

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-2008

III B.TECH SUPPLEMENTARY EXAMINATIONS  
POWER SYSTEM-III  
(EEE)

AUG/SEP 2008

TIME:3HOUR  
MARK:80

---

ANSWER ANY FIVE QUESTIONS ALL QUESTIONS CARRY EQUAL MARKS.

MARK [16\*5=80]

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. (a) Explain the co-ordination of insulation in EHV system.  
(b) Explain with a neat sketch value type lightning arrester.
3. (a) What are the different types of circuit breakers when the arc-quenching medium is the criterion? Mention the voltage for which a particular range of circuit breaker is recommended.  
(b) Discuss the recovery rate theory and energy balance theory of arc interruption in a circuit breaker.
4. Explain resistance switching in detail with relevant diagrams and derive the expression of damped oscillation.
5. (a) What is meant by directional feature of a directional over current relay? Describe the construction, principle of operation and application of a directional over current relay.  
(b) What is the difference between a polarized mho and simple mho relay. What are self-polarized and cross-polarized mho relays?
6. (a) Explain with necessary diagrams the operating principle of a Rectifier bridge phase comparator.  
(b) Why are block average phase comparator preferred over block spike phase comparator.
7. (a) Explain a scheme of protection for failure of alternator excitation.  
(b) Explain with neat diagram the Merz ? Price protection for generator.
8. Write short notes on:
  - (a) Reactance relay
  - (b) Mho relay
  - (c) Directional Impedance relay.