

Code :RR320205

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III B.Tech II Semester(RR) Supplementary Examinations, April/May 2011
POWER SYSTEMS-III

(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. (a) Explain about Bewley's Lattice diagrams and also mention the uses of these diagrams.
 (b) A line of surge impedance of 400 ohms is charged from a battery of constant voltage of 135 volts. The line is 300 metre long and is terminated in a resistance of 200 Ohms. Plot reflection lattice and the voltage across the terminating resistance.
2. (a) How do earthing screen and ground wires provide protection against direct lightning strokes?
 (b) Explain why the surge diverters are located very close to the equipments to be protected and mention the application of surge absorbers.
3. Explain the following with neat sketch in detail
 - (a) D-type cartridge fuse
 - (b) HRC cartridge fuse.
4. (a) Explain the Phenomenon of current chopping in a circuit breaker. What measures are taken to reduce it.
 (b) A circuit interrupts the magnetizing current of a 100 MVA transformer at 220 kV. The magnetizing current is 5% of the full load current. Determine the maximum voltage which may appear across the Gap of the breaker when the magnetizing current is interrupted at 53% of its peak value. The stray capacitance is 2500 microfarad. The inductance is 30 H.
5. (a) Explain clearly the basic principle of Percentage Differential relay for
 - i. Internal fault
 - ii. Through fault.
 (b) Explain what you understand by pick-up and reset value of the actuating quantity. Explain the term selectivity in protective relays.
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 how the inclusion of resistance in the neutral earthing circuit of an alternator affects the performance of the differential protection of the three phase stator.
 (b) Describe how protection is provided in large turbo alternators against earth fault in the rotor.
8. (a) Discuss the considerations which determine the need for a busbar protection.
 (b) Discuss any one busbar protection scheme in detail.
