Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 20523

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

Sixth Semester

Electrical and Electronics Engineering

EE 8602 — PROTECTION AND SWITCHGEAR

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Explain the significance of zones of protection.

2. What is Peterson coil grounding?

3. Give the significance of TSM and PSM.

4. Write the torque equation of induction relay.

5. Why is overload protection not necessary for alternators?

6. Describe the importance and the schemes of bus bar protection.

7. What is the difference between numerical relay and static relay?

8. Draw the block diagram of numerical relay.

9. Discuss the disadvantages of MOCB over a bulk oil CB.

10. What is the difference between AC and DC circuit breaking?

PART B — (5 × 13 = 65 marks)

11. (a) Explain the concept of Back up relay and the methods of back-up protection.

                     Or

    (b) Briefly explain the methods of neutral grounding and discuss its advantages.

12.   (a)   Describe the construction and principle of operation of an induction type directional over current relay.

Or

(b)   Explain with sketches and their R-X diagrams of impedance, mho and reactance relay.

13.   (a)   Discuss the protection employed against loss of excitation of an alternator.

Or

(b)   Discuss about the pilot protection used for EHV and UHV transmission lines.

14.   (a)   Explain with a neat diagram transformer differential protection for the numerical relay.

Or

(b)   Enumerate the synthesis of various relays using static comparators.

15.   (a)   Explain the phenomenon of current chopping in a circuit breaker and list the methods to reduce the same.

Or

(b)   With neat sketch, explain the working of axial air blast type circuit breaker.

PART C — (1 × 15 = 15 marks)

16.   (a)   Explain the operation of static relay with a neat block diagram and discuss its advantages and disadvantages.

Or

(b)   Enumerate the relaying schemes which are employed for the protection of a modern alternator.

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