Paper Code: EEE-701	Roll No.										

B. Tech.
(SEM VII) ODD SEMESTER EXAMINATION 2014-15
SWITCHGEAR AND PROTECTION

[Time: 3 hrs.] **[Max. Marks: 100]**

Note- ***Attempt All Questions. All Questions carry equal marks*:-**

1. **Attempt any four parts:-** **(5 x 4 = 20)**
   a. Explain what is meant by primary protection and backup protection.
   b. Define the terms (i) Pickup value (ii) Relay value (iii) Operating time (iv) Reset time.
   c. What are unit system and non-unit system of protection?
   d. Sketch a typical Time/P.S.M. Curve.
   e. Explain the working principle of distance relay.
   f. Write detailed note on differential relays.

2. **Attempt any two parts:-** **(10 x 2=20)**
   a. What are various overcurrent protective schemes? Discuss their merits, demerits and field of applications.
   b. What is an impedance relay? Explain its operating principle? Discuss it is realised using the electromagnetic principle.
   c. Explain the process of fault clearing with the help of neat sketch.

3. **Attempt any two parts:-** **(10 x 2=20)**
   a. Give scheme of Protection for a parallel feeder from (i) One end (ii) both the ends.
   b. Discuss the time graded overcurrent protection for (i) radial feeders (ii) Parallel feeders (iii) ring main system.
   c. Explain the following (i) Load encroachment (ii) Overlap (iii) Infeed effect.

4. **Attempt any two parts:-** **(10 x 2=20)**
   a. In a short circuit Test on a C.B. ,the following reading were obtained on a single frequency transient: (i) time to reach the peak restriking voltage 40 μsec.(ii) The peak restriking voltage 100 kV. Determine the average RRRV and the frequency of oscillation.
   b. Write short notes on the following for C.B. Tests (i)Thermal Tests (ii) Mechanical Tests (iii) S.C. Tests.
   c. Expalin the terms (i) restriking voltage (ii) recovery voltage (iii) RRRV.

5. **Attempt any two parts:-** **(10 x 2=20)**
   a. Explain the principle of Merz-Price System of protection used for power transformers. What are limitations of this scheme and how are they overcome?
   b. Why overload protection is not necessary for alternators?
   c. Describe the construction, principle of operation and application of SF_6 circuit breaker.