Code No: D4902, D6402 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
ADVANCED POWER SYSTEM PROTECTION
(COMMON TO ELECTRICAL POWER ENGINEERING, POWER ENGINEERING & ENERGY SYSTEMS)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
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1. Write short notes on the following:
   a) Quadrilateral Relay.
   b) Reactance Relay. [6+6]

2. a) Explain the principle of operation of distance relays and discuss the effect of power swing and fault impedance on distance relay.
   b) Explain the working of a MHO relay. [6+6]

3. a) What are the merits and demerits of a Static relay over electromechanical relay?
   b) Draw the block diagram of Static relay and explain various functional blocks with individual circuits. [6+6]

4. a) Draw a schematic diagram of Transley scheme and explain its principle of operation.
   b) Explain about phase comparison carrier current protection with a neat sketch. [6+6]

5. a) Explain the working of A/D converter.
   b) Write a brief note on rationalized HAAR transform techniques. [6+6]

6. a) Obtain generalized equations for Distance relays and Offset MHO relays.
   b) Explain the principle of operation of Microprocessor based Reactance relay with a suitable diagram. [6+6]

7. a) Discuss the advantages and disadvantages of Static relays as protective devices.
   b) Obtain the time current characteristic of Static relay. [6+6]

8. a) Give the merits of distance protection compared to over current protection for protection of transmission lines.
   b) Discuss how to realize different conic characteristics of Distance relays with a neat diagram. [6+6]

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