

**B.TECH DEGREE EXAMINATION, MAY 2014**

**Eighth Semester**

Branch: Electrical and Electronics Engineering

**SWITCH GEAR AND PROTECTION (E)**

[Regular/Supplementary]

Time: Three Hours

Maximum: 100 Marks

**Part A**

Answer **all** questions

*Each question carries 4 marks*

1. Explain the terms, restriking voltage and recovery voltage.
2. Explain auto high speed reclosing of CB.
3. Draw the block diagram of a static over current relay and explain briefly its operation.
4. Explain the function of a relay in protection system.
5. Briefly explain the protection of alternator against failure of excitation.
6. What is magnetizing inrush current and how transformer is protected against this?
7. Explain carrier current protection of transmission lines.
8. Draw a connection diagram of translay system for the protection of a three phase feeder.
9. Explain the operation of a surge diverter.
10. What is meant by insulation co-ordination? Explain briefly.

**Part B**

Answer **all** questions

*Each question carries 12 marks*

11. Explain the construction, operation and types of oil circuit breakers.

OR

12. Write short notes on:-

- (i) Resistance switching
- (ii) Circuit breaker rating

(iii) Circuit interruption problems.

13. (a) What is the basic requirement of good protective relay? (4 marks)

(b) Describe the construction and working principle of distance relay. (8 marks)

OR

14. Explain with neat diagram the construction and working of non-directional Induction type over current relay.

15. Explain the circulating current protection scheme for generators.

OR

16. Explain the gas operated relay used in transformer protection. Write the advantages of the scheme.

17. Explain translay scheme for feeder protection.

OR

18 . Explain using waveforms of block diagram, the current carrier protection scheme for transmission line.

19. (a) Discuss the various internal and external causes of over voltage in a power system. (5 marks)

(b) .Describe various types of lightning arrestors for protection against surge voltages. (7 marks)

OR

20. Obtain the equation for velocity of propagation in loss less transmission lines.