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

Question Paper Code : X10404

B.E/B.Tech. DEGREE EXAMINATIONS APRIL / MAY 2021

Sixth semester

Electrical and Electronics Engineering

EE8602 – PROTECTION AND SWITCHGEAR

(Regulations 2017)

Time: 3 Hours Answer ALL Questions Max. Marks 100

PART- A (10 x 2 = 20 Marks)

1. Define protection zone
2. What are the different types of earthing?
3. What is an under-frequency relay?
4. Mention any two advantages of static relay.
5. Can current transformers secondary winding be open circuited? Justify your answer.
6. Enumerate the concept of ring feeder.
7. What are the characteristic of numerical relay?
8. Draw the distance relay characteristics curve.
9. What is mean by current chopping?
10. Write the difference between the fuse and circuit breaker.

PART- B (5 x 13 = 65 Marks)

11. a) Explain in detail about basic requirement of protective relays.

OR

b) Explain in detail about different zones of protection.

12. a) What are the kind of directional relays? Explain each in detail with its construction.

OR

b) What is working principle of negative sequence relay?

13. a) Briefly explain the protection schemes over stator fault of generator protection

OR

b) Briefly about bus bar protection with different techniques.

14. a) How will you synthesize a mho relay using static phase comparator?

OR

b) Describe the operation of static over current relay with neat diagram.

15. a) Drive the expression to find the critical value of resistance to be connected across the circuit breaker contacts.

OR

b) Describe the construction and principle of operation of Air blast circuit breaker.

PART- C (1 x 15 = 15 Marks)

16. a) A synchronous generator rated at 25KV protected by circulating current system having neutral grounded through a resistance of 10 ohms. The differential protection relay is set to operate when there is an out of balance current of 4A the CTs ratio of 1000/5A. Determine.
    (a) The % of winding remains unprotected.
    (b) Value of earth resistance to achieve 75% protective of winding.

OR

b) Explain how the undesirable raise in magnitude of current flow in a system can be detected, the direction of flow of current in the system also has to be considered.