ANALYSIS OF POWER SYSTEM UNDER FAULT CONDITIONS

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ABSTRACT

Electrical energy is blood of modern society and is essential for the industrial as well as overall development of any country. It is the most flexible form of energy, which is extensively used by masses. So it is crucial to maintain the continuity of electrical supply. Many a time, abnormal conditions also known as faults arise in the power system due to one or another natural or man-made causes. In order to ensure continuity and reliability of electrical supply these faults should be removed from the system at earliest. This task can be accomplished by analysing the power system under abnormal conditions so as to operate the switchgear at appropriate time to isolate the faulty part and to protect the system against the flow of heavy short circuit current which can result in permanent damage of various equipments. In this thesis, the behaviour of system is analysed under fault conditions and different scenarios of faults have been evaluated in addition to the steady state condition. Symmetrical component approach for solving unbalanced faults has been emphasised and effect of mutual coupling between conductors of transmission system, on system parametershas been studied. A 6 node model is taken as test system and is analysed for all types of faults. The results obtained from analysesare tabulated and a detailed comparison is made with the results available. A brief validation of the Matlab program is also presented.