


KUVEMPU UNIVERSITY
Dept of P.G studies & Research Applied Botany
JnanSahyadri
Shankaraghatta-577451 Shimoga (Dist)

DATE :01-08-2023

INTIMATION FOR Ph.D. ENTRANCE EXAMINATION

With reference to your application for Ph.D. Degree. you are hereby informed to attend the written entrance examination for Ph.D.in Botany

Date: 09-08-2023


Venue :Seminar Hall .Dept.of Applied Botany .Kuvempu University. shankaraghatta - 577451

Time: 11 AM To 2 PM

Please note: Only the candidates who have obtained M.Sc. Degree in concerned subject with not less than 55% marks are eligible to write entrance test

Guidelines for the test

- 1) Maximum marks for entrance examination :90+10 marks for VIVA-VOCE
- 2) Nature of questions : Objective type and multiple answer questions
- 3) Syllabus for entrance :Research Methodology and cognate subject- Applied Botany
- 4) Number of question :20 each carrying 1 marks -50% of the questions will appear from Research Methodology and 50% of the questions shall be from the cognate subject Applied Botany
- 5) Duration of entrance test : 3 hours.



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CHAIRMAN
Dept. of P G Studies & Research
in Applied Botany
Kuvempu University
Shankaraghatta - 577451

DATE :01-08-2023

Candidate list for Appearing Ph.D Entrance Exam -2022-23

Eligible candidates

Sl.NO	Name of candidate	Reg.no	Percentage
01	NANDANA S TEMBE	PHDAB202201	81.30
02	RENUKA P	PHDAB202202	76.90
03	DEVAKI R	PHDAB202203	70.64
04	MEGHA SARJAPUR	PHDAB202204	68.40
05	SUMA M K	PHDAB202205	78.80
06	BHAVANI S	PHDAB202206	74.71
07	KEERTHANA N S	PHDAB202207	81.32
08	VIJAYALAKSHMI T	PHDAB202208	75.65
09	PRAMEELA B M	PHDAB202209	61.00
10	ARCHITHA A	PHDAB202210	66.00
11	JAMUNABAI NARAYANASA KATWA	PHDAB202211	67.21
12	DESHADRI K M	PHDAB202212	74.25
13	BOMMALINGAIAH. B. P	PHDAB202213	61.09
14	MANJUNATH SWAMY K S	PHDAB202214	64.09
15	CHIDANANDA .T .A	PHDAB202215	70.11


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MODEL QUESTION PAPER

Ph.D. Entrance Test, *August - 2023*
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.

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Department of Post Graduate Studies and Research in Applied
Botany

Ph.D Entrance Test - SYLLABUS

Paper 1: 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.

References

- 1.Kothari C R 2008. Research methodology. New age international,New Delhi
- 2.Baker and Howell .1978. Preparation of Reports, John Wily, Newyork
3. Satheesh M K. 2008. Bioethics and Biosafety. IK Int. Publishing House,New Dehli
- 4 Gurumani N . 2006. Research Methodology for Biological sciences, MJB Publishers
Nallathambi street, Chennai-6000 005

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Department of Post Graduate Studies and Research in Botany

Ph.D Entrance Test - SYLLABUS Paper

2 Cognate subject : Applied 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. Biosensors and biochips. Micro propagation - different stages of micropropagation, rooting and establishment 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.