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Reg. No.																			
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Question Paper Code	11559
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B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022

Sixth Semester

Electrical and Electronics Engineering

EE8602 - PROTECTION AND SWITCHGEAR

(Regulations 2017)

Duration: 3 Hours

Max. Marks: 100

PART-A (10 × 2 = 20 Marks)

Answer ALL Questions

**Marks,
K-Level, CO**

- | | |
|--|----------|
| 1. Outline the need for protective schemes in power system. | 2,K2,CO1 |
| 2. What is meant by Protection Zone? | 2,K1,CO1 |
| 3. Interpret negative sequence relay and its application area. | 2,K2,CO2 |
| 4. Define directional relay. | 2,K1,CO2 |
| 5. Which type of relay is best suited for protection of Generator? | 2,K2,CO3 |
| 6. Classify the various bus bar faults. | 2,K2,CO3 |
| 7. List the advantages of static relay over electromagnetic relay. | 2,K1,CO4 |
| 8. Interpret time-graded system protection. | 2,K2,CO4 |
| 9. Infer the merits of SF6 Circuit Breaker. | 2,K2,CO5 |
| 10. What are the basic requirements of circuit breaker? | 2,K1,CO5 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

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| 11. a) (i) Explain the importance of protection schemes employed in power systems. | 7,K2,CO1 |
| (ii) Summarize about different Protection schemes. | 6,K2,CO1 |
| OR | |
| b) Discuss and compare various methods of Neutral Earthing. | 13,K2,CO1 |
| | |
| 12. a) Explain the principle of distance relays. Describe its working with neat sketch for the following types of distance relays | |
| (i) Impedance relay. | 4,K2,CO2 |
| (ii) Reactance relay. | 4,K2,CO2 |
| (iii) Mho relay. | 5,K2,CO2 |
| OR | |
| b) Explain in detail about electromagnetic attraction type relay. | 13,K2,CO2 |

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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13. a) (i) Explain the protection scheme of transformer against incipient fault. *7, K2, CO3*
(ii) Classify the types of stator fault protection of generators and describe them in detail. *6, K2, CO3*

OR

- b) Explain the types of protective schemes employed for the protection of Transmission line *13, K2, CO3*

14. a) Illustrate the working of Numerical relay with suitable block diagram. *13, K2, CO4*

OR

- b) Interpret the percentage differential protection of Transformer with neat sketch. *13, K2, CO4*

15. a) Explain the operation of the following with neat sketch.

(i) Vacuum Circuit breaker

7, K2, CO5

(ii) Oil Circuit breaker

6, K2, CO5

OR

- b) Show restriking voltage and RRRV in terms of system voltage, inductance and capacitance. *13, K2, CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Explain numerical distance protection of Transmission Lines. *15, K2, CO4*

OR

- b) Summarize the various methods of arc extinction in a circuit breaker with neat sketch. *15, K2, CO5*