

RECRUITMENT

Advertisement No. RFR/3/213/2015-Estt./Vol. XII dated 09.09.2022

Applications are invited from the citizens of India who fulfil the requisite qualifications mentioned below in the prescribed format for the following posts.

Name of the posts & number of vacancies

Sl. No.	Name of Posts	Pay Scale	No. Of Posts	Un Reserved	SC	ST	OBC	Economically Weaker Section	Person with Disabilities	Ex Service men
1	Technical Assistant	Pay Scale: Level-5; Rs. 29,200-92,300/-	1 (Botany)	2	0	0	0	0	0	0
			1 (Agriculture)							

1. Details of Posts and Selection Process:

Sl. No.	Name of Post	Post Code	Eligibility	Selection Process
1	Technical Assistant- (Botany & Agriculture)	TA- (Bot)	(i) Age Limit: Not below 21 years or exceeding 30 years. (ii) Essential Qualification: Bachelor's degree in Science in the relevant field/specialization or equivalent from a recognized University.	There will be an objective type of questions paper comprising 100 questions in total from different subjects. Questions of relevant subject will be according to graduation level. Duration of exam will be 03 hours. The details of syllabus is as follows: General awareness & reasoning -20 English & General Science -20 Arithmetic -20 Relevant Subject -40 <hr/> Total No. Of Questions 100
		TA- (Agri)		

2. Important Instructions:

- (i) Mere fulfilling of minimum qualification and experience requirement shall not vest any right in the candidate for being called for written examination.
- (ii) All the applications received within due date in response to this advertisement shall be considered for shortlisting by a screening committee and only the candidates recommended by the screening committee will be called for appearing in the written examination. The decision of this office will be final and this office will not entertain any correspondence in this regard.
- (iii) **Venue of written examination:** The examination shall be conducted at Rain Forest Research Institute, Jorhat.
- (iv) **Application Fee:** Non-refundable amount of **Rs. 300.00 (Rupees Three Hundred only)** is to be deposited to this office **Savings Bank Account No. 393102010003153 (IFSC Code: UBIN0539317) with Union Bank of India, Jorhat Branch in favour of Director, Rain Forest Research Institute, Jorhat** and proof of payment/deposit of application fee is to be attached with the application form. Persons with disabilities (PWD) and female candidates are exempted from payment of fees. Relaxation in fees is not applicable to SC/ST/OBC candidates applying against unreserved posts.
- (v) **Age Limit:** The crucial date for determining the minimum and maximum age in each case will be the **closing date for receipt of applications.**
- (vi) No TA/DA will be admissible to the candidates for appearing in written examination.
- (vii) Last date for receipt of application is **10.10.2022**. For candidates of Andaman & Nicobar and Lakshadweep Islands, the last date of receipt of application is **25.10.2022**.
- (viii) The Director, Rain Forest Research Institute, Jorhat reserves the right to increase or decrease the posts or not to fill any or all advertised posts without assigning any reason.

3. How to apply:

- (i) Interested candidates who fulfil all the eligibility criteria and are willing to serve anywhere in India may apply to the **Director, Rain Forest Research Institute, Sotai Deovan, Jorhat-785010, Assam** along with self attested copies of:
- Certificate of proof of age.
 - Certificates/Mark-sheets of educational qualification.
 - Certificate in support of claim for age relaxation/fee concession, as applicable.
- (ii) The envelope containing the application should be marked as “Application for the post of _____ (with post code)”

4. INVALID APPLICATIONS

Applications may be rejected due to reasons such as:

- Incomplete or illegible and not submitted on prescribed format.
- Unsigned/undated without photograph.
- Under aged/over aged candidates.
- Not possessing the requisite educational qualification at the time of submitting application.
- Educational qualification from any non-recognised board/universities.
- Application received after due date.
- Application without prescribed fees.
- Any other irregularity like mutilated or damaged application/documents etc.
- Certified true copies of testimonials not enclosed etc.

The selected candidates will be primarily required to work in Rain Forest Research Institute (RFRI), Jorhat, Assam including its centres at Aizawl and Agartala. However, they may also be required to serve anywhere in India under Indian Council of Forestry Research & Education, Dehradun and its Institutes.

Interested candidates who fulfil all the requirements and are willing to serve anywhere in India may apply to the **Director, Rain Forest Research Institute, Sotai Deovan, Jorhat-785010, Assam** furnishing their application in the prescribed form along with self attested copies of all certificates, testimonials.

Candidates already employed in the service of Govt./Autonomous organizations may send their applications through proper channel. They are required to submit “No Objection Certificate” along with application from previous employer. This applies also to the employees of Rain Forest Research Institute, Jorhat.

The decision of the Director, Rain Forest Research Institute, Jorhat in all matters relating to eligibility, acceptance or rejection of applications, mode of selection, conduct of written examination and not to fill up all or any posts will be final. The Director, Rain Forest Research Institute, Jorhat reserves the right to cancel the recruitment process any time due to any administrative exigency.

N.B.: RFRI will not be responsible for loss or delay in postal service. Candidates are requested to visit official websites www.icfre.org and www.rfri.icfre.org under option Recruitment for details of the advertisement and downloading of Application Form.

Ryit K. Choudhary
9.9.2012

DIRECTOR
Rain Forest Research Institute
Jorhat, Assam

Format of the Application Form

To,

The Director
Rain Forest Research Institute
Sotai Deovan
Jorhat-785010, Assam

Affix self attested
passport size
photograph

Application for the post of _____

1. Advertisement No. : RFRI/3/213/2015-Estt./Vol. XII dated 31.08.2022
2. Amount of Application Fee :Rs. 300.00 Transaction No. Date.....
3. Name of Applicant
(in Block Letters) :
4. Father's/Husband's Name :
5. Date of Birth :
6. Age as on 10/10/2022 : Years.....Months.....Days
7. Category (tick wherever applicable) : UR SC ST OBC PWD EWS
8. Nationality : Indian Others Specify _____
9. Gender : Male Female
10. Address for communication :
-
-
-
11. Mobile No./E-Mail ID :
12. Educational Qualification :

Exam Passed	Year	Board/School/University

13. Experience if any:

I hereby declare that the above information is correct to the best of my knowledge and belief that nothing has been concealed or distorted. If any time, I am found to have concealed/distorted any material information, my appointment shall be liable for summary termination.

Place: _____

Date: _____

Signature of Candidate

SYLLABUS AND SCHEME FOR WRITTEN EXAMINATION
(Agriculture)

A. General Awareness and Reasoning (20 Marks)

i) General Awareness

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current event and of such matters of everyday observation and experience in their scientific aspects as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining to History, Culture, Geography, Economic Scene, General Policy and Scientific research etc. These questions will be such that they do not require a special study of any discipline.

ii) Reasoning

Questions of reasoning would include questions of both verbal and non-verbal type. This component will include questions of analogies, similarities and differences, spatial visualization, spatial orientation, problem solving, analysis, judgment, decision making, visual memory, discrimination, observation, relationship concepts, arithmetic reasoning, verbal and figure classification, arithmetical number series, non-verbal series, coding and decoding statement, conclusion, syllogistic reasoning etc.

B. General English & General Science (20 Marks)

i) General English

Questions in this component will be designed to test the candidate's understanding and knowledge of English language and will be based on spot the error, fill in the blanks, synonyms, antonyms, spellings/detecting misspelled words, idioms & phrases, one word substitution, improvement of sentences, active/passive voice of verbs, conversion into direct/indirect narration, comprehension passage etc.

ii) General Science

Basic understanding of science expected of a high school student.

C. Arithmetic (20 Marks)

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The part will include questions on problems relating to number system, computation of whole numbers, decimals and fractions, relationships between numbers, fundamental arithmetical operations, percentage, ratio and proportion, average, interest, profit and loss, discount, use of tables and graphs, menstruation time and distance ration and time etc.

D. RELEVANT SUBJECT-AGRICULTURE (40 Marks)

➤ **AGROMETEORLOGY**

Elements of Weather-rainfall, temperature precipitation, humidity, wind velocity, Sunshine weather forecasting, climate change in relation to crop production.

➤ **AGRONOMY**

Agronomy as a science and its scope, plant growth and development, environmental effects on crop growth, ideal plant type, tillage seed quality, sowing, crop density an spatial arrangement, crop nutrition, organic manures and fertilizers, irrigation and drainage, weed management, distribution of crops, cropping system, selection of crops and varieties for multiple cropping, crop yield

contributing character, organic farming concept, practices and scope in India; Crop production in dry lands, salt affected, acidic, flood affected, waterlogged and eroded areas.

➤ **CROP PHYSIOLOGY**

Plant cell-an introduction, laws of thermodynamic, diffusion and osmosis, the concept of water potential, cell water relations, absorption of water, transpiration, stomatal physiology, ascent of sap, ion uptake and metabolic utilization of mineral ions, deficiencies of mineral ions in plants, photosynthesis, respiration, fat metabolism, physiology of growth and development, growth regulators, physiological parameter influencing the productivity of major cereal, pulse and oilseed crops.

➤ **ELEMENTARY BIOCHEMISTRY, GENETICS AND PLANT BREEDING**

Cell, Biomolecules, water, pH and buffer, cellular constituents: Structure and function-amino acids and protein, carbohydrates, lipids and biomembrances and nucleic acids; Enzymes-function, properties and mechanism, metabolism of cellular constituents: Central metabolic pathways: Derivative pathways-glycolysis, hexose mono phosphate pathways, degradation of starch, sucrose, other sugars, fatty acids and acylglycerols, protein and amino acids; Biosynthetic pathways, photosynthesis, formation of sucrose and starch, Krebs cycle and electron transport chain; Nitrogen and sulphur cycles; Nitrogen fixation, assimilation of ammonia; synthesis of DNA, RNA and post mendelian concepts of heredity, mendelian principles of heredity, probability and chi-square, cell and amino acid, chromosome structure. Cell division mitosis, meiosis, variation in chromosomes polytene chromosome, Lampbrush chromosomes. Dominance relationship, gene interaction, Multiple alleles, pleiotropism and pseudoalleles, sex determination, sex linkage, sex limited and sex influenced traits. Linkage, crossing over mechanism, chromosomes mapping, structural change in chromosomes: Deletion and duplication, translocation and inversion, "Numerical change in chromosomes, chemical basis of heredity" Gene concept, mode of replication of genetic material, transcript and translation genetic material. Gene regulation and operon concept. Mutation- Chemical and physical mutagens, mode of action of mutagens. Extra nuclear inheritance. Polygene and quantitative inheritance. Plant tissue culture, principle and application.

➤ **MICROBIOLOGY**

Microbial cell structure, Micro-organisms- Algae, Bacteria, Fungi, Actinomycetes, Protozoa and Viruses. Role of micro-organisms in respiration, fermentation organic matter decomposition.

➤ **ENTOMOLOGY**

Introduction and scope of Entomology, brief history of entomology in India, Insects as Arthropods and its relationship with phylum Annelida and other classes of Arthropoda, origin of insects, major points related to dominance of insects in Animal Kingdom. External morphology and anatomy of grasshopper; body segmentation, integument, thorax and abdomen, antennae, legs and wings and their modification, generalized mouth parts and their modification, Alimentary, Circulatory, Excretory, Respiratory, Reproductive and nervous system, major sensory organs like simple and compound eyes, chemoreceptors, endocrine glands; basic embryology and post embryonic development basic groups of present day insects with special emphasis to order and families of agricultural importance.

➤ **PLANT PATHOLOGY**

Importance of plant disease, scope and objective of plant pathology. Concept of plant diseases inanimate cause and plant virus. Classification of plant disease. Definition and terms, parasites, pathogens, biotrophs and hemibiotrophs, necrotrophs, pathogenicity, pathogenesis, virulence, infection, primary infection, inoculum, invasion and colonization, inoculum potential, symptoms,

incubation period, disease cycle, disease syndrome, single cycle disease, multiple cycle disease, alternate host, collateral host, predisposition, biotype, symbiosis, mutualism, antagonism. Pathogenesis & parasitism, Koch's postulate. Effect of pathogenesis on the plants, morphological changes, physiological changes, Development of epidemics. Principles and methods of plant disease management. Basic concepts; avoidance, eradication, projection, disease resistance and therapy. General Morphology, characteristics of fungi and somatic structure, reproduction of various structure. Basic and different methods of classification of fungi, taxonomy and nomenclature. General morphological and cultural characters of prokaryotes (Bacteria, basic methods of classification, taxonomy and nomenclature. Nutrition and effects of physiochemical factors on growth. Reproduction and life cycle. Genetics and variability, importance and general characters of mycoplasma, spiroplasma and Fastidious bacteria, reproduction, nomenclature and classification. Physical architecture and chemical composition of virus and virioids. Nomenclature and criteria of identification, multiplication, transmission and infective nature. General morphological characters, life cycle, reproduction of nematodes behavior in soil and nematodes as vector for other plant pathogens. Classification and general identifying characters of phanerogames plant parasites, reproduction and life cycle.

➤ **LIVESTOCK PRODUCTION SCOPE AND IMPORTANCE**

- a) Importance of live stock in agriculture and industry, white revolution in India.
- b) Important breeds Indian and exotic, distribution of cows, buffaloes and poultry in India. Care and management:
 - i) Systems of cattle and poultry housing
 - b) Principles of feeding, feeding practices.
 - c) Balanced ration-definition and ingredients.
 - d) Management of Calves, bullocks, pregnant and milch animals as well as chicks cockrels and layers, poultry.
 - e) Signs of sick animals, symptoms of common diseases in cattle and poultry, Rinderpest, black quarter, foot and mouth, mastitis and haemorrhagic septicaemia coccidiosis, Fowl pox and Ranikhet disease, their prevention and control. Artificial Insemination: Reproductive organs, collection, dilution and preservation of semen and artificial insemination, role of artificial insemination in cattle improvement. Livestock Products: Processing and marketing of milk and Milk products

➤ **CROP PRODUCTION**

- a) Targets and achievements in food grain production in India since independence and its future projections, sustainable crop production, commercialization of agriculture and scope in India. B) Classification of field crops based on their utility-cereals, pulses, oil seeds, fibre, sugar and forage crops.

➤ **SOIL, SOIL FERTILITY AND WATER MANAGEMENT**

Soil as a natural body and medium for plant growth; soil component and soil plant relationship; soil farming rocks and minerals; weathering and process of soil formation; physical properties of soil texture, structure, density and porosity, soil colour consistence and plasticity, soil reaction pH and its measurement, soil acidity and alkalinity, buffering, effect of pH on nutrient availability, soil colloids-inorganic and organic; silicate clays: constitution and properties; humic substances nature and properties; ion exchange, cation exchange capacity, base saturation; soil organic matter: composition, properties and influence on soil properties, transformation of organic and inorganic wastes in soil-Urban and Industrial wastes. Soil water retention, dynamics and availability; soil air composition and dynamic; source, amount and flow of heat in soils; soil temperature and plant growth; soil survey and classification, soil of India; soil pollution behavior of pesticides and inorganic contaminants, prevention and mitigation of soil pollution, methods of irrigation and drainage.

➤ **WEED CONTROL**

Introduction, costs to society from weeds, classification of weeds, ecology of weeds: Reproduction (Seed production, seed dissemination, seed germination, vegetative reproduction), geographical distribution, factor influencing weed distribution, weed succession on uncultivated sites, competition between crops and weeds, Concepts of prevention, eradication and control of weeds, Weed control methods: Physical, cultural, biological, chemical and integrated weed management, Introduction to herbicides: basic concepts, polar vs Non polar, Esters, Salts, acids etc, surfactant Chemistry. Factors affecting foliage active herbicides: reaching the target plants, spray retention, absorption into leaf, translocation, and factors influencing soil applied herbicides: microbiological effect, soil absorption, photo decomposition and volatilization, spray of herbicides.

➤ **HORTICULTURE**

Definition and its branches; importance and scope; horticultural and botanical classification; climate, soil and distribution of fruit crops, propagation and nursery raising; principles of orchard establishment and management; flower bud differentiation and propagation; causes of unfruitfulness; pollinizers and pollinators; environmental and soil factors effecting vegetable production, kitchen gardening; types of gardens and their parts; care and maintenance of ornamental plants; lawn making; knowledge of landscaping of rural and urban area; exposure to important medicinal & aromatic plants, spices and condiments, use of plant bioregulator in horticulture, post Harvest Technology-Principles and Practices.

➤ **FUNDAMENTALS OF EXTENSION EDUCATION**

Meaning, concept and process of extension education. Objective, principles and philosophy of extension. Education- formal and non-formal. Components of behaviour-knowledge, attitude, skill and motivation. Principles and steps in teaching-learning process, learning situation. Implication of teaching. Concept, need and steps in programme planning. Principle of programme planning, Programme planning process.

➤ **AGRICULTURAL ECONOMICS**

Nature and tools of Economic analysis, micro & macro economics, consumer behavior, demand and supply, production, costs, firm, price determination, markets, welfare economics, consumption, saving and investment, business cycle, inflation, income and interest, agriculture in economic development, agricultural policies, role of infrastructure and technological change, land reforms, agricultural finance, rural credit, financial statements, agricultural marketing, market functions, marketing institutions, trade, role of economics in natural resource accounting, allocation of renewable and non-renewable resources, farm records, farm planning and budgeting, production functions, decision making under risk and uncertainties, farm efficiency measures, resource use efficiency, returns to scale, diversification and insurance.

➤ **AGRICULTURAL ENGINEERING**

Farm structures, farm house, dairy and poultry housing, farm site, food grain storage, elementary knowledge on engines/motors, common troubles and remedies, tractors and common equipments.

Rajib K. Bordoloi
9.9.2014

DIRECTOR

Rain Forest Research Institute
Jorhat, Assam

SYLLABUS AND SCHEME FOR WRITTEN EXAMINATION
(Botany)

A. General Awareness and Reasoning (20 Marks)

i) General Awareness

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D. RELEVANT SUBJECT-BOTANY (40 Marks)

➤ **BIODIVERSITY**

Microbes, Algae, Fungi and introduction to Archegoniate, Bryophytes, Pteridophytes, Gymnosperms.

➤ **PLANT ECOLOGY AND TAXONOMY**

Introduction, Ecological factors, Plant communities, Ecosystem, Phytogeography, Introduction to plant taxonomy, Identification, Taxonomic evidences from palynology, cytology, phytochemistry and molecular data, Taxonomic hierarchy, Botanical nomenclature, Classification, Biometrics, numerical taxonomy and cladistics.

- **PLANT ANATOMY AND EMBRYOLOGY**
Meristematic and permanent tissues, Organs, Secondary Growth, Adaptive and protective systems, Structural organization of flower, Pollination and fertilization, Embryo and endosperm, Apomixis and polyembryony.
- **PLANT PHYSIOLOGY AND METABOLISM**
Plant-water relations, Mineral nutrition, Translocation in phloem, Photosynthesis, respiration, Enzymes, Nitrogen metabolism, Plant growth regulators, Plant response to light and temperature.
- **CELL AND MOLECULAR BIOLOGY**
Techniques in Biology (Principles of Microscopy, Light Microscopy etc.), Cell as a unit of Life, Cell Organelles (Mitochondria, Chloroplast, ER, Golgi body & Lysosomes, Peroxisomes and Glyoxisomes, Nucleus), Cell Membrane and Cell Wall, Cell Cycle, Genetic Material (DNA, DNA replication (Prokaryotes and Eukaryotes), Transcription (Prokaryotes and Eukaryotes), Regulation of gene expression.
- **ECONOMIC BOTANY AND BIOTECHNOLOGY**
Origin of Cultivated Plants, Cereals, Legumes, Spices, Beverages, Oils and Fats, Fibre Yielding Plants, Introduction to Biotechnology, Plant Tissue Culture, Recombinant DNA Techniques.
- **GENETICS AND PLANT BREEDING**
Heredity (Brief life history of Mendel, terminologies, laws of inheritance etc.), Sex-determination and Sex-Linked Inheritance Linkage and Crossing over, Mutations and Chromosomal Aberrations, Plant Breeding, Methods of crop improvement, Quantitative inheritance, Inbreeding depression and heterosis, Crop improvement and breeding.
- **ANALYTICAL TECHNIQUES IN PLANT SCIENCE**
Imaging and related techniques (principles of microscopy, light microscopy, fluorescence microscopy etc.), Cell Fractionation, Radioisotopes, Spectrophotometry, Chromatography, Characterization of Proteins and Nucleic Acids, Biostatics.
- **BIOINFORMATICS**
Introduction to Bioinformatics, Databases in Bioinformatics, Biological Sequence Databases, Sequence Alignments, Molecular Phylogeny, Applications of Bioinformatics.
- **RESEARCH METHODOLOGY**
Basic concepts of research, General laboratory practices, Data collection and documentation of observations, Overview of biological problems, methods to study plant cell/tissue structure, plant micro techniques, the art of scientific writing and its presentation.

Rejo K. Mohd
9.9.2022

DIRECTOR
Rain Forest Research Institute
Jorhat, Assam