Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MEPS/MTPA/MEHP - 103

M.E./M.Tech., I Semester

Examination, June 2014

Advance Power System Protection Relays

Time : Three Hours

Maximum Marks : 70

Note : 1. Attempt any five questions.
2. All question carry equal marks.

1. State the various applications of over-current relaying. Distinguish between inverse characteristics and definite characteristics. Explain the time-setting and plug-setting in an induction type over-current relay.

2. Derive expressions for the torque developed by a double activating quantity distance relay. Show that the relay operates when fault is within the protected distance of line.

3. Explain the principle of distance relaying applied to protection of radial transmission line. Distinguish between reactance, impedance and mho relays as their application to distance protection.

4. Explain the principle of differential system of protection applied to a power transformer. What are the difficulties experienced and how they can be resolved?

5. A star-delta, 11 kV/6.6 kV transformer is protected by means of differential protection system. The 6.6 kV delta is connected side has CT of ratio 600/5. Calculate CT ratio of HT side.

6. Describe the principle of bus bar protection based on voltage differential systems. How does it respond to saturation of CT's for external fault and internal fault?

7. Describe with the help of neat sketches the set-up of carrier current relaying employed in transmission line protection.

8. Write short note on any two of the following :
   a) Static overcurrent relay.
   b) Static differential protection of power transformer.
   c) Static bus protection based on directional comparison principle.

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