University of Calcutta

Department of Seed Science and Technology

Departmental Committee has resolved the following points regarding the implementation of new Ph. D regulation in our department.

1. The Department has **5** vacancies for new Ph.D. students. The reservation of candidates will be followed as per the Government Act – The West Bengal State Higher Educational Institutions (Reservation in Admission) Act, 2013 and The West Bengal State Higher Educational Institutions (Reservation in Admission) Rules, 2013.

2. The **Research Eligibility Test (RET)** for our Ph.D. Programme will be held on 28th March, 2016 at 1 p.m.

3. The **RET** will be of 50 marks in objective type test of 1 hr duration (Syllabus enclosed).

4. An interview will be held on 29th March, 2016 at 1p.m.for **RET** qualified as well as NET/ GATE/ SET qualified candidates or Inspire Fellow.

5. Successful candidates will be eligible to register for their Ph.D. in Department of Seed Science and Technology.

6. The last date for the submission of duly filled in application form alongwith application fees of Rs. 100/- to be submitted to the Head, Department of Seed Science and Technology on or before 21st March, 2016.

7. The following format has been fixed for the coursework of the enrolled candidates for Ph.D. programme after which they will be awarded with a completion certificate.

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.

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Department of Seed Science & Technology

Ph.D. Entrance Examination (Seed Science & Technology) : 2016

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, photosysnthesis, 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, RELP/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.