Details of the Test and Syllabus

Paper		No. of Questions	Max Marks
Section-I	Research Methodology	50	50 Marks
Section-II	UGC NET/CSIR Syllabus	50	50 Marks

PAPER -1 RESEARCH METHODOLOGY
Botany

RESEARCH APTITUDE

What is research?, need for research, quality of research, logical reasoning, test for intelligence, ethics in research – plagiarism, types of research, basic and applied technology, searching research topic, steps to persue research, research methods, research and mankind.

BIO-STATISTICS

Basic concepts of bio-statistics, graphical presentation of data, measures of central tendency and dispersion, probability, standard deviation, correlation, regression, sampling methods, and test of hypothesis.

MICROSCOPIC TECHNIQUES

Visualization of cells and sub cellular components by light microscopy, different types of light microscopes (principle and functioning), microscopy for living cells, sectioning and staining technique for light microscopy, Electron microscopy: principle and functioning of Transmission electron microscope (TEM) and scanning electron microscope (SEM), sample preparation.

INSTRUMENTAL METHODS

Chromatography techniques: Introduction to chromatography, types of chromatography (paper chromatography, thin layer chromatography, high performance liquid chromatography, high performance thin layer chromatography, column chromatography, gas chromatography).

Centrifugation techniques: Introduction to centrifugation, preparative and analytical centrifuge, ultra centrifuge.

Spectroscopy techniques: Introduction to spectroscopy technique, principle and theory of visible spectroscopy, UV spectroscopy, IR spectroscopy, NMR spectroscopy, Mass spectroscopy, Atomic absorption spectroscopy.

COMPUTER

Introduction to computers, hardware and software, MS Office (ward, excel, power point), internet and IT Jargons (Information technology, communication link, www, vpn, browser, search engine, gateway, e-security, free software, open source), E-mail, MS outlook and outlook express.