# EE-802

## B.E. VIII Semester

Examination, June 2017

## Power System Protection

***Time : Three Hours***

***Maximum Marks :70***

***Note:*** Attempt any five questions. All questions carry equal marks.

1. a) What are the different types of faults. Discuss the consequences of faults in a power system.
   b) With respect to protective relay, define the following
      i) Burden
      ii) Back up relay
      iii) Pick up
      iv) Resetting time
      v) Characteristic angle



2. a) What is the principle of differential relays? What are their limitation? Explain their characteristics.
   b) Discuss in what ways the static relays has been successful in replacing the conventional electromagnetic relays. Write its disadvantages as protective device.

3. a) What are the abnormal conditions in a large synchronous generator against which protection is necessary.
   b) Describe the protection scheme for internal faults in a 3 phase Delta/star connected power transformer.





4. a) Describe the method of protecting bus-bars by differential relaying.
   b) Write about power line carrier protection.



5. a) Write the energy-balance theory of are interruption.
   b) With respect to circuit breaker give the definition of the following:
      i) Symmetrical breaking current
      ii) Restriking voltage
      iii) Recovery voltage
      iv) Rate of rise of restriking voltage

6. a) Explain with a neat sketch, the construction and working of minimum oil circuit breaker. Also give its merits and demerits.
   b) What are the different methods of testing of circuit breaker? Discuss their merits and demerits.

7. a) Discuss the use of following components in static relays
      i) Transistor on a switch
      ii) DC amplifier
      iii) FET as a switch
      iv) Thyristor
   b) Briefly describe a microprocessor based scheme for automatic load shedding and restoration.



8. Write short notes on any two
   a) Buchholz relay
   b) HRC fuses
   c) Current limiting reactors
   d) Generator transformer unit protections

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