



University of Calcutta

Department of Plant Physiology

Ph.D. Entrance Examination (Plant Physiology) : 2012

Procedure and eligibility :

The Ph.D. entrance test of 50 marks for the eligible candidates will be held twice (depending on the availability of candidate) in a year and the qualifying marks will be fixed at 40%. Candidates with at least 50% Marks obtained in M.Sc. (Ag.) in Plant Physiology (or allied disciplines subject to endorsement by the concerned Ph.D. Committee) from any UGC recognized University are eligible to appear in the Examination. Those who have qualified NET/GATE/SET or already obtained M.Phil degree would be exempted from the examination. They may directly submit a statement of purpose or research brief and appear in the interview.

Syllabus :

Principles of plant physiology - cell structure & functions with energy relations. Water relation in plants : uptake, transport & elimination of water. Photosynthesis and respiration.

Metabolism of carbohydrate, protein, lipid, nucleic acids and vitamins.

Structure, biosynthesis, role and mechanism of action of auxin, gibberellin, cytokinin, ethylene and abscisic acid, inhibitors, retardants, weedicides.

Physiology of crop growth & yield, growth analysis, Photorespiration, source-sink relationship in crop productivity.

Plant nutrition - Nutrient elements, their uptake, Mechanism of xylem and phloem transport. Assimilation of nutrients with special reference to nitrogen and sulphur.

Physiology of germination: dormancy and viability. Concept of seed vigour, seed invigoration. Physiology of tuber and bulb-formation, juvenility and senescence.

Physiology of flowering. Fruit growth, physiological and biochemical changes during ripening. Post- harvest physiology of fruits, climacteric rise.

Physiological effect of biotic and abiotic stresses on plants with special reference to temperature, drought, salinity & heavy-metals.

1. There are **3** vacancies (Unreserved – 2; Reserved – 1) in the Department for new Ph. D students.
2. The **Research Eligibility Test (RET)** for the Ph. D programme will be held on 16th April, 2012 at 2 p.m.
3. The **RET** will be of 50 marks objective type test of 1 hr duration.
4. An interview will be held on 17th April, 2012 at 2 p.m. for **RET** qualified as well as NET/ GATE/ SET qualified candidates.
5. Successful candidates will be eligible to register for their Ph.D programme in the Department.
6. The enrolled candidates will have to go through the following course work to qualify for the course.

Course Work : one semester course work of 20 credits

Review of his/ her own research topic:	=>	5	credit	point.
Seminar presentation:	=>	5	credit	point.
Seminar attendance:	=>	2	credit	point.
Methodology, Instrumentation & Techniques Lectures:	=>	5	credit	point.
Computation and statistical methods:	=>	3	credit	point.