Code :R5320205

R5

III B.Tech II Semester(R05) Supplementary Examinations, April/May 2011
SWITCH GEAR & PROTECTION
(Electrical & Electronics Engineering)

Time: 3 hours
Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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1. (a) Explain about current zero interruption and what are its advantages?
   (b) In a system the r.m.s voltage is 19.1kV, L is 10mH, C is 0.02μF. Determine the average rate of rise of restriking voltage, when the circuit breaker opens.

2. (a) What are the necessary auxiliaries of ABCB? Describe compressed air system for supplying compressed air to the air blast circuit breakers?
   (b) Explain current chopping in VCB. Explain the function of RC surge suppressors used with vacuum switchgear for motor switching.

3. Explain the 'Differential protection'. State the various applications of differential protection.

4. A 6.6kV, 5MVA star connected alternator has a reactance of 1.5Ω per phase and negligible resistance. Merz-price protection scheme is used which operates when the out of balance current exceeds 25% of the full load current. The neutral of the generator is grounded through a resistance of 8 Ω. Determine the proportion of the winding which remains unprotected against earth fault. Show that the effects of the alternator reactance can be ignored.

5. Explain with reasons the connection of CT's for protecting a delta/star transformer. Justify your scheme of protection for
   (a) internal fault and
   (b) External fault by showing current distribution in the scheme.

6. (a) Explain bus bar protection need special attention. Why?
   (b) What is back up protection of bus bars?

7. Write short notes on the following:
   (a) Effective grounding.
   (b) Resistance grounding.
   (c) Reactance grounding.

8. (a) What is a voltage surge?
   (b) What is an earth wire and earthing screen?

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