RANI DURGAVATI VISHWAVIDYALAYA, JABALPUR

SYLLABUS

M. Phil and Ph. D. Entrance Test (w.e.f.2018-19)

In accordance with Revised M. Phil. and Ph.D. Ordinances

PHYSICS

The Question paper of the Entrance test will have two sections A and B, each consisting of 50 objective type compulsory questions. The section A will represent a component of “Research Methodology” whereas section B shall be “Subject Specific”. Each question will carry one mark.

i. There will be no negative marks

ii. The duration of the Entrance test will be Two hours.

iii. The candidate must score minimum 50% marks in the Entrance test to qualify for the interview.

(Time 2 Hours) PART –A & B (Max Marks 100)

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

I Mathematical Methods of Physics


II Classical Mechanics


III Electromagnetic Theory


IV Quantum Mechanics


V Thermodynamic and Statistical Physics


VI Electronics and Experimental Methods


Data Interpretation and analysis. Precision and accuracy. Error analysis, propagation of errors. Least squares fitting, Linear and non-linear curve fitting, Chi-square test, Transducers (temperature, pressure/vacuum, magnetic fields, vibration, optical and particle detectors). Measurement and control Signal conditioning and
recovery. Impedance matching, amplification (op-amp based, instrumentation amp, feedback). Filtering and noise reduction, Shielding and grounding. Fourier transforms, Lock-in detector, box-car integrator, modulation techniques, High frequency devices (including generators and detectors).

VII Atomic & Molecular Physics


VIII Condensed Matter Physics


IX Nuclear and Particle Physics
