

**III B.Tech II Semester Supplementary Examinations, Apr/May 2006****POWER SYSTEMS-III****(Electrical & Electronic Engineering)****Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Discuss the behaviour of traveling wave when it reaches the end of
  - (a) open circuited [5]
  - (b) short circuited transmission line. Draw diagrams to show voltage and current on the line before and after the wave reaches the end. [5+3+3]
2.
  - (a) Discuss the causes of switching surges .
  - (b) Explain the selection of surge arresters with reference to switching surges . [ 8+8]
3. Explain the following terms in relation to Fuse [4x4=16]
  - (a) Fuse element
  - (b) Minimum Fusing current
  - (c) Fusing factor
  - (d) Cut off current.
4. Explain direct testing of circuit breakers with a neat diagram. [8+8]
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. [2+2+2+2]
  - (b) What is the difference between a polarized mho and simple mho relay. What are self-polarized and cross-polarized mho relays? [4+4]
6.
  - (a) Explain with necessary diagrams the operating principle a Rectifier bridge phase comparator. [6+2]
  - (b) Why are block average phase comparator preferred over block spike phase comparator. [4+4]
7.
  - (a) What is a direct connected generator?
  - (b) Mention protective schemes for a direct connected generator. Explain any one of these schemes. [6+5+5]
8. (a) Discuss the choice between impedance, reactance and Mho type relays. [2+2+2+2]

- (b) Transformer: 5MVA, Y /  $\Delta$ , X=6%

The transmission line sections AB and BC are to be protected by Mho distance relays. The system is as shown in the figure1. If the C.T. ratio is 300/5 and C.T. ratio is 166000/110V and a 3- $\phi$  short circuit fault of zero impedance occurs at F, find the impedance seen by the relays and determine the setting of the relays for high speed protection of line AB and backup protection for line BC, when the relays are located at end A. [8]

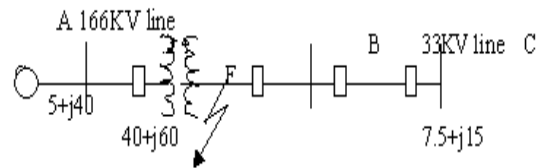


Figure 1:

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