

**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
DECEMBER 2009**

EE 04 704—POWER SYSTEMS—III

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions.
Each question carries 5 marks.*

- I. (a) Explain volt-time curves in power system studies.
 (b) What is a ground wire ? Discuss its location with respect to power conductors.
 (c) Give the classification of protective relays.
 (d) Explain the characteristics of an IDMT relay. Mention its applications.
 (e) What are the advantages of electric heating ?
 (f) Explain the principle of high frequency induction heating.
 (g) What is flexible A.C. transmission system ?
 (h) Explain the communication scheme between various control centres.

(8 × 5 = 40 marks)

Part B

- II. (a) Compare the performance and characteristics of minimum oil breakers and air blast CB.
Or
 (b) What are the basic requirements of a lightning arrester ? Differentiate between (i) a lightning arrester and a lightning conductor ; and (ii) a surge diverter and a surge absorber.
 (15 marks)
- III. (a) Explain clearly the basic principle of operation of a differential relay. Explain the working of this type of relay for (i) an internal fault ; (ii) a through fault.
Or
 (b) Explain clearly how the selection of current and time settings is done in a time-current graded system.
 (15 marks)
- IV. (a) Explain the principle of operation of dielectric heating. Discuss its applications.
Or
 (b) Give necessary sketches and explain briefly the different methods of current collection for electric traction.
 (15 marks)
- V. (a) What is meant by SCADA systems ? Explain the functions and features of three level control systems.
Or
 (b) (i) Explain the various types of D.C. Links ; (ii) Compare a HVDC transmission system with a HVAC system.

(8 + 7 = 15 marks)

[4 × 15 = 60 marks]