JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH II SEMESTER EXAMINATIONS, APRIL/MAY 2012
ADVANCED POWER SYSTEM PROTECTION
(COMMON TO ELECTRICAL POWER ENGINEERING, ELECTRICAL POWER
SYSTEMS)

Time: 3hours   Max. Marks: 60

Answer any five questions
All questions carry equal marks
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1.a)   Mention the merits and demerits of static relays in power system protection.
  b)   Explain clearly the primary and back up protection in power systems.

2.   Explain the different types of amplitude and phase comparators with neat sketches.

3.   Explain the principle of operation of the following with block diagram.
         a) Inverse-time over-current relay
         b) Definite time over-current relay

4.   Realize the reactance relay and MHO relay using sampling comparator.

5.   Explain the effect of Power surges (Power swings) on the performance of distance
         relays.

6.   Explain the following Wire pilot protection schemes
         (i)   Circulating current scheme
         (ii)   Opposed voltage scheme.
         (iii) Transley scheme
         (iv)   Transely **'S'** protection.

7.   Explain the principle of operation of Microprocessor based
          a) Impedance Relay
          b) Reactance Relay
         with flowchart and block diagram.

8.   Derive the generalized mathematical expression for distance relays and realize the
         various types of distance relays using microprocessor based approach.

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