

# School of Energy and Environmental Studies, DAVV, Indore

## PHD ENTRANCE EXAM SYLLABUS IN ENERGY & ENVIRONMENT

### PART-A

Part-A shall consist of 50 objective type compulsory questions of 1 mark each based on research methodology. It shall be of generic nature, intended to assess the research aptitude of the candidate. It will primarily be designed to test reasoning ability, data interpretation, and quantitative aptitude of the candidate.

### PART –B

Part-B shall also consist of 50 objective type compulsory questions of 1 mark each based on the syllabus of the subject at Masters Level as follows:

**Solar:** Solar Angles, Day length, Angle of Incidence on Tilted Surface, Sun path Diagram, shadow determination

**Biomass:** Biomass availability, Characteristics of Biomass or organic wastes, waste biomass/ Organic utilization Technology options, Potential, Process and technologies, aerobic and anaerobic bioconversion process, biogas production process

**Wind:** Wind potential in India and world, basic principle of wind energy Conservation characteristics of wind power, Extractable wind power, Site selection, wind data analysis and predictions

**Hydro:** Classification of Small Hydro Power Stations, Components of a Hydroelectric Scheme, Mini and Micro Hydel Projects.

**Geothermal & Ocean:** Potential geothermal Sites, Estimations of Geothermal Power, Nature of Geothermal Sites, Basic Theory of OTEC, Potential and application of Technologies.

**Electrical & thermal Energy:** Basis of Energy and its various forms: Electrical Basis-DC & AC, currents active power, reactive power and apparent power, star, delta connection, Socioeconomic aspects of energy, Use of energy and their availability and overall energy demand.

**Air & Noise Pollution:** Definition of air pollution, air Quality, classification of air Pollutants, Definition of noise, classification of Noise, Noise Standards, Effects of Noise.

**Water & Industrial Waste water:** Sources of water pollution and its control, definition of waste water, Classification, sources of waste water, water quality standards.

**Climate Change & Environment:** Environmental audit, Environmental impact assessment, Its methodology, procedure and notification

**Air Conditioning & Refrigeration:** Psychometrics, air conditioning processes, types of refrigeration systems, refrigerants and properties, compressor types, selection of refrigeration system.

**Hybrid systems & other Sources of Energy:** Wind-PV Hybrid systems, Wind-DG Hybrid systems, Wind-Hydel Hybrid systems, Gasifier DG- Wind Hybrid systems. Basic working Principle of Fuel Cell, potential and its application, Hydrogen production, potential and its application.