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

Question Paper Code : 30583

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2024.

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. What is a fault and name the types of faults?

2. Define zones of protection.

3. Write the torque equation of universal relay.

4. Draw the R-X diagram

5. What are the applications of current transformers?

6. Define protection of transmission line.

7. What is amplitude comparator?

8. Define over current protection.

9. What is the DC and AC circuit breaking?

10. What are the types of circuit breaker?

PART B — (5 × 13 = 65 marks)

11. (a) Describe the principles and need for protective schemes of nature and causes of fault.

Or

(b) (i) What are the methods of grounding? Discuss the grounding methods. (7)

(ii) Briefly explain the protection scheme. (6)

12. (a) Explain the operating principle and application of relay. Discuss the universal relay.

Or

(b) Describe the electromagnetic relay and negative sequence and under frequency relay.

13. (a) Explain the protection scheme of current and potential transformer with neat sketch.

Or

(b) With the help of neat diagram, explain the protection scheme for generator also highlight its merits and demerits.

14. (a) Describe the synthesis of various relays using static comparators and block diagram of numerical relay.

Or

(b) Discuss the transformer differential protection and distant protection of transmission line.

15. (a) Explain the re-striking voltage and recovery voltage. Discuss the current chopping.

Or

(b) Explain the following breakers with neat sketch.

(i) SF_6. (7)

(ii) MCCBs. (6)

PART C — (1 × 15 = 15 marks)

16. (a) Explain the circuit breaker comparison of different circuit breakers, rating and selection of circuit breaker, merits and demerits of circuit breaker.

Or

(b) Describe the principle of operation of over current relay, directional relay, differential relay. Also write the merits and demerits of each relay.