

Duration: - Three Hours

Total Marks:- 80

NOTE

1. Question No 1 is Compulsory.
2. Solve any three out of the remaining.
3. Figure to the right side indicates marks.
4. Assume the suitable data and mention the same if required.

Q No 1 Answer the following questions

- a. Explain the charge voltage diagram of corona [5]
- b. What are the various assumptions in fault calculation? [5]
- c. What is the role of tower footing resistance in protection? [5]
- d. What is the importance of short circuit MVA calculation? [5]

Q No 2a Discuss the Z bus formation techniques for symmetrical fault analysis. [10]

Q No 2b Discuss the equivalent circuit of synchronous machine under no load and loaded condition. [10]

Q No 3a A three phase 37.5 MVA, 33KV alternator having $X_1=0.18$ pu, $X_2=0.12$ pu, and $X_0=0.10$ pu, based on its rating, is connected to a 33KV over head line having $X_1=6.3$ ohms, $X_2=6.3$ ohms and $X_0=12.6$ ohms per phase. A single line to ground fault occurs at the remote end of line. The alternator neutral is solidly grounded. Calculate the fault current. [10]

Q No 3b Discuss the sequence network of transmission line. [10]

Q No 4a Discuss the advantages and disadvantages of corona. [10]

Q No 4b Discuss the transient generation due to capacitance switching [10]

Q No 5a Discuss the phenomenon of corona formation. [10]

Q No 5b Discuss the surge protection of transformers. [10]

Q No 6a Discuss the stability and maximum power transfer consideration in transmission line [10]

Q No 6b Discuss the reflection and refraction of waves on a short circuited transmission line [10]