with suitable diagram. **(7)**

   ii) Explain the concept of Ferro resonance. **(6)**

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

(OR)

b) i) Explain the interaction between lightning and power system. **(7)**

   ii) With a neat diagram, explain the protection offered by ground wires. **(6)**

14. a) Derive the reflection and refraction coefficients of a travelling wave.

(OR)

b) With neat sketch, explain Bewley's Lattice diagram.

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.

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.

(OR)

b) Propose and discuss the design methods, selection procedure and importance of various protective elements should be used in power systems against transients.

————————————