Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(EE) PT (2015 & Onwards) (Sem.–4)

ADVANCED RELAYING AND PROTECTION

Subject Code : MTEE-202

M.Code : 71357

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. a) Explain design factors affecting performance of protection scheme for various faults,

   b) How static differential relay is constituted from static elements? Draw block diagram and explain.

2. a) Describe the construction and operation of impedance type distance relay with R-X diagram.

   b) Draw and explain operating principle of directional over current relay. Why IDMT relays are widely used for overcurrent protection?

3. a) Describe the type of protection scheme employed for protection of loss of excitation of alternators.

   A generator is protected by restricted earth protection. The generator ratings are 13.2 KV,10 MVA. The percentage of winding protected against phase to ground fault is 85%. The relay setting is such that it trips for 20% out of balance. Calculate the resistance to be added in the neutral to ground resistance,

   b) Explain a biased differential protection scheme applied to a 3 phase transformer with diagram. Also tabulate different types of CT connections used for different types of transformer primary and secondary winding connections.

4. a) Describe the differential pilot wire protection of feeder.

   b) With relevant sketches explain ground fault protection and phase fault protection of induction motor.

5. a) Draw block diagram of automated relay test system and list the test performed for the relays.

   b) Explain SCADA based protection system.

6. Discuss with the help of neat diagram, the hardware and software of the digital protection scheme for transmission lines using distance relays.

7. a) Explain magnetization characteristics of CT for protection. Why CT and PT are required for protection scheme,

   b) Explain operation of under-frequency relays for protection of power system.

8. What are advantages of using digital techniques in power system protection? Explain digital relay structure.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.