



University of Calcutta

Department of Seed Science & Technology

Ph.D. Entrance Examination (Seed Science & Technology) : 2014

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 Seed Science & Technology (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 & practices of seed production - concept of genetic purity of varieties, isolation distance, concept of nucleus, breeder, foundation and certified seeds, concept of hybrid seed production, agronomic management of seed production, seed production of forest tree seeds.

Synthesis of food reserves- polysaccharides, proteins and lipids, physiology of seed development, seed maturation and ripening, dormancy, photosynthesis, respiration, photoperiodism, thermoperiodicity, germination, breakdown of seed storage products during germination, seedling establishment, micropropagation.

Pollination, fertilization, seed and fruit development, polyembryony and apomixis, food reserve- storage protein, carbohydrate, polysaccharides, oil and fats, phytins, hormones and seed development, morphology of seeds for varietal identification, isozymes, RFLP/RAPD, storage protein-banding pattern in cultivar identification.

Orthodox and recalcitrant seeds, seed viability, concept of seed vigour and its measurement; physiological, biochemical and cytological changes associated with seed deterioration, prediction of vigour of orthodox and recalcitrant seeds, seed storage, symptoms of seed deterioration, seed invigoration treatments, seed borne fungi and diseases, pre- and post-harvest effects on seed quality; seed pathology and seed entomology; seed testing and quality control, seed sampling, seedling evaluations, purity analysis, concept & classification of quality seeds, seed legislation, seed certification, development and operation of seed industry in India; developmental and germination physiology- physiology of fruit growth, effect of environment before harvesting, seed development and maturation, post-harvest physiology of fruit, climacteric rise, physiology of tuber and bulb formation, growth regulators - structure, biosynthesis, role and mechanism of action of auxin, gibberellin, cytokinin, ethylene and abscisic acid; seed priming, physiological and biochemical basis of priming; seed production in major field crops, vegetables and fruits.