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Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. (ENGINEERING) [2014 SCHEME] DEGREE EXAMINATION, APRIL 2018

Electrical and Electronics Engineering

EE 14 803—POWER SYSTEM PROTECTION

Time : Three Hours

Maximum : 100 Marks

Part A

I. Answer any *eight* questions out of ten :

1 Explain the principle of operation of impedance Relay.

2 Working Principle of Inductional type Directional overcurrent relay.

3 What are the techniques used to realize various time-current characteristics using electromechanical relays. Also, compare the time-current characteristics of inverse, very inverse and extremely inverse over current relays. Discuss their applications.

4 Explain the concept of Current Chopping in a circuit breaker.

5 Derive the expression for restriking voltage and RRRV.

6 Why SF6 is used in circuit breakers ?

7 What are the problems arising in differential protection in power transformer and how are they overcome ?

8 Brief the problems in bus zone differential protection ?

9 Explain any one testing schemes of circuit breaker.

10 Brief about the Electronic Soft Start for 3-Phase Induction Motor.

(8 × 5 = 40 marks)

Part B

II. Answer *all* questions :

11 How will you synthesize mho relay using static phase comparator ?

Or

12 Explain about numerical overcurrent relay and numerical protection of transformers

13 Explain in detail about rating of circuit breakers (N/D-15)

Or

14 Explain the arc phenomena and interruption.

15 Explain harmonic restrained differential relay used for transformer protection.

Or

16 Draw the protective zone diagram for a sample power system network and explain its rules.

17 Explain in what way distance protection is superior to over current protection for the protection of transmission lines.

Or

18 Explain the construction and working of SF6 circuit breaker.

(4 × 15 = 60 marks)