Roll No. .....

# 23289

# M.Tech 2nd Semester (Electrical and Electronics Engineering) (Power System) Examination–May, 2014

## ADVANCED POWER SYSTEM PROTECTION

**Paper MTEPS-204**

***Time : 3 hours*** ***Max. Marks : 100***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

**Note :** Attempt any **five** questions. Each question carries equal marks.

**1.** (a) Explain the basic construction of static relays. Give the classification of protective relays. 10

(b) Derive the equation for torque developed in an induction relay. 10

2. (a) Discuss the operating principle of phase splitting type amplitude comparator. 8

(b) Describe in detail the various techniques to measure the period of coincidence. 12

3. (a) Explain with the help of neat diagram the construction and working of non-directional induction type overcurrent relay. 13

(b) Discuss the field of applications of static overcurrent relays. 7

4. (a) Discuss the effect of arc resistance on the performance of different types of distance relays. 10

(b) What is an impedance relay ? Explain impedance relay characteristics on the R-X diagram. 10

5. (a) Describe the constructional features and working of a Buchholz relay. 10

(b) Discuss the differential scheme for bus-zone protection with neat diagram. 10

**6.** (a) What is carrier current protection ? For what voltage range is it used for the protection of transmission lines ? What are its merits and demerits ? 12

(b) Describe the translay scheme of wire pilot protection. 8

**7.** Derive a generalized mathematical model of distance relays for digital protection. 20

**8.** (a) Describe the protection of 66KV sub-station against direct lightening strokes. 10

(b) Explain the terms : 10

(i) Insulation coordination

(ii) Protective zone.

---