



भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान
(पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार के अधीन एक स्वायत्त परिषद)

सोताई देववन, जोरहाट-785010, असम

ICFRE-RAIN FOREST RESEARCH INSTITUTE

(An Autonomous Body of Ministry of Environment, Forest & Climate Change, Govt. of India)

Sotai Deovan, Jorhat-785010, Assam

दूरभाष/Phone: 0376-2305101/105

ई मेल/E-Mail ID: dir_rfri@icfre.org



संख्या/No.: 3/213/2015-Estt./Vol. XIII/ 347

दिनांक/Dated the 19th June, 2023

RECRUITMENT NOTICE

ICFRE-Rain Forest Research Institute, Jorhat invites applications from the citizens of India who fulfill the requisite qualifications for the following posts under 7th CPC in the scale of pay as indicated below and carrying usual allowances as admissible as per Govt. of India.

1. **Name and No. of Posts:**
- | | | | |
|-----|---------------------|---|----|
| i. | Technical Assistant | : | 02 |
| ii. | Multi Tasking Staff | : | 01 |

2. **Reservation of Posts:**

Sl. No.	Name of Posts	Discipline	Un Reserved	OBC	Economically Weaker Section	Person with Disabilities (Locomotor)
1	Technical Assistant	Agriculture	1	0	0	0
2	Technical Assistant	Forestry	0	1	0	0
3	Multi Tasking Staff		0	0	0	1

3. **Scale of Pay:**

Sl. No.	Name of Posts	Post Code	Level of Pay	Pay Scale (₹)
1	Technical Assistant	TA (Agri.)	5	29,200-92,300
		TA (For.)		
2	Multi Tasking Staff	MTS	1	18,000-56,900

4. **Age Limit:**

- a. **For the post of Technical Assistant:** Not less than 21 (Twenty One) years and not more than 30 (Thirty) years as on the last day of receipt of application. Only OBC candidates can apply for the post of Technical Assistant (Forestry) and age relaxation upto 3 (Three) years will be them as per Govt. norms.
- b. **For the post of Multi Tasking Staff:** Not less than 18 (Eighteen) years and not more than 37 (Thirty Seven) years (42 years for SCs/STs and 40 years for OBCs) as on the last day of receipt of application.
- c. There will be no age limit for the employees of ICFRE for the Direct Recruitment Posts: Technical Assistant (Agriculture & Forestry).
- d. The crucial date for determining the minimum and maximum age in each case will be the **closing date for receipt of applications**

5. **Educational Qualification:**

- a. **For the post of Technical Assistant:** Bachelor's degree in Science in the relevant discipline or equivalent from a recognized University.
- b. **For the post of Multi Tasking Staff:** 10th class pass from a recognized Board.
➤ **Desirable:** 3 years or more experience in relevant trade.

6. **Application Fee:** Non-refundable amount of ₹ 500.00 (Rupees Five Hundred only) is to be deposited to this office Savings Bank Account No. 393102010059247 (IFSC Code: UBIN0539317) with Union Bank of India, Jorhat Branch in favour of Director, ICFRE-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.

7. **Important Instructions:**

- a. Mere fulfilling of minimum qualification and experience requirement shall not vest any right in the candidate for being called for written examination.
- b. 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

*Rec'd by Mr. [Signature]
19.6.2023*

appearing in the written examination. The decision of this office will be final and this office will not entertain any correspondence in this regard.

- c. **Venue of written examination:** The examination shall be conducted at ICFRE-Rain Forest Research Institute, Jorhat.
- d. No TA/DA will be admissible to the candidates for appearing in written examination.
- e. Last date for receipt of application is **19.07.2023**. For candidates of Andaman & Nicobar and Lakshadweep Islands, the last date of receipt of application is **04.08.2023**.
- f. The Director, ICFRE-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.
- g. **Candidates who will apply for the post of Multi Tasking Staff with less than 40% disability will not be considered for any relaxation which is applicable to Persons with bench mark disability.**

8. **How to apply:**

- (i) Interested candidates who fulfill all the requirements and are willing to serve anywhere in India may apply to the **Director, ICFRE-Rain Forest Research Institute, Sotai Deovan, Jorhat-785010, Assam** along with self attested copies of:
 - (a) Certificate of proof of age.
 - (b) Certificates/Mark-sheets of educational qualification.
 - (c) Certificate issued by the competent authority in prescribed format in support of claim belonging to **Persons with Disability** (for the post of MTS), as applicable. In case the certificate is in a local vernacular language, its English translation should be submitted.
 - (d) Certificate in support of claim for age relaxation/fee concession, as applicable.
 - (e) OBC candidates who will apply against the reserved post, they have to mandatorily submit valid Non Creamy Layer Certificate issued by competent authority.
- (ii) The envelope containing the application should be marked as **“Application for the post of _____ (with post code)**

9. **Invalid Applications:**

Applications may be rejected due to reasons such as:

- (i) Incomplete or illegible and not submitted on prescribed format.
- (ii) Unsigned/undated without photograph.
- (iii) Under aged/over aged candidates.
- (iv) Not possessing the requisite educational qualification at the time of submitting application.
- (v) Educational qualification not recognized.
- (vi) Application received after due date.
- (vii) Application without prescribed fees and proof of payment of fees.
- (viii) Non submission of valid Non Creamy Layer Certificate (OBC).
- (ix) Any other irregularity like mutilated or damaged application/documents etc.
- (x) Certified true copies of testimonials not enclosed etc.

The selected candidates will be primarily required to work in ICFRE-Rain Forest Research Institute, 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.

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 ICFRE-Rain Forest Research Institute, Jorhat.

The decision of the Director, ICFRE-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, ICFRE-Rain Forest Research Institute, Jorhat reserves the right to cancel the recruitment process at any time due to any administrative exigency.

N.B.: ICFRE-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.

Agib K. Omer
19.6.2023

DIRECTOR

ICFRE-Rain Forest Research Institute, Jorhat



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भर्ती सूचना

भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट; भारत के उन नागरिकों से आवेदन आमंत्रित करता है जो भारत सरकार द्वारा मान्य सामान्य भर्ती सहित नीचे दिए गए 7^{वें} सीपीसी के तहत वेतनमान में निम्नलिखित पदों के लिए अपेक्षित योग्यताएं पूरी करते हैं।

- पदों का नाम और संख्या:
 - तकनीकी सहायक : 02
 - मल्टी टास्किंग स्टाफ : 01

2. पदों का आरक्षण:

क्र.सं.	पदों का नाम	विषय (विद्या)	अनारक्षित	अन्य पिछड़ा वर्ग	आर्थिक रूप से कमजोर वर्ग	दिव्यांग व्यक्ति (लोकोमोटर)
1	तकनीकी सहायक	कृषि	1	0	0	0
2	तकनीकी सहायक	वानिकी	0	1	0	0
3	मल्टी टास्किंग स्टाफ		0	0	0	1

3. वेतनमान:

क्र.सं.	पदों का नाम	पद कोड	वेतन का स्तर	वेतनमान (₹)
1	तकनीकी सहायक	टीए (कृषि)	5	29,200-92,300
		टीए (वानिकी)		
2	मल्टी टास्किंग स्टाफ	एमटीएस	1	18,000-56,900

4. आयु सीमा:

- तकनीकी सहायक के पद हेतु: आवेदन प्राप्त करने के अंतिम दिन के अनुसार 21 (इक्कीस) वर्ष से कम और 30 (तीस) वर्ष से अधिक नहीं होना चाहिए। केवल अन्य पिछड़ा वर्ग अभ्यर्थी तकनीकी सहायक (वानिकी) के पद के लिए आवेदन कर सकते हैं और उन्हें सरकार के नियमानुसार 3 (तीन) वर्ष तक की छूट दी जाएगी।
- मल्टी टास्किंग स्टाफ के पद हेतु: आवेदन प्राप्त करने के अंतिम दिन के अनुसार 18 (अठारह) वर्ष से कम और 37 (सैंतीस) वर्ष (अनुसूचित जाति/ अनुसूचित जनजाति के लिए 42 वर्ष और अन्य पिछड़ा वर्ग के लिए 40 वर्ष) से अधिक नहीं होना चाहिए।
- सीधी भर्ती पदों के लिए भा.वा.अ.शि.प. के कर्मचारियों के लिए कोई उम्र सीमा नहीं होगी: तकनीकी सहायक (कृषि और वानिकी)।
- प्रत्येक मामले में न्यूनतम और अधिकतम उम्र निर्धारित करने की निर्णायक तिथि आवेदन प्राप्त करने की अंतिम तिथि होगी।

5. शैक्षणिक योग्यता:

- तकनीकी सहायक के पद हेतु: किसी मान्यता प्राप्त विश्वविद्यालय से संबंधित विषय में विज्ञान में स्नातक की डिग्री या समकक्षा।
- मल्टी टास्किंग स्टाफ के पद के लिए: किसी मान्यता प्राप्त बोर्ड से 10^{वीं} कक्षा उत्तीर्ण।

➤ वांछनीय: संबंधित क्षेत्र में 3 वर्ष या उससे अधिक का अनुभव।

आर के वर्मा

6. आवेदन शुल्क: निदेशक, भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट के पक्ष में यूनियन बैंक ऑफ इंडिया, जोरहाट शाखा के बचत बैंक खाता संख्या- 393102010059247 (आईएफएससी कोड: UBIN0539317) में ₹ 500.00 (पांच सौ रुपये मात्र) की अप्रतिदेय राशि जमा की जानी है और आवेदन शुल्क के भुगतान/जमा करने का प्रमाण आवेदन पत्र के साथ संलग्न किया जाना है। दिव्यांग व्यक्तियों (पीडब्ल्यूडी) और महिला अभ्यर्थियों को शुल्क के भुगतान से छूट दी गई है। अनारक्षित पदों के लिए आवेदन करने वाले अनुसूचित जाति/अनुसूचित जनजाति/अन्य पिछड़ा वर्ग के अभ्यर्थियों के लिए शुल्क में छूट लागू नहीं है।

7. महत्वपूर्ण निर्देश:

- न्यूनतम योग्यता और अनुभव की आवश्यकता को पूरा करने मात्र से अभ्यर्थी को लिखित परीक्षा के लिए बुलाए जाने का कोई अधिकार नहीं होगा।
- इस विज्ञापन के जवाब में निर्धारित तिथि के भीतर प्राप्त सभी आवेदनों को एक स्क्रीनिंग कमेटी द्वारा शॉर्टलिस्टिंग हेतु स्वीकार किया जाएगा और केवल स्क्रीनिंग कमेटी द्वारा अनुशासित उम्मीदवारों को लिखित परीक्षा में शामिल होने के लिए बुलाया जाएगा। इस कार्यालय का निर्णय अंतिम होगा और यह कार्यालय इस संबंध में कोई पत्राचार नहीं करेगा।
- लिखित परीक्षा का स्थान: परीक्षा भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट में आयोजित की जाएगी।
- लिखित परीक्षा में उपस्थित होने के लिए उम्मीदवारों को कोई टीए/डीए देय नहीं होगा।
- आवेदन प्राप्त करने की अंतिम तिथि 19.07.2023 है। अंडमान और निकोबार और लक्षद्वीप द्वीप समूह के अभ्यर्थियों हेतु आवेदन प्राप्त करने की अंतिम तिथि 04.08.2023 है।
- निदेशक, भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट बिना कोई कारण बताए पदों को बढ़ाने या घटाने या किसी या सभी विज्ञापित पदों को न भरने का अधिकार सुरक्षित रखते हैं।
- मल्टी टास्किंग स्टाफ के पद हेतु आवेदन करने वाले 40% से कम दिव्यांगता वाले अभ्यर्थियों को किसी भी छूट के लिए विचार नहीं किया जाएगा जोकि बेंच मार्क दिव्यांगता वाले व्यक्तियों पर लागू होता है।

8. आवेदन कैसे करें:

(i) इच्छुक अभ्यर्थी जो सभी आवश्यकताओं को पूरा करते हैं और भारत में कहीं भी सेवा करने के इच्छुक हैं, वे निदेशक, भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, सोताई, देववन, जोरहाट -785010, असम को निम्नलिखित स्वप्रमाणित प्रतियों के साथ आवेदन कर सकते हैं:

- उम्र का प्रमाण पत्र।
- शैक्षिक योग्यता के प्रमाण पत्र / मार्कशीट।
- दिव्यांग व्यक्तियों (एमटीएस के पद हेतु) से संबंधित दावे के समर्थन में निर्धारित प्रारूप में सक्षम प्राधिकारी द्वारा जारी प्रमाण पत्र, जैसा लागू हो। यदि प्रमाणपत्र स्थानीय भाषा में है, तो इसका अंग्रेजी अनुवाद प्रस्तुत किया जाना चाहिए।
- उम्र में छूट/शुल्क रियायत के दावे के समर्थन में प्रमाण पत्र, जैसा लागू हो।
- अन्य पिछड़ा वर्ग के अभ्यर्थी जो आरक्षित पद के लिए आवेदन करेंगे, उन्हें अनिवार्य रूप से सक्षम प्राधिकारी द्वारा जारी वैध नॉन क्रीमी लेयर प्रमाण पत्र प्रस्तुत करना होगा।

(ii) आवेदन वाले लिफाफे को " _____ के पद के लिए आवेदन (पद कोड सहित) के रूप में चिह्नित कर भेजा जाना चाहिए।

9. अमान्य आवेदन:

आवेदनों को निम्न कारणों से अस्वीकृत किया जा सकता है:

- अधूरा या अपठनीय और निर्धारित प्रारूप पर प्रस्तुत नहीं किया गया।
- बिना फोटोग्राफ के अहस्ताक्षरित/अदिनांकित।
- कम उम्र के / अधिक उम्र के अभ्यर्थी।
- आवेदन जमा करने के समय अपेक्षित शैक्षणिक योग्यता नहीं होना।
- शैक्षणिक योग्यता मान्य नहीं है।
- निर्धारित तिथि के बाद प्राप्त आवेदन।

आर. वं. बा. 19.6.2023

- (vii) निर्धारित शुल्क और शुल्क भुगतान का प्रमाण के बिना आवेदन।
- (viii) वैध नॉन क्रीमीलेयर प्रमाणपत्र (ओबीसी) जमा न करना।
- (ix) कोई अन्य अनियमितता जैसे कटे-फटे या क्षतिग्रस्त आवेदन/दस्तावेज आदि।
- (x) टेस्टमोनियल्स की प्रमाणित वास्तविक प्रतियां संलग्न नहीं हैं आदि।

चयनित अभ्यर्थियों को मुख्य रूप से भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट, असम में और इसके आइजोल और अगरतला स्थित केंद्रों में कार्य करना होगा। हालाँकि, उन्हें भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद, देहरादून और इसके संस्थानों के तहत भारत में कहीं भी सेवा करने की आवश्यकता हो सकती है।

सरकारी/स्वायत्त संगठनों की सेवा में पहले से कार्यरत अभ्यर्थी उचित माध्यम से अपने आवेदन भेज सकते हैं। उन्हें पिछले नियोक्ता से आवेदन के साथ "अनापत्ति प्रमाण पत्र" जमा करना आवश्यक है। यह भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट के कर्मचारियों पर भी लागू है।

निदेशक, भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट का निर्णय; पात्रता, आवेदनों की स्वीकृति या अस्वीकृति, चयन का तरीका, लिखित परीक्षा के संचालन और सभी या किसी भी पद को नहीं भरने से संबंधित सभी मामलों में अंतिम होगा। निदेशक, भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट के पास किसी भी प्रशासनिक आकस्मिकता के कारण किसी भी समय भर्ती प्रक्रिया को रद्द करने का अधिकार सुरक्षित है।

एन.बी.: भा.वा.अ.शि.प.-व.व.अ.सं.डाक सेवा में हानि या देरी के लिए जिम्मेदार नहीं होगा। अभ्यर्थियों से अनुरोध है कि विज्ञापन के विवरण और आवेदन पत्र डाउनलोड करने के लिए आधिकारिक वेबसाइट www.icfre.org और www.rfri.icfre.org के भर्ती विकल्प देखें।

आर. के. बोरा
19-6-2023
निदेशक

भा.वा.अ.शि.प.-वर्षा वन अनुसंधान संस्थान, जोरहाट

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. XIII dated 19.06.2023**
2. Amount of Application Fee :Rs. **500.00** Transaction No. Date.....
3. Name of Applicant
(in Block Letters) :
4. Father's/Husband's Name :
5. Date of Birth :
6. Age as on ___/___/2023 :.....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
(Technical Assistant-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 effected, acidic, flood effected, 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, accent 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 AN 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 path ways-glycolysis, hexose mono phosphate pathways, degradation of starch, sucrose, other sugars, fatty acids and acylglycerols, protein and amino acids,; Biosynthetic pathways, photosynthesis, formation of sucroe and starch, Krebs cycle and electron transport

*Agrib K. Pruthi
19.6.2019*

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 crows 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.

Agrib. Ka. Anand
19.6.2017

➤ **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 oil 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-formula 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.

Agit K. Singh
19.6.2023

DIRECTOR
ICFRE-Rain Forest Research Institute, Jorhat

**SYLLABUS AND SCHEME FOR WRITTEN EXAMINATION
(Technical Assistant-Forestry)**

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D. RELEVANT SUBJECT-FORESTRY : 40 Marks

➤ **SILVICULTURE**

General Silviculture Principles-Ecological and Physiological factors influencing vegetation, natural and artificial regeneration of forests, methods of propagation, grafting techniques: site factors, nursery and planting techniques nursery beds, containers and maintenance, grading and hardening of seedlings; establishment and tending. Silviculture of some of the economically important species in India. Silviculture systems (Clear felling, uniform shelter wood selection, coppice and conversion systems), Management of silviculture systems of temperate, subtropical, humid tropical, dry tropical and coastal tropical forests; Thinning.

➤ **AGROFORESTRY**

Agroforestry-Scope and necessity; Agro forestry systems under different agroecological zones; selection of species and role of multipurpose trees and NTFPs, techniques, food, fodder and fuel security Social/Urban Forestry: Objectives, scope and necessity, JFM-Principles, objectives, methodology, scope and benefits, National agroforestry policy.

➤ **FOREST SOILS AND WATERSHED MANAGEMENT**

Forests Soils: Classification, factors affecting soil formation, physical, chemical and biological properties. Soil conservation-definition, causes for erosion, types-wind and water erosion, conservation and management of eroded soils/areas, wind breaks, shelter belts; sand dunes; water logged and other waste lands. Role of forests in conserving soils. Role of micro-organisms in ameliorating soils; N and C cycles. Watershed management-Concepts of watershed; forest hydrology, landslide controls, rehabilitation of degraded areas; water harvesting and conservation; ground water recharge and watershed management.

Ajit K. Anand
19.6.2023

➤ **ENVIRONMENTAL CONSERVATION AND BIODIVERSITY**

Environment-Components and importance, principles of conservation, impact of deforestation; forest fires and various activities like mining, construction and developmental projects, population growth on environment. Pollution-types, Global warming, green house effects, ozone layer depletion, acid rain, impact and control measures, environmental monitoring; concept of sustainable development. Control and prevention of air, water and noise pollution, Environmental impact Assessment.

➤ **TREE IMPROVEMENT**

General concepts of tree improvement, methods and techniques, variation and its use, provenance, seed source, exotics; quantitative aspects of forest tree improvement, seed production and seed orchards, progeny tests, use of tree improvement in natural forest and stand improvement, forest genetic resources and gene conservation in-situ, application of DNA technology in forestry.

➤ **FOREST MANAGEMENT AND MENSURATION**

Objectives and principles: techniques, stand structure and dynamics, sustained yield relation; rotation, normal forest, growing stock; regulation of yield; management of forest plantations, commercial forests, forest cover monitoring. Forest Divisional working plans. Methods of measuring-diameter, girth, height and volume of trees, form-factors; Forest Divisional working plans. Methods of measuring-diameter, girth, height and volume of trees, form-factors; volume estimation of stand, current annual increment; mean annual increment, Sampling methods and sample plots, Yield calculation; yield and stand tables, forest cover monitoring through remote sensing; Geographic information Systems for management and modeling. Forest Surveying, different methods of surveying.

➤ **FOREST ECOLOGY**

Biotic and abiotic components, forest eco-systems, forest community concepts, vegetation concepts, ecological succession and climax, primary productivity, nutrient cycling and water relations. Forest types in India, identification of species, composition and associations, dendrology, taxonomic classification, principles and establishment of herbaria and arboreta conservation of forest ecosystems.

➤ **FOREST RESOURCES AND UTILIZATION**

Logging and extraction techniques and principles, transportation systems, storage and sale of Timber, Non-Timber Forest products (NTFPs)-definition and scope, gums, resins, oleoresins, fibres, oil seeds nuts, rubbers, canes, bamboos, medicinal plants, charcoal, lac and shellac, katha and Bidi leaves, need and importance of wood seasoning and preservation general principles of seasoning, air and kiln seasoning, composite wood, plywood, fibre boards, particle boards, wood substitution.

➤ **FOREST PROTECTION AND WILDLIFE**

Injuries to forest, insect-pests and disease, General forest protection against fire, equipment and methods, controlled use of fire. Rotational and controlled grazing, different methods of control against grazing and browsing animals, effect of wild animals on forest regeneration, encroachment, poaching, cultivation and control.

➤ **FOREST ECONOMICS AND LEGISLATION**

Fundamental principles, cost-benefit analysis, estimation of demand and supply, socioeconomic analysis of forest productivity and attitudes, valuation of forest goods and service. National Forest Policy, Forest laws, necessity; general principles, Indian Forest Act, 1927, Forest Conservation Act, 1980, Wildlife Protection Act, 1972 and their amendments.

➤ **FORESTS AND PEOPLE**

Forests and its importance, forest societies, interactions with people, social and cultural factors, afforestation programmes, forest conflicts, wildlife and human conflicts, important forest movements, gender dimension, tribal economy, pastoralists, management of commons and Common Property Resources (CRPS) and open access resources, sustainable livelihood, food security, eco-tourism, land use change. Forest rights, customary rights of people, community participation, biodiversity and ethnobotany, global environmental change and land use, resettlement, poverty alleviation and forests, role of NGOs and other CBOs community based organizations.

Agit K. Prasad
19.6.2011

DIRECTOR

ICFRE-Rain Forest Research Institute, Jorhat