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Professor & Chairman

Dept. of P.G. Studies and  
Research in Applied Botany  
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Date: 04-12-2018

**Ph.D Entrance Examination in Botany, December- 2018**

The Ph.D. entrance examination for the candidates who have applied for Ph.D in Botany of this University in response to the Notification has been scheduled on **Saturday the 15<sup>th</sup>-December-2018**. You are requested to go through the following Regulations of Kuvempu University;

1. The entrance examination will be held in the **Department of Botany, Kuvempu University**, Jnanasahyadri campus, Shankaraghatta, Shivamogga Dist. on **15.12.2018**.
2. The examination will commence at **10.00 AM**. (10.00 AM TO 1.00 P.M.)
3. The entrance test shall be conducted by the Departments as per the following norms.
4. Duration of entrance test: **3.00 hrs**.
5. The candidates should report at **9.30 AM on 15-12-2018** along with **2 stamp sized photograph**. The **Admission Ticket** will be issued before the commencement of examination on the same day.
6. **No TA/DA or accommodation** will be provided by the University for attending the entrance examination.
7. Candidates who have not enclosed the P.G Degree Marks cards/Caste certificates ( SC, ST, Cat-I, IIA, IIB, IIIA, IIIB,) along with their application, should bring a copy of the same while appearing for the entrance examination.
8. A copy of the Ph.D entrance syllabus along with the model question paper is enclosed.

Sd--  
Chairman

**MODEL QUESTION PAPER**

**Ph.D. Entrance Test, December 2018**

**Subject: BOTANY**

**Time: 3 hrs**

**Max. Marks: 90**

Instructions to candidate: *Answer all questions.*

*Illustrate wherever necessary*

I. Objective type questions

**1x20=20**

*(Answer all 20 Multiple Choice questions from 1-20)*

1.

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20.

II. Write short note on any **FIVE** of the following:

**5x6=30**

1.

2.

3.

4.

5.

6.

7.

8.

III. Answer **any FOUR** the following questions (Essay type):

**4x10=40**

9.

10.

11.

12.

13.

14.

## Research Methodology

1. **WHAT IS RESEARCH?** Definition of Research, Reflection , Basic and applied research, Qualities of Researcher, Components of Research Problem, Various Steps in Scientific Research.
2. **LITERATURE COLLECTION:** Need of review of literature, review process and bibliography, Sources of Data: Primary Data, Secondary Data, Working bibliography, index cards and reference cards, literature citation.
3. **RESEARCH DESIGN:** Selection and formulation of research problem. Contents of the plan (protocol), Choice of research topic, Synopsis, Research Design & Plan, Significance of research design, Meaning & process of design. Introduction to Research & plan Research methodology. Writing the plan (protocol).
- 4 **SAMPLING DESIGN-** Census and sample survey, steps in sampling, characteristics of good sampling design, types of sample designs, how to select a sample random design, complex random sample. Arithmetical Mean, mode, Standard deviation, T- test.
- 5 **TECHNIQUES IN BOTANY:** Microscopy, micrometry, centrifugation, pH and pH meter, chromatography, electrophoresis, colorimetric and spectrophotometer methods, PCR, Gel-doc, Elisa, handling microorganisms in laboratory, laboratory safety and disposal of Bio hazards, chemical hazards, fire hazards ,electrical hazards, noise and radiation hazards.

## Cognate subject : Botany

1. **General account on morphology and economic importance of Algae, Bryophytes Pteridophytes and Gymnosperms. Angiosperm Taxonomy:** Major systems of classification: Sexual systems and modern system of classification; Biodiversity profile in India and Karnataka; Hot spots; threat to Biodiversity; IUCN threat categories, Red Data Book; Conservation measures of Biodiversity.
2. **Environmental pollution and management:** Air, Water and Industrial pollution; Hazardous waste management: Hazardous substances and hazardous wastes and sources, composition, physical form, quantity and quality of hazardous wastes. Waste minimization (physical, chemical and

biological disposal treatment technique); Remote sensing and GIS: Basic and fundamental concepts of remote sensing, fundamentals of satellite image interpretation. Biodegradation of pesticides. Environmental Impact Assessment.

3. **Post Harvest Technology:** Post harvest practices- processing, preservation transportation and marketing of agricultural crops(wheat , rice maize, millets, cotton, sunflower oil seeds soybean seeds, coconut) ; vegetables; fruits; medicinal plants; ornamental plants; Post harvest losses.
4. **Plant Physiology and Metabolism:** Recent developments in Photosynthesis, Respiration and Photorespiration - an overview; Signal transduction - receptors - phytochrome, ABA, G proteins and phosphate signaling cyclic nucleotides, Calcium, protein kinases. Senescence and programmed cell death.
5. **Cell and molecular biology:** Regulation of gene action in prokaryotes - transcriptional control mechanism negative and positive control, translational control, posttranslational control. Regulation of gene action in eukaryotes - kinds of regulations at different levels Re-combinant DNA and genetic engineering; isolation of nucleic acids, radioactive labeling of nucleic acids, restriction endonucleases, cloning vectors, vectors in molecular biology, DNA blotting, preparation of DNA complementary to RNA. Gene library.
6. **Plant Biotechnology:** Techniques of plant regeneration - Plant tissue culture, protoplast culture, somatic embryogenesis, anther and ovary culture and synthetic seeds: Different types of Secondary metabolites, production, factors, affecting yield, Biotransformation,different types with examples. Biosensor and biochips. Micro propagation - different stages of micropropagation, rooting and establishments in herbs & woody plants. Development of stress tolerant plants; Transgenics in crop improvement.
7. **Medicinal Plants and Phytochemistry:** Scope of medicinal plants, poisonous plants and plants of importance in pesticides and essential oil; Conservation of Endangered Medicinal and Aromatic plants with special reference to Karnataka; Intellectual property rights (patents, trade secrets, copyright, trademarks); IPR and plant genetic resources (PGR); GATT and TRIPs, patenting of biological material. Patenting transgenic organisms and isolated genes; patenting of genes and DNA sequence.
8. **Mycology:** Mutualistic symbiosis - Introduction and importance - Mycorrhizae kinds and biology of mycorrhizae; Lichens - mycobiont & phycobiont partners, morphological forms of lichens, reproduction,

physiological relationships, Endosymbiosis ;endophytes and their taxonomy, endophytic mutualism, genetic variation in plant pathogen populations.

9. **Microbiology:** Microbiology of Air, Water and Food; Reproduction in microbes: methods of reproduction in bacteria, fungi, and viruses and in algae; Microbial genetics; structure of bacterial genome, mutations in microbes, bacterial recombination, bacterial plasmids and their application in genetic engineering; Microbial metabolism - Utilization of hexoses- EMP, PP, ED and PK pathways, and TCA cycle. Bacterial respiration and fermentation.
10. **Plant Pathology:** Plant disease, diagnosis - techniques for the detection of plant pathogenic fungi, viruses, viroids, bacteria, and nematodes - conventional and modern methods of diagnosis including seed health testing methods; Signaling in plant disease resistance mechanisms, RNA as a signal, coordination of cell death responses and interplay of down stream signaling pathways.

Sd/-  
Chairman

  
**KUVEMPU UNIVERSITY**

**Department of Applied Botany**

**Candidates Appearing for Ph.D. Entrance in Botany-2018-19**

Sl No	Names of the Candidate	Reg. No.
1.	Pallavi M	BPET-1801
2.	Prasanth Kumar C S	BPET-1802
3.	Attar Ayesha A	BPET-1803
4.	Thippeswamy A M	BPET-1804
5.	Shreeharsha K S	BPET-1805
6.	Mohammad Yaseen I Dodamani	BPET-1806
7.	Swatt Baliyan	BPET-1807
8.	Guru Prasad V	BPET-1808
9.	Kantharaja R	BPET-1809
10.	Samartha J R	BPET-1810
11.	Vijaya Kumar M A	BPET-1811
12.	Deepika C	BPET-1812
13.	Srusti S N R	BPET-1813
14.	Ashoka G B	BPET-1814
15.	Venkatesh Prasad Yadav E	BPET-1815
16.	K Manjunath	BPET-1816
17.	Yogashree G D	BPET-1817
18.	Sagnik Base	BPET-1818
19.	Shridevi K	BPET-1819
20.	Devaraj R	BPET-1820
21.	Rashmi K P	BPET-1821
22.	Venukumar M	BPET-1822
23.	Balakrishna S M	BPET-1823
24.	Chidananda S	BPET-1824
25.	Sowmya G H	BPET-1825
26.	Veena K H	BPET-1826
27.	Meghana L	BPET-1827
28.	Panduranga Achari	BPET-1828
29.	Nalini T J	BPET-1829
30.	Meghashayam K Kammar	BPET-1830
31.	Divyashree T S	BPET-1831
32.	K.N. Rathanakara	BPET-1832
33.	Kavya H S	BPET-1833
34.	Manjesh M	BPET-1834

35.	Mahesha N	BPET-1835
36.	Vikas R	BPET-1836
37.	Shaila M	BPET-1837
38.	Soumyashree N	BPET-1838
39.	Madhura S.	BPET-1839
40.	Bhagya M	BPET-1840
41.	Anwar Husain Rozindar	BPET-1841
42.	Thejeswini P G	BPET-1842

Sd/-  
Chairman