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| **Fundamentals of Electrical Engineering:**  Electrical Circuits Analysis, Magnetic Circuits and Electromagnetism, Electrical Machines, Signals and Systems |
| **Power Systems:** Load Flow Analysis, Short Circuit Studies, Load Frequency Control, Optimal Power flow |
| **Power System Protection:** Symmetrical Component. Protection of Generator, Motor, Transformer, Transmission line and Bus-Bar, Relay Co-Ordination. Numerical Relaying |
| **Power System Dynamics and Control:** Madeline of Synchronous Machine, Excitation System, Dynamics of a Synchronous generator Connected to Infinite Bus, Multi-Machine System, Transient and Voltage Stability |
| **High Voltage Engineering:** High Voltage Testing of Electrical Apparatus, Measurement Dielectric Constant and Loss Factor, Parallel Discharge Measurement, Condition Monitoring of Electrical Apparatus. |
| **Applications of Power Electronics in Power Systems:** Long transmission lines, issues and their compensation, active-reactive power and voltage control through Converters, HVDC transmission systems |
| **Solar and Wind Power Conversion:** Fundamentals of solar and wind power and their control using converters |

**Department of Electrical Engineering, SVNIT, Surat**

**Syllabus for Written Test for Ph. D. Admission**

**(For specialization of Power System)**