Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(Power System) (2013 & Onwards) (Sem.–1)

ADVANCED RELAYING AND PROTECTION

Subject Code : MTPS-104

M.Code : 70733

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

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

1. A 30 MVA, 11.5 Kv, star- delta power transformer is to be protected by differential protection. The high voltage side phase lags behind low voltage side phase by 30°. Formulate the complete differential protection for the transformer by selecting CT ratios, CT connections. The continuous current carrying capacity of restraining coils of the differential relay should not exceed 5 Amp. CT ratio is 3000/5 on 11.5 Kv side. Determine CT ratio on 69 kV side.

2. Show in detail, the protection arrangement of a 60MW generator provided with :

   a) Differential protection

   b) Back-up over current protection through faults

3. Explain the functions and common features of SCADA in integrated and multifunction protection scheme in power sector.

4. State the various applications of over current relaying. Distinguish between inverse characteristics and definite characteristics.

5. What are the merits of carrier current relay? Where is it used? Compare pilot wire relaying with carrier current protection.

6. Explain the scheme of pilot wire relaying employed :

   a) Circulating current method

   b) Voltage balanced method

7. Explain the importance of testing of relay. Describe the following terms of relays :

   a) Plug setting

   b) Time setting

8. Explain the functions of the following components in microprocessor based relay :

   a) Buffer

   b) Program memory

   c) Data memory

   d) ALU

   e) Control and timing unit

   f) Clock

   g) Register

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.