

**DEPARTMENT OF ELECTRICAL ENGINEERING
ALIGARH MUSLIM UNIVERSITY, ALIGARH**

SYLLABUS OF PHD ENTRANCE TEST 2018-19

**SECTION B
MULTIPLE CHOICE QUESTION SECTION**

Part I

(20 Marks)

Circuit/ Network Theory, Control Systems, Microprocessor, Measurement and Instrumentations, Power Systems, Power Electronics, Renewable Energy Systems, Electric Machines, Electric Drives, High Voltage Engineering

SECTION – B

Part II

(4×5=20 Marks)

Specialization: Power System and Drives

DC motor drives, AC motor drives, Synchronous motor drives. Switch mode inverters, multi- level inverters, resonant converters. Modelling of synchronous generators, Transformers, Transmission lines, Loads & excitation system, Power flow solution, Optimal load flow, short circuit studies, Power system stability, Economic dispatch studies, FACTS devices & HVDC Transmission. Renewable energy power system. Renewable energy sources, solar technologies & application, Wind Energy systems & application, Wind generating system, Hybrid renewable energy system, other renewable energy systems, Energy storage system.

OR

Specialization: Instrumentation and Control

Identification and Estimation in Dynamic System Analysis; Optimal Control Systems; Measurement Systems: Sensors, Transducers and Radiation Detection; Digital Measuring Instruments, Logic Analyzer; Process Instrumentation: Controllers and Final Control Element; Bioelectric Signals: Recording, Artifacts and Interferences; Soft Computing techniques and applications: Neural Networks, Fuzzy Logic.

OR

Specialization: High Voltage & Insulation Engineering

Conduction and Breakdown in Gases, Liquid and Solid dielectrics, Vacuum as high voltage insulation, properties and applications of Insulating Materials, Generation and measurement of High D.C., A.C., Impulse voltages and Impulse currents, Transients in Power Systems and Insulation Coordination, Gas insulated switchgear and substations, SF₆ technology, High Voltage Testing of Electrical Apparatus, Non-Destructive Testing of Materials and Electrical Apparatus, Partial discharges and their measurement, Applications of High-Voltage Engineering in Industry.