Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(EE) (2013 Batch)   (Sem.–2)
ADVANCED RELAYING AND PROTECTION
Subject Code : MTEE-202
Paper ID : [A2503]

Time : 3 Hrs.   Max. Marks : 100

INSTRUCTION TO CANDIDATES :
1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

Q1) a) Explain with the help of block diagram static Instantaneous Overcurrent Relay and   Inverse time Overcurrent Relay. (12)

   b) Describe the merits and demerits of static relays over analog relays. (8)

Q2) a) With the help of a diagram explain how an alternator is protected through percentage differential protection. (10)

   b) What is Buchholz relay? Which equipment is protected by it? For what types of fault   is   it employed? Discuss its working principle. (10)

Q3) a) Discuss the effect of power swings on the performance of different types of   distance relays. (10)

   b) Describe the principle of carrier assisted distance protection. (10)

Q4) a) Discuss, in detail, the basic apparatus and schemes of power line carrier system. (8)

   b) What type of protection scheme is employed for the protection of a large power   transformer against short circuit? Explain the working principle with a neat sketch. (12)

Q5) What are the advantages of digital protection? Describe with block diagram the principle of operation of a microprocessor based percentage differential relay scheme for the operation of a power transformer. (20)

Q6) Derive the generalized mathematical expression for distance relays and realize the various types of distance relays using microprocessor based approach. (20)

Q7) a) What are the abnormal conditions in a large alternator against which protection is   necessary? Explain. (10)

   b) Explain with a suitable diagram the biased differential protection scheme for the protection of stator in a generator. (10)

Q8) Write short notes on **any two** of the following :

   a) Algorithm for transformer protection.

   b) Salient features of 500 kV relaying protection.

   c) Three winding transformer protection. (2×10=20)