TE - Sem - VI (CBSGS) Electrical - PSA

QP Code : 584503

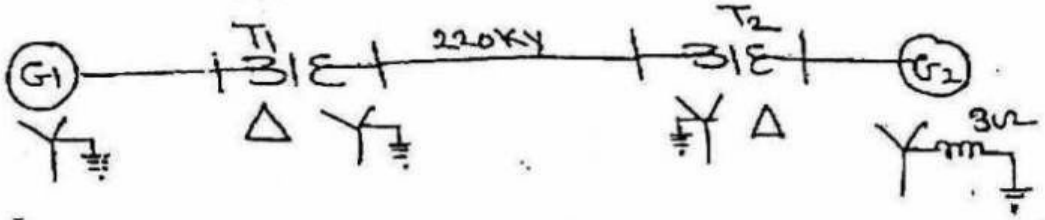
(3 Hours) **[Total Marks : 80**

N.B. : (1) Question no. **1** is **compulsory.**
(2) Solve **any three** of questions out of remaining
(3) Assume the suitable data if required and specify the same.

1. Solve the following questions
   (a) What is the difference between symmetrical and unsymmetrical fault 5
   (b) Discuss the importance of short circuit studies in power system 5
   (c) What is the effect of length of cable on incident surge 5
   (d) Discuss the term switching transient. 5

2. (a) Discuss the algorithm for short circuit studies 10
   (b) An 11 KV 100MVA alternator having sub transient reactance of 0.25 is supplying a 50 MVA motor having sub transient reactance of 0.2 pu through a transmission line. The line reactance is 0.05 pu on a base of 100MVA.the motor is drawing a 100MW at 0.8 PF leading with terminal voltage of 10.95 KV when a three phase fault occurs at generator terminals. Calculate total current in generator and motor under fault. 10

3 (a) Derive the equation for fault current for LG fault 10
   (b) For a figure shown below draw the zero sequence network. The data for the system is Generator G1 - 50 MVA, 11KV, Xo= 0.08pu
   Transformer T1 50 MVA 11/220 KV, Xo= 0.1pu
   Generator G2- 30 MVA, 11KV, Xo= 0.07pu
   Transformer T2 30 MVA 11/220 KV, Xo= 0.09pu 10



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4 (a) Discuss the phenomenon of transient due to removal of short circuit 10

(b) A voltage having a crest value of 3000 KV is traveling on the line of 750 KV. The surge impedance of line is 300 ohm. 10

Calculate

(1) current line current before reaching the arrestor
(2) current through arrestor
(3) value of arrestor resistance for this condition
(4) reflected voltage.
(5) Verify thereflection and refraction coefficient.

5. (a) Discuss the application of surge reactor, surge capacitor and surge arrestor 10

(b) Expalin the various factors affecting the corona 10

6 (a) Discuss the phenomenon lightning 10

(b) Explain the terms with reference to transmission line- Surge impedance loading, electrical length of a line 10
