

III B.Tech II Semester Supplementary Examinations, April/May 2005
POWER SYSTEMS-III
(Electrical & Electronic Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain briefly the specification of Traveling waves.
(b) Develop general formula for reflection and refraction co-efficient for a line with surge impedance Z_c terminated by an impedance Z .
2. Explain clearly the meaning of resonant grounding . What are the requirements of the reactor in neutral connections of such a grounding ? Draw the connection of arc suppression coil.
3. Calculate the RRRV of a 220kV circuit breaker with earthed neutral. The short test data obtained is as follows. The current broken is symmetrical and the restriking voltage has a oscillatory frequency of 15kHz. The power factor of the fault is 0.2. assume the short circuit to be an earthed fault.
4. Explain direct testing of circuit breakers with a neat diagram
5. (a) What are the difficulties in the design of C.T for restricted earth fault protection? How are these difficulties overcome in high impedance protection?
(b) What are switched distance-relaying schemes? Explain them in detail?
6. (a) Explain the merits and demerits of static relays.
(b) Discuss how an amplitude comparator can be converted into a phase comparator and vice versa.
7. (a) Explain briefly with schematic diagram, the protective gear for alternators connected to grid against
 - i. fault between phases and
 - ii. fault between turns in one of the phase windings.
(b) Three phase 33/6.6 kV transformer is connected star- delta and current transformers on the low voltage side have ratio 300: 5. What will be the ratio of C T on the high voltage side of Merz Prize protection is to be adopted.
8. (a) Describe the method of protecting busbars by differential relaying.
(b) What are the limitations of this method and to what extent these can be overcome?
