Code No: NR320205 **NR**

III B.Tech II Semester Supplementary Examinations,
November/December 2005
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. A transmission line has an inductance of 0.933 mH/Km and a capacitance f 0.00778x10^{-6} F/Km. This overhead line is connected to an underground cable having an inductance of 0.155x10^{-3} H/Km and a capacitance of 0.187x10^{-6}F/Km. If a surge of crest of 50KV travels on the cable towards its function with the line find the surge transmitted along the line. [2+2+12]

2. Explain clearly the meaning of resonant grounding . What are the requirements of the reactor in neutral connections of such a grounding ? Draw the connection of arc suppression coil. [4+4+4+4]

3. Explain the following with relevant diagrams.
   (a) Open fuse
   (b) Semi enclosed rewirable fuse [4+4+4+4]

4. Explain resistance switching in detail with relevant diagrams and derive the expression of damped oscillation. [4+8+4]

5. (a) Discuss the principle of operation of an Induction disc relay with relevant diagrams. [2+4+2]
   (b) What are the advantages of Induction cup relays over Induction disc relays. What is the purpose of shading in an Induction disc relay? [4+4]

6. (a) Write short notes on an amplitude /pulse width converter as applied in a phase sensitive amplitude comparator. [8]
   (b) Write short notes on
      i. static sine comparator
      ii. integrating type amplitude comparator. [4+4]

7. (a) Explain briefly with schematic diagram,the protective gear for alternators connected to grid against
      i. fault between phases and
      ii. fault between turns in one of the phase windings. [4+4]
   (b) Three phase 33/6.6 kV transformer is connected star- delta and current transformers on the low voltage side have ratio 300: 5.What will be the ratio of C T on the high voltage side of Merz Prize protection is to be adopted. [8]

8. Explain the principle of distance relaying applied to protection of radial transmission lines.Distinguish between reactance,impedance and mho relays as regards their applications to distance protection. [8+4+4]

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