Chapter 1 : Basic Principles 1-1 to 1-22

Syllabus : Power in single phase AC circuits, Complex power, Complex power balance, Complex power flow, Balanced Three Phase Circuits, Star connected loads, Delta connected loads, Delta-star transformation, Per phase analysis, Balanced three phase power.

Chapter 2 : Representation of Power System Components 2-1 to 2-45

Syllabus : One line and impedance diagram, Per unit system, Per unit representation of transformer, Per unit impedance diagram of power system, Examples – per unit system and impedance diagram, Synchronous machine, Power factor and power control, Salient pole synchronous generator, Operating chart of a synchronous generator, Representation of loads.

Syllabus : Introduction, Short transmission line, Medium transmission line, Long transmission line – Rigorous solution, Evaluation of ABCD constants, Interpretation of long line equations, Ferranti effect, Tuned power lines, Power through a transmission line, Circle diagrams, Methods of voltage control, Examples.

Syllabus : Introduction, Transient on a transmission line, Short circuit of a synchronous machine on no load, short circuit of a loaded synchronous machine, Selection of circuit breakers, Examples, Z_{BUS} formulation – by inverting Y_{BUS}, current injection technique, Z_{BUS} building algorithm (Type – 1, 2, 3, 4 modifications).

Chapter 5 : Symmetrical Components 5-1 to 5-17

Syllabus : Symmetrical component transformation, Phase shift in star-delta transformers, Sequence impedances of transmission lines, Sequence - impedances and networks of synchronous machines, Sequence impedances and networks of transformers, Construction of sequence networks of a power system, Examples.

Chapter 6 : Unsymmetrical Fault Analysis 6-1 to 6-18

Syllabus : Introduction, Symmetrical component analysis of unsymmetrical faults, Single line to ground fault, Line to line fault, Double line to ground fault, Open conductor faults.

Chapter 7 : Corona 7-1 to 7-12

Syllabus : Critical Disruptive Voltage, Corona Loss, Line Design based on Corona, Disadvantages of Corona, Radio Interference, Inductive interference between Power and Communication lines, Examples.

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