UTTAR PRADESH PUBLIC SERVICE COMMISSION

ADVT. NO. : A-1/E-1/2025
Date : 20/02/2025

Combined State / Upper Subordinate Services (PCS) Examination, 2025
And
Assistant Conservator of Forest (A.C.F.)/ Range Forest Officer (R.F.O.) Services Examiniation-2025

Date of Commencement of On-line Application:20/02/2025

Last Date for Receipt of Examination Fee in the Bank & Submission of On-line Application:24/03/2025

Last Date for Fee Reconciliation & Correction/Modification in submitted On-line Application:02/04/2025

IMPORTANT

(1) (a) It is mandatory for the candidates to make One Time Registration (O.T.R.) and obtain O.T.R. Number before applying online.
(b) Those Candidates who have not obtained O.T.R. Number, may obtain it from commission's website https://otr.pariksha.nic.in 72 hours before the submission of Online application.
(c) Only after obtaining O.T.R. Number a candidate may submit online application through commission's website https://uppsc.up.nic.in.

(2) At the time of online application the candidates are directed to ensure the preservation of information regarding all the stages (i.e. O.T.R., Fee payment, Final submission, Qualification related modification/Error correction etc.) in Soft/Hard copy for future references.
(3) It is clarified to the candidates that at the Stage of Preliminary examination, the hard copy of the documents and on-line application should not be sent to the Commission.
(4) The candidates must send hard copy of their on-line applications and enclose self attested copies of all marksheets and certificates in support of their claims rendered in the online application when asked for. In this connection, a separate press communique shall be published in due course by the commission.

SPECIAL NOTICE :-

(a) The candidates will be entirely responsible for on-line submission of application. The application of the candidate will be accepted only after the payment of the fee in the bank till the last date of fee submission.
(b) Candidates are also directed to visit the website of the commission for updates. All future information/ instructions will be sent to the registered mobile number and email ID as linked in O.T.R. by SMS or email.

1. IMPORTANT INFORMATION FOR CANDIDATES APPLYING ONLINE

This advertisement is available on the website of the commission https://uppsc.up.nic.in. 'O.T.R. BASED APPLICATION' system is applicable for applying against this advertisement. Application sent through any other medium will not be accepted. Therefore candidates have to apply online only.
The candidates applying online are expected to go through the following instructions thoroughly and apply accordingly:- When the candidate clicks on the **"ALL NOTIFICATIONS/ ADVERTISEMENTS"** in the Commission's **website https://uppsc.up.nic.in**, the 'ONLINE ADVERTISEMENTS' will automatically be displayed, which has following 3 parts :-
(i) User Instructions
(ii) View Advertisement
(iii) Apply
The Instructions for filling Online form have been given in User Instructions. The candidates desirous to see the respective advertisement will have to click on "View Advertisement". Thereafter, a full advertisement will be displayed alongwith Sample Snapshots of Online Application procedure.

'Online Application' will be completed in four Stages:-

First Stage:- On clicking **'Apply', 'Authenticate with O.T.R.'** will be displayed with respect to the examination and on clicking **'Authenticate with O.T.R.', 'Have You Completed Your O.T.R. Registration'** will be displayed, in which the candidate will have to tick **'Yes'** or **'No'.** If the candidate:-
(i) Ticks on **'Yes'** and clicks on **'Go'** button, **'Enter your O.T.R. Number'** will be displayed wherein he/she has to fill O.T.R. Number and click on **'Proceed'** button. On clicking **'Proceed'** button, **'Click here to Authenticate'** will be displayed, clicking whereupon the candidate may authenticate through O.T.P. received on his/her registered mobile no./email ID or O.T.R. password. Having completed the process of Authentication, all personal details of the candidate (as filled in O.T.R.) will be displayed automatically. After selecting one option amongst [PCS Examination-2025], [ACF/RFO Examination-2025] and [PCS/ACF/RFO Examination-2025(Both)] as per his/her eligibility, the candidate will have to fill only essential qualification as required for the post..
(ii) Ticks on **'No'** and clicks on **'Go'** button:- (a) First of all, the candidate has to obtain One Time Registration Number from O.T.R. Web-portal **(https://otr.pariksha.nic.in)** of the Commission. (b) After obtaining O.T.R. number the candidate will have to apply online according to the process adopted in First Stage.

Second Stage:- The First Stage procedure having been completed the 'Applicant Dashboard' will automatically be displayed on the screen. The candidate will have to click on 'Submit Details' under 'Application Part-2' against applied post, thereafter the permanent and correspondence address along with application form will automatically be displayed on the screen from O.T.R. along with the preferential qualifications prescribed for the post. The candidate will have to choose Yes/No option against each preferential qualification according to his/her eligibility for the same.

Third Stage:- After the completion of the procedure of second stage, 'Fee Confirmation Window' will automatically be displayed on the screen under which upon clicking on 'Yes' option in front of 'Proceed for fee payment' Home page of 'SBI MOPS' will be displayed comprising of 03 modes of payment:- **(i) NET BANKING (ii) CARD PAYMENTS** and **(iii) OTHER PAYMENT MODES.**
After payment of the required fee by any one of the above prescribed modes, 'Payment Transaction Slip' shall be displayed alongwith detail of fee payment, the print of which must be taken by clicking on 'Printer Icon'. In the event of 'Payment Failed' the candidate has to go to 'Candidate Dashboard Login' and after filling the O.T.R. number proceed to authenticate through O.T.P. or O.T.R. password and click 'Pending Payment' to pay the fee, compulsorily for online application.

Note:- It is mandatory to make payment in the 'ONLINE APPLICATION' Process by the candidate till the last date and time fixed for it. Candidates should take a print out of the same and keep it safe.

Fourth Stage:- After completing the procedure of the Third Stage the application form of the candidate will automatically be displayed on screen the print of which may be obtained by the candidature. The candidate will have to take the print of online application and keep it safe with himself/herself to produce it in the office of the commission when required in case of any discrepancy, else his/her request/claim will not be accepted. After applying, in case of any modification in the qualification of applied post, the candidate may click on 'Candidate Dashboard Login' of 'Home Page' to modify it only once till last date and time fixed for it.

Special Instructions

(1) अभ्यर्थियों द्वारा ऑनलाइन आवेदन करने की अंतिम तिथि/संशोधन तिथि तक ही श्रेणी, उपश्रेणी, डोमिसाइल, लिंग, जन्मतिथि, ई.डब्ल्यू.एस., क्रीमीलेयर, नाम व पते का जो दावा किया जाएगा, वही मान्य होगा। अन्तिम तिथि के बाद कोई भी परिवर्तन संबंधी प्रत्यावेदन स्वीकार नही होगा। गलत सूचना प्रस्तुत करने पर अभ्यर्थन निरस्त माना जायेगा।
(2) Incomplete Online Application-Form shall be rejected and no communication in this regard shall be entertained.
(3) If at any stage, it comes to the knowledge of the commission that the candidate has concealed or misrepresented any information, his candidature shall be rejected and proceeding to debar him from future examinations and selections shall be initiated.
(4) As per decision of the UPPSC a candidate will be liable to be debarred from this examination and all other future examinations and selections upto a maximum period of five years for furnishing any wrong information in his/her application form which cannot be substantiated by relevant documents or for any other malpractice.
(5) If any change is to be made in the personal detail mentioned in the O.T.R. it will be mandatory to Synchronise it on the Dashboard after that change. Otherwise change will not be allowed. In this regard any on-line /off-line representation will not be accepted for error correction/ amendment. Incomplete application will be cursorily rejected and no correspondence will be entertained in this regard.
(6) The candidature of such candidates who are subsequently found ineligible according to the terms laid down in advertisement will be cancelled and their any claim for the Examination will not be entertained. The decision of the Commission regarding eligibility of the candidates shall be final.
(7) The Application/candidature will be rejected/cancelled if the Application form is not submitted on prescribed form, date of birth is not mentioned or wrong date of birth is mentioned, candidate is overage, under age, dose not possess the minimum educational qualifications, applications received after last date and cases of no signature under declaration in the format.
(8) The Commission may admit the candidates provisionally after summarily checking their applications but if it is found at any stage that applicant was not eligible or his/her application was not found entertainable initially, his/her candidature will be rejected and if the candidate is selected and recommended by the Commission, the recommendation made by the Commission for the appointment shall be withdrawn.
(9) In the event of involvement of a candidate in the concealment of any important information, pendency of any case / criminal case, conviction, more than one husband or wife being alive, submission of facts in a distorted manner, malpractice, canvassing for candidature/ selection etc, the Commission reserves the right to reject the candidature and debar him from appearing in the examination in question and in all other future examinations and selections.
(10) अभिलेखों के सत्यापन के समय उपस्थित अभ्यर्थियों द्वारा वांछित अभिलेख प्रस्तुत न करने की दशा में इस हेतु मा० आयोग के निर्णयानुसार निर्धारित अवधि के अन्तर्गत वांछित अभिलेख प्रस्तुत करना अनिवार्य होगा, उक्त निर्धारित अवधि के अन्तर्गत अभ्यथी द्वारा वांछित अभिलेख प्रस्तुत न करने की दशा में अभ्यर्थी का अभ्यर्थन निरस्त कर दिया जायेगा। मूल अभिलेखों के सत्यापन की निर्धारित तिथि को यदि अभिलेख सत्यापन हेतु कोई अभ्यर्थी उपस्थित नहीं होता है तो यह मानते हुए कि वह प्रश्नगत पद हेतु इच्छुक नहीं है, उसका अभ्यर्थन निरस्त कर दिया जायेगा।

2. Application Fee : After completing the process of First and Second Stage in the online application process, deposit the fee category wise as per the instructions given in the Third stage. The prescribed fee of preliminary Examination for different categories is as under:-

(i)	Unreserved/ Economically Weaker Sections/ Other Backward Classes	- Exam fee Rs. 100/- + On-line processing fee Rs. 25/- Total = Rs. 125/-
(ii)	Scheduled Castes/ Scheduled Tribes	- Exam fee Rs. 40/- + On-line processing fee Rs. 25/- Total = Rs.65/-
(iii)	Persons with disabilities (PWDs)	- Exam fee NIL/- + On-line processing fee Rs. 25/- Total = Rs. 25/-
(iv)	Ex-Servicemen	- Exam fee Rs. 40/- + On-line

processing fee Rs. 25/-
Total = Rs. 65/-

(v) Dependents of the Freedom Fighters/ Women/Skilled Player - According to their original category

3. The U.P. Public Service Commission shall hold a Preliminary Examination at various Centres of the Districts for selecting suitable candidates for admission to the Combined State/Upper Subordinate Services Main (Written) Examination 2025 and Assistant Conservator of Forest (A.C.F.)/ Range Forest Officer (R.F.O.) Main (Written) Services Examiniation-2025, whose Main (Written) Examinations shall be conducted separately by the commission. The selection will be made on the basis of total marks obtained by the candidates in Main (Written) Examination and Interview. For some of these posts, recruitment shall be made on the basis of total marks obtained in the written examination, according to the provision of concerned service rules of such posts. The Date and Center of Examination, decided by the Commission, will be intimated to the candidates by means of their e-Admission Certificate.

4. <u>No. of Vacancies</u>:- Presently the number of vacancies for the Combined State /Upper Subordinate Services (PCS) Examination 2025 is about 200. Number of vacancies for the Assistant Conservator of Forest (A.C.F.) is 10 and on reciept of the requisition for the post of Range Forest Officer (R.F.O.) will also be included in this Examination. Number of vacancies may increase or decrease depending upon the circumstances/ requirements.

The details of the posts to be included in the Combined State / Upper Subordinate Services Examination carrying the pay scale as per 6th pay commission of Rs. 9300-34800 Grade Pay Rs 4600/- (except Naib Tehsildar whose grade pay is Rs. 4200/-) to Rs. 15600-39100/- Grade Pay Rs. 5400/- are as follows:-

Deputy Collector, Deputy Superintendent of Police, Block Development Officer, Assistant Regional Transport Officer, Assistant Commissioner (Commercial Tax), District Commandent Homeguards, Treasury Officer/Accounts Officer (Treasury), Cane Inspector and Assistant Sugar Commissioner, District Cane Officer, Superintendent Jail, Manager Credit (Small Industries), Manager Marketing and Economic Survey (Small Industries), Executive Officer Grade-I/Assistant Nagar Ayukta, District Basic Education Officer/Associate DIOS & other equivalent Administrative Posts, Assistant Commissioner Industries (Enforcement), Assistant Labour Commissioner, Senior Lecturer DIET, Assistant Commissioner Industries, Statistical Officer, Assistant Accounts Officer, (Treasury), Commercial Tax Officer, District Minority Welfare Officer, District Food Marketing Officer, Executive Officer (Panchayati Raj), Deputy Secretary (Housing and Urban Planning), Area Rationing Officer, District Backward Welfare Officer, Naib Tehsildar, District Saving Officer, District Panchayat Raj Officer, District Social Welfare Officer, Accounts Officer (Nagar Vikas), District Supply Officer Grade-2, Additional District Development Officer (Social Welfare), Passenger/Goods Tax Officer, District Handicapped Welfare Officer, Assistant District Employment Assistance Officer, Accounts Officer (Local Bodies), Regional Employment Officer, Assistant Registrar (Cooperative), Sub Registrar, Assistant Prosecuting Officer (Transport), District Probation Officer, District Administrative Officer, District Audit (Revenue Audit), Assistant Controller Legal Measurement (Grade-1 and Grade-2), District Programme Officer, District Youth Welfare and Pradeshik Vikas Dal Officer, Labour Enforcement Officer, Excise Inspector, Child Development Project Officer, Food safety Officer, Deputy Jailor, Technical Assistant (Geophysics), Technical Assistant (Geology), Management Officer/Manager(Estate Department), Information Officer/District Information officer, Manager, Chemist, Officer on Special Duty (Computer) and Law Officer.

Out of aforesaid posts the requisitions of those posts which have been received till date are included for this examination. If any requisitions of the rest of the remaining posts of graduate qualification is/are received before the result of preliminary examination may also be included for this examination.

Under the Assistant Conservator of Forest / Range Forest Officer Services Examination the Pay Scale, grade pay and status of Post are given as below:

Sr.No.	Name of The Post	Pay Scale/Grade Pay/Status of Post
1	Assistant conservator of Forest	Rs. 15600/- to Rs.39100/-, Grade Pay- Rs.5400/-, (Level- 10 in the pay matrix 56,000-1,77,500/-) Group "B", Gazetted.
2	Range Forest Officer of Forest	Rs.9300/- to Rs.34800/-, Grade Pay - Rs.4800/-, (Level-8 pay matrix 47,600-1,51,100/-) Group "B", Gazetted.

5. <u>Reservation</u>: The reservation for Scheduled Castes of U.P. / Scheduled Tribes of U.P./Other Backward Class candidates of U.P./Economically Weaker Section candidates of U.P. shall be admissible in accordance with the provisions of relevant Govt. Rules. Similarly, reservation for horizontal cantegories as Dependents of Freedom Fighters of U.P, Female candidates, Ex-Servicemen of U.P., P.H. of U.P. and Outstanding sports persons of U.P. shall be admissible on settlement of vacancies as per rules. Reservation for P.H. of U.P. shall be permissible for the notified / identified Posts.

<u>Note</u>: (1) उ0प्र0 के समाज के दिव्यांग अभ्यर्थियों के लिए शासन द्वारा अधिसूचित (चिन्हित) किये गये पदों पर चयन के सम्बन्ध में जारी कार्यालय ज्ञाप सं0–5/2022/18/1/2008/47/का–2/2022, दिनांक– 18 अप्रैल, 2022 के बिन्दु–5 (अनारक्षित रिक्तयों पर नियुक्ति) में प्राविधान निम्नानुसार किया गया है:– दिव्यांगता से ग्रस्त व्यक्तियों के लिए उपयुक्त चिन्हित किये गये पदों में दिव्यांगता से ग्रस्त व्यक्ति को किसी अनारक्षित रिक्ति पर नियुक्ति के लिए प्रतिस्पर्धा करने से मना नहीं किया जा सकता है अर्थात् दिव्यांगता से ग्रस्त व्यक्ति को किसी अनारक्षित रिक्ति पर नियुक्त किया जा सकता है। बशर्ते कि पद संगत श्रेणी की दिव्यांगता से ग्रस्त व्यक्तियों के लिए चिन्हित किया गया हो।

(2) शासनादेश संख्या–39 रिट/का–2/2019, दिनांक–26 जून, 2019 द्वारा शासनादेश संख्या–18/1/99/का–2/2006, दिनांक–09 जनवरी, 2007 के प्रस्तर–4 में दिये गये प्राविधान, 'यह भी स्पष्ट किया जाता है कि राज्याधीन लोक सेवाओं और पदों पर सीधी भर्ती के प्रक्रम पर महिलाओं को अनुमन्य उपरोक्त आरक्षण केवल उत्तर प्रदेश की मूल निवासी महिलाओं को ही अनुमन्य है', को रिट याचिका संख्या–11039/2018 विपिन कुमार मौर्या व अन्य बनाम उत्तर प्रदेश राज्य व अन्य तथा सम्बद्ध 6 अन्य रिट याचिकाओं में मा0 उच्च न्यायालय, इलाहाबाद द्वारा दिनांक– 16.01.2019 को अधिकारातीत (ULTRA VIRES) घोषित करने सम्बन्धी निर्णय के अनुपालन में शासनादेश दिनांक– 09.01.2007 से प्रस्तर–04 को विलोपित किए जाने का निर्णय लिया गया है। उक्त निर्णय शासन द्वारा मा0 उच्च न्यायालय के आदेश दिनांक–16.01.2019 के विरूद्ध दायर विशेष अपील (डी) संख्या–475/2019 में मा0 न्यायालय द्वारा पारित होने वाले अन्तिम निर्णय के अधीन होगा।

(3) ई.डब्ल्यू.एस. श्रेणी के अभ्यर्थियों द्वारा उनकी श्रेणी का प्रमाण–पत्र कार्मिक अनुभाग के कार्यालय –ज्ञाप सं. –1/2019/4/1/2002 /का–2/19 टी.सी– II, दिनांक 18.02.2019 के अनुरूप आवेदन करने के वर्ष के पूर्व वर्ष का ही मान्य होगा।

(4) The Scheduled Caste, Scheduled Tribes, Other Backward Class, Economically Weaker Sections (E.W.S.), Dependents of Freedom Fighters, P.H., Outstanding sports persons, Skilled players of classified games and Ex-Servicemen candidates who are not the permanent residents of U.P. shall not be given the benefit of reservation/age relaxation.

(5) Candidates of any reserved category of U.P., if they want the benefit of reservation, must mention their category/ subcategory (one or more than one, whichever) in the column related to O.T.R. because all the personal information will be automatically displayed in the application form from the O.T.R.

(6) The Candidates claiming for the benefit of reservation/age relaxation must obtain, in support of their category a certificate issued by competent authority on the proforma available in **Appendix-1** of this detailed advertisement and shall submit the same to the Commission when asked for.

(7) Candidates claiming reservation/Age relaxation in more than one category will be entitled to only one concession, whichever is more beneficial to them.

(8) In case of women candidate, the caste certificate issued from father side only will be treated valid.

(9) It is mandatory for the candidates to enclose self-attested copies of all the certificates along with the application forms of Main Examination in support of the claims made by them in their application forms of Preliminary Examination regarding eligibility and category/sub category, failing which their claim shall not be entertained.

6. <u>Conditions of Eligibility: In case of Emergency Commissioned/Short Service Commissioned Officers (For age relaxation only) :-</u> In accordance with the provisions of the G.O. No. 22/10/1976-karmik-2-85, dated 30-1-1985 Emergency Commissioned / Short Service Commissioned Officers who have not been released from Army but whose period of Army service has been extended for rehabilitation, may also apply for this examination on the following conditions:

(A) Such applicants will have to obtain a certificate of the competent authority of Army, Navy, Air Force to the effect that their period of Service has been extended for rehabilitation and no disciplinary action is pending against them.

(B) Such applicants will have to submit in due course a written undertaking that in case they are selected for the post applied for, they will get themselves released immediately from the Army Service. The above facilities will not be admissible to Emergency/ Short Service Commissioned Officers, if:-

(a) he gets permanent Commission in the Army,

(b) he has been released from the Army on tendering resignation,

(c) He has been released from the Army on grounds of misconduct or physical disability or on his own request and who gets gratuity.

7. <u>MARITAL STATUS</u>:- Male candidates who are married and have more than one wife living and female candidates who have married a person already having a wife shall not be eligible unless the Hon'ble Governor has granted an exemption from this condition.

8. <u>EDUCATIONAL QUALIFICATION</u>:- The candidates must possess Bachelors Degree of any recognised University upto the last date for receipt of application. This must be mentioned by the candidate in the relevant column of their application form but for some posts specific qualifications have been prescribed, details of which are given below:-

<u>Posts of Specific qualifications through written examination and interview</u>

Sr. No.	Name of Post	Qualifications
1	District Administrative Officer	A Post-graduate Degree from a University established by law in India or a degree recognised by the Government as equivalent thereto. **समकक्ष अर्हता :–** चार्टर्ड एकाउन्टेन्ट /कम्पनी सेक्रेटरी/कास्ट एण्ड वर्क्स एकाउन्टेन्ट (आई0सी0डब्लू0ए0) में मान्यता प्राप्त उपाधि। **Preferential: -** Diploma or Degree in public Administration from a university established by Law in India or from an Institution recognised by the Government. A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.
2	Labour Enforcement Officer	अर्थशास्त्र/समाजशास्त्र/वाणिज्य के साथ स्नातक उपाधि तथा विधि/श्रम सम्बन्ध/श्रम कल्याण/श्रम विधि/वाणिज्य/समाजशास्त्र/समाजकार्य/समाज कल्याण/व्यापार प्रबन्धन/कार्मिक प्रबन्धन में पोस्ट ग्रेजुएट डिप्लोमा अथवा परास्नातक उपाधि। **Preferential: -** A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.
3	Food Safety Officer	(1) A Bachelor's Degree in Food Technolog or Dairy Technology or Biotechnology or Oil Technology or Agricultural Science or Vaterinary Sciences or Bio-Chemistry or Microbiology or Post Graduate Degree in Chemistry or Degree in Medicine from a recognised University or any other equivalent/recognised qualification notified by the Central Government. (2) After selection the candidate has successfully completed the training as specified by the food Authority in a recognised Institute or Institustion approved for the purpose: Provided that no person who has any financial Interest in the manufacture, import or sale of any article of food shall be appointed to be a Food Safety Officer under these rules. **Equivalent Qualification:-** A Bachelor's degree or Master's degree or Doctorate degree from a recognized University or institution in the following disciplines :-

Disciplines "Food Technology"	Disciplines deemed to be covered under "Agricultural Science"
(I) Food Engineering	(I) Agriculture
(ii) Food Engineering and Technology	(ii) Agriculture Engineering
(iii) Food Processing and Preservation	(iii) Biotechnology
(iv) Food Processing Technology	(iv) Dairy Technology
(v) Food Technology and Management	(v) Fisheries
(vi) Food Biotechnology	(vi) Food Technology
(vii) Food Plant Operations Management	(vii) Food Nutrition and Dietetic
(viii) Food Process Engineering and Management	(viii) Horticulture
(ix) Food Processing	
(x) Food Safety and Quality Management	
(xi) Process and Food Engineering	

Preferential: - A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.

4	**Assistant Director/ District Audit Officer/ Senior Lecturer, Local Fund Audit Department, Uttar Pradesh**	(i) Bachelor's degree in Commerce from a University established by law in India or a qualification recognised by the Government as equivalent thereto. (ii) Working knowledge of Hindi written in Devnagari Script. **समकक्ष अर्हता:–** शासन के पत्र दिनांक 14.02.2024 के अनुसार अनिवार्य शैक्षिक अर्हता वाणिज्य स्नातक के समकक्ष अर्हता बी0बी0ए0, आई0सी0डब्ल्यू0ए0 या सी0एस0 या सी0ए0 की संस्तुति प्रदान की गयी है। **Preferential: -** A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.
5	**Sub Registrar**	Law Graduate with Working knowledge of Hindi written in Devnagari Script. **Preferential: -** A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.
6	**District Health Education and Information Officer**	भारत में विधि द्वारा स्थापित किसी विश्वविद्यालय से समाज शास्त्र अथवा समाज विज्ञान में स्नातक उपाधि तथा किसी मान्यता प्राप्त विश्वविद्यालय से पोस्ट ग्रेजुएट डिप्लोमा इन हेल्थ एजूकेशन **नोट:–** समाज विज्ञान में स्नातक पाठ्यक्रम में (1). सोशियोलॉजी, (2). एन्थ्रोपोलॉजी, (3). साइकोलॉजी, (4). सोशल साइकोलॉजी, (5). पॉलिटिकल साईन्स, (6). ज्योग्राफी, (7). हिस्ट्री और (8). इकोनॉमिक्स विषयों को पढ़ाया जाता है। **Preferential: -** A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.
7	**Assistant Commissioner and Assistant Registrar (Co-operative)**	(i) Bachelor's Degree in Arts, Science, Commerce or Agriculture from a University established by law in India. (ii) Working knowledge of Hindi written in Devnagari Script. **Preferential: -** A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of directrecruitment.
8	**District Audit Officer/ Assistant Director, Co-operative Sociaties and Panchayat Audit**	(I) Bachelor's degree in Commerce from a University established by law in India or a qualification recognised by the Government as equivalent thereto. (ii) Working knowledge of Hindi written in Devnagari Script.. **समकक्ष अर्हता:–** 1. बैचलर ऑफ कामर्स, 2. बी0कॉम0 आनर्स, 3. बैचलर ऑफ एकाउन्टेंसी एण्ड फाइनेंस, 4. बैचलर ऑफ कम्प्यूटर एप्लीकेशन, 5. बैचलर ऑफ कामर्स इन बैंकिंग एण्ड इंश्योरेंस, 6. बैचलर ऑफ कामर्स इन फाइनेन्शियल मार्केट, 7. बैचलर ऑफ बिजनेस एडमिनिस्ट्रेशन, 8. बी0एस0सी0 स्टेटिक्स, 9. बैचलर ऑफ कामर्स इन टैक्सेसन, 10. बैचलर ऑफ कामर्स इन बैंकिंग मैनेजमेंट, 11. बैचलर ऑफ कामर्स इन ई–कामर्स, 12. बैचलर ऑफ कामर्स इन फॉरेन ट्रेड, 13. बैचलर ऑफ कामर्स इन टूरिज्म एण्ड ट्रेवेल मैनेजमेंट, 14. बी0कॉम इन मार्केटिंग, 15. बैचलर ऑफ टैक्सेशन एण्ड फाइनेंस, 16. बैचलर ऑफ कामर्स इन इन्टरनेशनल बिजनेस, 17. बैचलर ऑफ एकाउन्टिंग एण्ड टेक्नोलॉजी, 18. बैचलर ऑफ बिजनेस एण्ड इकोनॉमी, 19. बैचलर ऑफ बिजनेस एण्ड स्टडीज, 20. चार्टड एकाउन्टेंसी, 21. कम्पनी सेक्रेटरीशिप **Preferential: -** A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.
9	**Assistant Labour Commissioner**	भारत में विधि द्वारा स्थापित किसी विश्वविद्यालय से अर्थशास्त्र, समाजशास्त्र, वाणिज्य, विधि, श्रम संबंध, श्रम कल्याण, श्रम विधि, समाजशास्त्र, वाणिज्य, समाजकार्य/कल्याण, व्यापार प्रबन्धन, कार्मिक प्रबन्धन में परास्नातक की उपाधि की अर्हता निर्धारित की गयी है। **Preferential: -** A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.
10	**Assistant Commissioner , Industries (Enforcement)**	(I) Post Graduate Degree in Arts, Science or Commerce or Technology from a recognised Institution or University or atleast Bachelor Degree in Textile. (ii) Working knowledge of Hindi written in Devnagari Script. **Preferential: -** A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.
11	**Assistant Research Officer**	A Post-Graduate Degree in Chemistry from a University established by law in India or a degree recognised by the Government as equivalent thereto. **समकक्ष अर्हता :–** शासन के पत्र दिनांक 03.01.2025 द्वारा निम्नवत् समकक्षता/अर्हता की संस्तुति प्रदान की है। (1) M.Sc. (Physical Chemistry) (2) M.Sc. (Organic Chemistry) (3) M.Sc. (Analytical Chemistry) अधिमानी:–ऐसे अभ्यर्थी जिसनें :– क–प्रादेशिक सेना में न्यूनतम दो वर्ष की अवधि की सेवा की हो। या ख–राष्ट्रीय कैडेट कोर का ''बी'' प्रमाणपत्र प्राप्त किया हो। ग–सहायक शोध अधिकारी के मामले में रसायन विज्ञान में पी0एच0डी0 प्राप्त कर ली हो या किसी सरकारी या अर्धसरकारी संगठन या संस्थान में भवन निर्माण कार्य सामग्री में तीन वर्ष शोध करने का अनुभव। अन्य बातों के समान होने पर सीधी भर्ती के मामले में अधिमान दिया जाएगा।
12	**Assistant Prosecution Officer (Transport)**	(i)Possess a degree of Bachelor of Laws of a recognised University or a qualification recognised by the Governor as equivalent thereto. (ii) Have a thorough knowledge of Hindi written in Devanagari Script. **Equivalent Qualifications:-** उत्तर प्रदेश शासन, परिवहन अनुभाग–3 के पत्र संख्या–124/2024/3052/तीस–3–2024, दिनांक 22.11.2024 द्वारा सहायक अभियोजन अधिकारी (परिवहन) हेतु विधि स्नातक के समकक्ष मान्यता प्राप्त उपाधि के सम्बन्ध में केन्द्र अथवा किसी राज्य सरकार द्वारा विधि द्वारा स्थापित किसी विश्वविद्यालय/डीम्ड विश्वविद्यालय अथवा संस्थान द्वारा प्रदान की गयी त्रिवर्षीय विधि स्नातक की उपाधि को पंचवर्षीय एकीकृत पाठ्यक्रम की उपाधि (B.B.A.L.L.B, B.A.L.L.B., B.Com. L.L.B., B.Sc.L.L.B.) के समकक्ष अर्हता निर्धारित की गयी है। Preferential: - A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.

Posts of Specific qualification only through written examination

1	Technical Assistant (Chemistry)	Post-graduate Degree in Chemistry with minimum 50 percent marks from a University established by law in India. Preferential:- A candidate who has (1) served in the Teritorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.

Note: (1) In case of Specific Educational qualification posts, the candidates must give their options clearly, in that condition they shall be considered for the posts bearing specific educational qualifications.

(2) भारत में विधि द्वारा स्थापित विश्वविद्यालय की स्नातक उपाधि के समकक्ष अर्हता के संबंध में जारी शासनादेश संख्या–03/2023/312/47-का-2-312 एलसी/2022, दिनांक 19.07.2023 का प्रवर्तनीय अंश निम्नवत् है :–''.....3–उपर्युक्त समस्या के निवारण के संदर्भ में सम्यक् विचारोपरांत निम्नवत् निर्णय लिये गये हैं:–

(1)–ऐसे प्रकरणों में जहां तकनीकी प्रकृति के पद किसी विभाग की सेवा नियमावली में विद्यमान है तथा उनके लिए सामान्य स्नातक की अर्हता के स्थान पर कोई विशिष्ट अर्हता एवं उसके सकमक्ष अर्हता अथवा किसी विशिष्ट शाखा व उपशाखा में स्नातक एवं उसके समकक्ष संगत नियमावली में निर्धारित की गई है, वहां विहित अर्हता के समकक्ष अर्हता का निर्धारण संबंधित विभाग द्वारा किया जायेगा।

(2)–उक्त बिन्दु संख्या–1 से आच्छादित प्रकरणों को छोडकर जिस किसी विभाग की नियमावली में अर्हता सामान्य स्नातक और उसके समकक्ष अर्हता निर्धारित की उक्त के संबंध में निम्नानुसार कार्यवाही सुनिश्चित की जाय:–

(1) केन्द्र अथवा किसी राज्य सरकार द्वारा विधि द्वारा स्थापित किसी विश्वविद्यालय/डीम्ड विश्वविद्यालय अथवा संस्थान द्वारा अध्ययन की किसी भी शाखा में यदि स्नातक की उपाधि प्रदान की गई है तो उक्त समस्त उपाधियाँ। स्नातक के रूप में मान्य होगी।

(2) मानव संसाधान विकास मंत्रालय (शिक्षा मंत्रालय), भारत सरकार द्वारा मान्यता प्राप्त विभिन्न व्यवसायिक निकायों/संस्थानों द्वारा संचालित तकनीकी पाठ्यक्रमों में प्रदान की गई स्नातक.स्तर की उपाधियाँ, मानव संसाधन विकास मंत्रालय (शिक्षा मंत्रालय) तथा अखिल भारतीय तकनीकी शिक्षा परिषद (AICTE) द्वारा समय–समय पर निर्गत दिशा–निर्देशों के अधीन स्नातक के समकक्ष मान्य किये जायेंगे।

(3) किसी प्रकार के असमंजस की स्थिति में केन्द्र सरकार/संबंधित राज्य सरकार/विनियामक निकायों सेए जैसी भी स्थिति हो, संबंधित आयोगों द्वारा जानकारी प्राप्त की जा सकती है।

(4) उपर्युक्त समतुल्यता केवल उ०प्र० राज्य में लोक सेवा आयोग/अधीनस्थ सेवा आयोग एवं अन्य भर्ती संस्थानों द्वारा सेवा–नियमावलियों में विहित स्नातक एवं समकक्ष अर्हता के लिए मान्य होगा।''

Under the Assistant Conservator of Forest / Range Forest Officer Services Examination.

For the Post of Assistant Conservator of Forest:-

ESSENTIAL QUALIFICATION: A Bachelor's degree with at least one of the subject namely Botany, Zoology, Chemistry, Physics, Mathematics, Geology, Forestry, Statistics or a Bachelor's degree in Agriculture or Bachelor's degree in Engineering from a University established by Law in India or a Foreign University approved by the Central Government from time to time, or a qualification recognised by the Government as equivalent thereto.

EQUIVALENT QUALIFICATION: जो उम्मीदवार उ0प्र0 राज्य वन सेवा नियमावली, 1993 (यथा संशोधित 2003 व 2014) में निर्दिष्ट शैक्षिक अर्हता के समकक्ष मान्यता प्राप्त कोई अर्हता रखते हैं उन्हें मुख्य (लिखित) परीक्षा के लिए अपने आवेदन–पत्र के साथ भारत में केन्द्रीय अधिनियम अथवा संसद के किसी कानून द्वारा संस्थापित विश्वविद्यालय अथवा संसद के किसी कानून द्वारा स्थापित शैक्षिक संस्थानों अथवा विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 की धारा–3 के तहत मानद विश्वविद्यालय के रूप में घोषित शैक्षिक संस्थानों से प्राप्त इस आशय का प्रमाण पत्र प्रस्तुत करना चाहिए कि मौजूदा डिग्री, उ0प्र0 राज्य वन सेवा नियमावली, 1993 (यथा संशोधित 2003 व 2014) के नियम–8 में विनिर्दिष्ट स्नातक उपाधि के समकक्ष है, ऐसा नहीं करने पर ऐसे उम्मीदवार को मुख्य (लिखित) परीक्षा में सम्मिलित होने की अनुमति नहीं दी जायेगी।

PREFERENTIAL QUALIFICATION: A candidate who has (1) served in the Territorial Army for a minimum period of two years, or (2) obtained a "B" certificate of N.C.C. shall other things being equal, be given preference in the matter of direct recruitment.

FOR THE POST OF RANGE FOREST OFFICER:-

ESSENTIAL QUALIFICATION: A Bachelor's Degree with two or more of the subjects, namely Mathematics, Physics, Chemistry, Botany, Zoology, Forestry, Geology, Agriculture, Statistics, Horticulture and Environment or Bechelor's Degree in Agriculture or Bachelor's degree in Engineering or Bachelor's degree in Veterinary Science from a University established by Law in India or possess a qualification recognized by the Government as equivalent thereto.

EQUIVALENT QUALIFICATION: जो उम्मीदवार उ०प्र० वन विभाग क्षेत्रीय वन अधिकारी सेवा नियमावली, 2009 में निर्दिष्ट शैक्षिक अर्हता के समकक्ष मान्यता प्राप्त कोई अर्हता रखते हैं उन्हे मुख्य (लिखित) परीक्षा के लिए अपने आवेदन पत्र के साथ भारत में केन्द्रीय अधिनियम अथवा संसद के किसी कानून द्वारा संस्थापित विश्वविद्यालय अथवा संसद के किसी कानून द्वारा सीापित शैक्षिक संस्थानों अथवा विश्वविद्यालय अनुदान आयोग अधिनियम 1956 की धारा–3 के तहत मानद विश्वविद्यालय के रुप में घोषित शैक्षिक संस्थानों से प्राप्त इस आशय का प्रमाण पत्र प्रस्तुत करना चाहिए कि मौजूदा डिग्री, उ0प्र0 वन विभाग क्षेत्रीय वन अधिकारी सेवा नियमावली 2009 के नियम–8 में विनिर्दिष्ट स्नातक उपाधि के समकक्ष है, ऐसा नहीं करने पर ऐसे उम्मीदवार को मुख्य (लिखित) परीक्षा में सम्मिलित होने की अनुमति नहीं दी जायेगी।

PREFERENTIAL QUALIFICATION: A candidate who has:
(1) Served in the Territorial Army for a minimum period of two years, or (II) Obtained a 'B' Certificate of National Cadet Corps, or (III) Represented the state in any game, shall, other things being equal, be given preference in the matter of direct recruitment.

Note:- Relevant Service Rules of Related Posts are given in Appendix-7

Note:- The candidates must possess all the requisite qualifications upto the last date for submitting the applications.

9. Physical Measurement:- Physical Measurements will be applicable according to Service Rules/requisitions, in case of availability of posts e.g. Dy. Superintendent of Police, Superintendent of Jail, District Commandant Home Guards, Excise Inspector, Deputy Jailor, District Youth Welfare and Pradeshik Vikash Dal Officer and Assistant Conservator of Forest / Range Forest Officer which is mentioned as below:-

For the post of D.S.P.

Category of Candidates	Height (Cm.)	Chest (Cm.)	
		Unexpanded	Expanded
(i) For Male candidates only General, Other Backward Classes of Citizens and Scheduled Castes.	165	84	89
(ii) For Scheduled Tribes	160	79	84
(iii) For Female candidates only General, Other Backward Classes of Citizens and Scheduled Castes.	152	Not applicable.	
(iv) For Scheduled Tribes	147	Not applicable.	
(v) Minimum weight for female candidates of all categories	40 Kg.	Not applicable.	

For the post of District Commandant Home Guards

Category of Candidates	Height (Cm.)	Chest (Cm.)	
		Unexpanded	Expanded
(i) Male Candidates	165	84	89
(ii) Female Candidates	150	79	84
(iii) For the Candidates of Scheduled Tribes and Candidates of Kumayun and Gadhwal Division.	160	84	89

For the post of Superintendent of Jail

(i) Height 168 cm and in the condition of candidates of kumayun and Gadhwal Divisions not less than 163 cm.
(ii) Chest 81.3 cm. (unexpanded) and 86.3 cm. (expanded)
(iii) Vision - 6/6

For the post of Excise Inspector

Category of Candidates	Height (Cm.)	Chest (Cm.)	
		Unexpanded	Expanded
(i) Male Candidates	167	81.2	86.2
(ii) Female Candidates (SC./ST.)	147		
(iii) For other Female Candidates	152		

For the post of Deputy Jailor

Category of Candidates	Height (C.M.)	Expansion of chest (Minimum) (C.M.)	Chest Measurement (unexpended) (C.M.)
For Male Candidates	168	81.3	05
For Female Candidates	152	Weight 45 to 58 k.g.	

In the case of a Candidate belonging to Scheduled Tribes the measurement of height shall be as under:-
Male - 160 cms.
Female - 147 cms.

For the Post of District Youth Welfare and Pradeshik Vikash Dal Officer

MALE CANDIDATES

1	Height	In Cms. (Minimum)
(a)	For Scheduled Tribes candidates	160.0 Cm.
(b)	For candidates residing permanently in hill areas	162.6 Cm.
(c)	Others candidates	167.7 Cm.

2	Chest	Unexpanded Centimeters	Expanded in Centimeters
(a)	For candidates residing permanently in hill areas and Scheduled Tribes	76.5 Cm.	81.3 Cm.
(b)	For Others candidates	78.5 Cm.	83.5 Cm.

FEMALE CANDIDATES

	Height	In Cms. (Minimum)
(a)	For candidates residing permanently in hill areas and Scheduled Tribes	147.0 Cm.
(b)	For Others candidates	152.0 Cm.

MINIMUM PHYSICAL STANDARD :

(A) For the Post of Assistant Conservator of Forest:-

(1) No candidate for direct recruitment shall be appointed to the service unless he/she possesses the minimum standard for height and chest girth as specified below:-

Sex	Height	Chest girth (Fully expanded)	Expansion
1	2	3	4
Male	163 cms.	84 cms.	5 cms.
Female	150 cms.	79 cms.	5 cms.

Provided that the minimum height standard in case of candidates belonging to Scheduled Tribes and to races such as Gorkhas, Nepalies, Assamese, Meghalayan Tribal, Laddakhese, Sikkimiese, Bhutanese, Garhwalies, Kumaunies, Nagas and Arunachal Pradesh candidates, shall be as follows:-

Sex	Height
1	2
Male	152.5 cms.
Female	145.0 cms.

(2) The male candidates will be required to qualify in walking test of 25 kms. to be completed in Four hours and female candidates of 14 kms. to be completed in Four hours. The arrangement for conducting this test will be made by the Chief Conservator of Forests, Uttar Pradesh so as to synchronise with the sittings of the Medical Board.

(B) For the post of Range Forest Officer:-

(1) No candidate for direct recruitment shall be appointed to the service unless he/she possesses the minimum standard for height and chest girth as specified below:-

Sex	Height	Chest girth (Fully expanded)	Expansion
1	2	3	4
Male	163 cms.	84 cms.	5 cms.
Female	150 cms.	79 cms.	5 cms.

Provided that the minimum standard of height in case of candidates belonging to Scheduled Tribes and to races such as Gorkhas, Nepalis, Garhwalis, Kumaunies shall be as follows:-

Sex	Height
1	2
Male	152.5 cms.
Female	145.0 cms.

(2) The male candidates will be required to qualify a walking test of 25 kms. to be completed in Four hours and female candidates of 14 kms. to be completed in 4 hours. The arrangement for conducting this test will be made by the Principal Chief Conservator of Forests, Uttar Pradesh so as to synchronise with the sittings of the Medical Board.

PHYSICAL FITNESS: For Assistant Conservator of Forest (1) No candidate shall be appointed to a post in the service unless he/she be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of his/her duties. Before a candidate is finally approved for appointment by direct recruitment he/she shall be required to pass an examination by a Medical Board. **(2)** A female candidate who as a result of test is found to be pregnant of Twelve weeks duration or more should be declared temporarily unfit. She should be re-examined for fitness after Six weeks from the date of confinement.

For Range Forest Officer:- (1) No candidates shall be appointed to a post in the service unless he/she be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of his/her duties. Before a candidate is finally approved for appointment he/she shall be required to pass an examination by a Medical Board. (2) A Female candidate who as a result of test is found to be pregnant of twelve weeks duration or more should be declared temporarily unfit, She should be re-examined for fitness after six weeks from the date of confinement.

Note:- Candidates before applying for the above mentioned posts should ensure himself/herself that he/she possesses the above physical standard.

10. AGE LIMIT: (i) Candidates must have attained the age of 21 years and must not have crossed the age of 40 years on July 01, 2025 i.e. they must have not been born earlier than 2nd July, 1985 and not later than July 01, 2004, For PH candidates, the maximum age limit is 55 years i.e. they must have not been born before 02 July, 1970.

(ii) Relaxation in Upper Age Limit: (a) Upper age limit shall be greater by five years for candidates belonging to Scheduled castes of U.P., Scheduled Tribes of U.P., Other Backward Classes of U.P., Skilled players of U.P. of Classified Games, State Govt. Employees of U.P. including Teachers/Staff of the Basic Shiksha Parishad of U.P. and teachers/staff of the Government Aided Madhyamik Vidyalayas of U.P. i.e they must have not been born before 2nd July, 1980.

(b) Upper age limit shall be greater by fifteen years for persons with disabilities (PH) of U.P. &

(c) Upper age limit shall also be greater by three years + Period of service rendered in Army for the Emergency Commissioned Officers / Short Service Commissioned Officers / Ex-Army Perssonels of U.P.

11. SOME INFORMATION ABOUT COMBINED STATE / UPPER SUBORDINATE SERVICES MAIN (WRITTEN) EXAMINATION AND INTERVIEW, AND ASSISTANT CONSERVATOR OF FOREST/RANGE FOREST OFFICER SERVICES MAIN (WRITTEN) EXAMINATION AND INTERVIEW:-

(i) Only such candidates will be admitted to the Main (written) examination who are declared successful in Preliminary Examination for which the successful candidates will have to fill up another application form according to instructions of the Commission and for this application, the examination fee for Unreserved (General), Economically weaker sections, Other Backward Classes and for Candidates of Other States is Rs. 200/- and Rs. 25/- as online processing fee = Rs. 225/- and for Scheduled Caste and Scheduled Tribe candidates of U.P. the fee is Rs. 80/- and Rs. 25/- as on-line processing fee = Rs. 105/-. The candidates of Physically Handicapped category of U.P. are exempted from fee but they have to pay Rs. 25/- only as on-line processing fee, Candidates of Ex-Army Personnels of U.P. Exam Fees is Rs. 80/- and Rs. 25/- as on-line processing fees = Rs. 105/- only but the candidates of D.F.F. of U.P./Women/Skilled/ Outstanding Sports Person candidates of U.P. shall have to deposit their fees according to their original category.

(ii) For the Combined state/upper Subordinate Services Main (written) Examination, And Assistant conservator of Forest Officer main (Written) Examination, the candidates are required to fill up and submit their Online Application and deposit required fee.

(iii) Candidates should carefully note that they will have to appear in the main examination against the same Roll No. allotted for the Preliminary Examination.

(iv) The dates and venue for the Main examination shall be informed by the Commission later on through e-Admit Cards.

(v) Only such candidates will be called for interview who are declared successful on the basis of the main (written) examination.

(vi) Candidates will have to fill up the prescribed application form before the Interview (viva-voce test).

(vii) Preferences for different posts will be asked at the time of Interview which will be treated final and no change therein will be admitted. In this regard no application for error correction / modification shall be acceptable.

(viii) All original certificates shall be verified at the time of Interview. Candidates will also be required to furnish four passport size Photographs, two unattested and two attested by their Head of Department or Head of the Institution where they have received education or by a Gazetted Officer at the time of Interview.

(ix) Candidates serving under the Central or State government will have to produce 'No Objection Certificate' from their employer at the time of interview issued by the competent authority.

(x) It is essential for the candidates to appear in the interview who qualify on the basis of Main Examination.

NOTE:- The candidates must enclose self attested copies of all Marksheets/ certificates in support of their claims rendered in the application form for main examination of the Combined State / Upper Subordinate Services Examination 2025 and Assistant Conservator of Forest/Range Forest Officer Services Examination 2025. If they do not enclose and send their self attested copies of all Marksheets/ Certificates in support of their claims till last date of application, their candidature shall be cancelled.

12. IMPORTANT INSTRUCTIONS FOR CANDIDATES:-

(1) The date of birth of the candidates shall be admissible as entered in High School Certificate. The candidate will have to attach his/her High School or equivalent examination certificate with the application form of Main Examination. No other certificate shall be acceptable for Date of Birth and if it is not attached with the application, it shall be rejected.

(2) The candidates will have to enclose self attested copies of Marksheets, Certificates & Degrees along with the application form of Main examination in support of their claims of Educational Qualifications. If they do not enclose self attested copies of certificates/ documents in support of their claims, the applications shall be rejected.

(3) The benefit of reservation to the categories of Physically Handicapped persons of society shall be given only on the posts which are identified by the Government for their Sub category. For this benefit, the Handicapped persons must produce a certificate of being handicapped in that Sub category issued by Medical Officer/Specialist and counter signed by the Chief Medical Officer according to Rule 3 of U.P. Public Service (Reservation for physically Handicapped, Dependent of Freedom Fighters and Ex-Servicemen) (Amendment) Act, 2021.

(4) The Ex-Army Personnels must be discharged from Army upto the last date prescribed for receipt of applications.

(5) Date, time and venue etc. of examination along with Roll No. will be communicated to the candidates through e-Admit Cards. Candidates will have to appear only at the centre/venue allotted to them by the Commission. No change in centre/venue is permissible and no application shall be entertained in this regard.

(6) The Commission reserves the right of cancelling the candidature of any candidate found indulging in any malpractice i.e. copying in examination hall or indiscipline, misbehavior or canvassing for his/her candidature. On violation of these instructions, the candidates may be debarred from this examination as well as future Examinations and selections. In this regard, decision of the commission shall be final. The Provisions of Uttar Pradesh Examination (Prevention of Unfair Means) Act, 2024 Dated August 6, 2024 will applicable in aforesaid examination.

(7) In all communication to the Commission, the candidate must mention the name of examination, advertisement No.,O.T.R. Number, Application ID, Name of the candidate, date of birth, father's/Husband's name and also the Roll Number, if communicated.

(8) Candidates selected for appointment will have to undergo Medical Examination as required under the Rules.

(9) On the basis of the result of Preliminary Examination, fifteen times candidates to the number of vacancies shall be declared successful for the main examination and three times candidates to the number of vacancies shall be called for the interview.

(10) The decision/guidlines of the Hon'ble Supreme Court in the writ petition No. (C)165/2005, Sanjay Singh V/s U.P. Public Service Commission and others shall be complied with.

(11) The candidates who are appearing in the Examination of essential qualification prescribed for the posts need not apply, because they are not eligible.

(12) While filling the OMR answer sheets, the candidates must use Black Ball Point Pen Only. Use of any other Pen or Pencil is strictly prohibited.

(13) At the time of examination, candidates must fill all the information sought on the OMR Answer Sheet correctly by blackening the concerned circles, which are decipherable by the scanner machine. The Commission will evaluate OMR Answer Sheet only on the basis of information given by blackening the concerned circles of OMR Answer Sheet. The candidates are also directed not to use whitener, blade, pin or rubber etc. on the OMR Answer Sheet. In case of not blackening the circles properly in the OMR Answer Sheet and filling any information incorrectly, the Commission shall not evaluate such OMR Answer Sheet for which candidates themselves shall be wholly responsible.

(14) As per the decision of Hon'ble Commission, the Answer Sheet used in objective examinations, will be in three copies: First copy Original copy-Pink, Second copy Preserved copy-Green and Third copy Candidate's copy-Blue. After completion of the examination, the invigilator will submit the Original copy and Preserved copy of OMR Answer Sheet; and the candidate will take the Third copy (Candidate's copy-Blue) with him/her.

(15) In the Preliminary Examination for the objective type Question papers, penalty (Negative Marking) shall be imposed for wrong answers given by the candidates which is as below:-

(i)) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one third (0.33) of the marks assigned to that question will be deducted as penalty.

(ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answer happens to be correct and there will be same penalty as above for that question.

(iii) If a question is left blank i.e. no answer is given by the candidate, there will be no penalty for that question.

(16) The minimum efficiency standard for S.C. & S.T. candidates is fixed 35% i.e. the Candidates of these Categories shall not be placed in the merit/select list if they have secured less than 35% marks in the Preliminary/Main examination. Similarly, the minimum efficiency standard for the candidates of other categories is fixed 40% i.e. such candidates shall not be placed in the merit/select list if they have secured less than 40% marks in the Preliminary/Main examination. All such candidates who have secured less marks than the marks of minimum efficiency standard as fixed by the Commission shall be treated disqualified.

(17) The candidates shall be required to obtain such minimum marks in compulsory paper of General Hindi, as may be determined by the Govt. or the Commission, as the case may be.

(18) Paper-II of the Preliminary Examination will be a qualifying paper with minimum qualifying marks fixed at 33%. It is mandatory for the Candidates to appear in both the papers of Preliminary Examination for the purpose of evaluation. Therefore a candidate will be disqualified in case he does not appear in both papers. The merit of the Candidates will be determined on the basis of marks obtained in Paper-I of the Preliminary Examination.

(19) The candidates of reserved categories will be adjusted against the unreserved category in the final selection only if he/she will not availed any benefit/concession in qualifying standard at the stage of Preliminary/Main Examination.

(20) If it is found that a candidate has submitted any forged documents he/she will be debarred from all selections of UPPSC forever and action under relevant sections of Bharatiya Nyaya Sanhita will also be taken against him/her.

(21) The Candidates whose candidature are cancelled, those candidates do not remain candidates after the cancellation of candidature, therefore the marks of such candidates shall not be provided.

GENERAL INSTRUCTIONS

1. In no circumstances, applications of any stage shall be accepted after the last prescribed date and time. Applications found without requisite information and without photograph and signature, even when received in time, may be summarily rejected.

2. In the On-line system, the candidates must ensure that all the requisite information have been duly filled and must submit by the last prescribed Date & Time. Candidates must take the Print and keep it safely. In any discrepancy, the candidates will have to produce the said print to the commission's office otherwise no request shall be entertained.

3. Those candidates, willing to take the benefit of the reservation/age relaxation must obtain a certificate, issued by the competent authority, in support of the reserved category, in the prescribed format printed in this detailed advertisement **(Appendix-1)** and submit the same to the Commission, whenever required to do so. Candidate claiming more than one reservation/age relaxation will be given only one such concession, which will be more beneficial. The Candidates who are not originally domicile of U.P. belonging to SC, ST, O.B.C., E.W.S., dependents of freedom fighters, Ex-Servicemen, Outstanding/Skilled sports person and P.H. are not entitled to the benefit of reservation/age relaxation. In case of the women candidates, the caste certificate issued from father side will be treated valid.

4. The Commission do not advise to candidates about their eligibility. Therefore, they should carefully read the advertisement and when satisfied about their eligibility as per conditions of the advertisement, only then apply. The candidates must possess all the requisite qualifications till the last date for submitting the applications.

5. In the category of dependents of the freedom fighters only sons, daughters, grandsons (Son's son/Daughter's son) and granddaughters (son's daughter / daughter's daughter, married/ unmarried) are covered. It is advised that the candidates of aforesaid category must obtain the reservation certificate from the District Magistrate in terms of Govt. Order No. 453/79-V-1-15-1(ka) 14-2015, dated 07.04.2015 in the prescribed format and submit the same.

6. In case the candidates feel any problem in the "On-line Application", they may get their problem resolved by sending their queries to the 'Mail Box' of the commission.

7. The proformae of caste certificates for different reserved categories are given in **Appendix-1.** The plan of Examination for preliminary Examination on **Appendix-2,** the syllabus for Preliminary Examination on **Appendix-3** and Instructions and syllabus for the Combined State / Upper Subordinate Services Main Examination is given on **Appendix-4**. The plan of Examination and syllabus for Assistant Conservator of Forest/Range Forest Officer Main (written) Examination is given on **Appendix-5 and 6** respectively. The relevant service rules of related posts are given in **Appendix-7.**

Detailed Application Form:

At the online page there is a 'Declaration' for the candidates. Candidates are advised to go through the contents of the Declaration carefully. Candidate has the option to either agree or disagree with the contents of Declaration by clicking on 'I Agree' or 'I do not agree' buttons. In case the candidate opts to 'I do not agree', the application will be dropped and the procedure will be terminated. Acceptance of **'I Agree'** only will make possible the submission of the candidate's Online Application.

Notification Details

This section shows information relevant to Notification i.e. Notification number, selection type, directorate/ department name and post name.

Personnel Details from OTR

This section shows information about candidate personnel details i.e. OTR Number, candidate name, Father/Husband name, Gender, DOB, UP domicile, Category, Marital status, email and contact number, photo & signature, address, UP Freedom Fighter, Ex Army, service duration and your physical challenges, Skilled Player, Outstanding Player of U.P., Debarred candidate.

Education & Experience Details

It shows your educational and experience details

Declaration segment

At the page there is a 'Declaration' for the candidates. Candidates are advised to go through the contents of the Declaration carefully.

After filling all above particulars there is provision for preview your detail before final submission of application form on clicking on "Preview" button.

Preview page will display all facts/particulars that you have mentioned in O.T.R. if you are sure with filled details then click on "Submit" button to finally push data into server with successfully submission report that you can print.

[CANDIDATES ARE ADVISED TO TAKE A PRINT OF THIS PAGE BY CLICKING ON THE "Print" OPTION AVAILABLE]

For other information candidates are advised to select desired option in 'Home Page' of Commission's website **https://uppsc.up.nic.in**

IMPORTANT ANNOUNCEMENT

:- NOTIFICATIONS /ADVERTISEMENTS

- All Notification/Advertisements

:- ONLINE APPLICATION FORMS SUBMISSION

- Candidate Registration
- Fee Deposition /Reconciliation
- Submit Application Form
- Modify Submitted Application
- Candidate Dashboard (OTR Based)

:- CANDIDATE'S HELP DESK SECTION

- Double Verification mode
- View Application Status
- Download Admit Card
- Print Duplicate Registration Slip
- Print Detailed Application Form

• List of Applications Having ANY Objections
• View Answer Key

LAST DATE FOR RECEIPT OF APPLICATIONS: On-line Application process must be completed (including filling up of OTR, Part-I, Part-II and Part-III of the Form) before last date of form submission according to Advertisement, after which the web-link will be disabled.

APPENDIX-1

उ0प्र0 की अनुसूचित जाति तथा अनुसूचित जनजाति के लिये जाति प्रमाण–पत्र (प्रारुप–पत्र)

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी ..... सुपुत्र/सुपुत्री श्री ..... निवासी ग्राम ..... तहसील ..... नगर ..... जिला ..... उत्तर प्रदेश राज्य की ..... जाति के व्यक्ति हैं जिसे संविधान (अनुसूचित जाति) आदेश, 1950 (जैसा कि समय–समय पर संशोधित हुआ)/संविधान (अनुसूचित जनजाति, उत्तर प्रदेश) आदेश, 1967 के अनुसार अनुसूचित जाति/अनुसूचित जनजाति के रूप में मान्यता दी गई है।

श्री/श्रीमती/कुमारी ..... तथा/अथवा उनका परिवार उत्तर प्रदेश के .....ग्राम..... तहसील .....नगर ..... जिला ..... में सामान्यतया रहता है।

स्थान ..... हस्ताक्षर.....
दिनांक ..... पूरा नाम.....
मुहर ..... पद नाम.....

जिलाधिकारी/अतिरिक्त जिलाधिकारी/सिटी मजिस्ट्रेट/परगना मजिस्ट्रेट/तहसीलदार/ अन्य वेतन भोगी मजिस्ट्रेट, यदि कोई हो/जिला समाज कल्याण अधिकारी।

उत्तर प्रदेश के अन्य पिछड़े वर्ग के लिए जाति प्रमाण–पत्र

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी ..... सुपुत्र/ सुपुत्री श्री.. ..... निवासी ग्राम..... तहसील ..... नगर ..... जिला ..... उत्तर प्रदेश राज्य की .... पिछड़ी जाति के व्यक्ति हैं। यह जाति उ0प्र0 लोक सेवा (अनुसूचित जातियों, अनुसूचित जनजातियों और अन्य पिछड़े वर्गों के लिये आरक्षण) अधिनियम, 1994 (यथासंशोधित) की अनुसूची–एक के अन्तर्गत मान्यता प्राप्त है।

यह भी प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी ..... पूर्वोक्त अधिनियम, 1994 (यथासंशोधित) की अनुसूची–दो जैसा कि उ0प्र0 लोक सेवा (अनुसूचित जातियों, अनुसूचित जनजातियों और अन्य पिछड़े वर्गों के लिये आरक्षण) (संशोधन) अधिनियम, 2001 द्वारा प्रतिस्थापित किया गया है एवं जो उ0प्र0 लोक सेवा (अनुसूचित जातियों, अनुसूचित जनजातियों और अन्य पिछड़े वर्गों के लिये आरक्षण) (संशोधन) अधिनियम, 2002 द्वारा संशोधित की गयी है, से आच्छादित नहीं है। इनके माता–पिता की निरंतर तीन वर्ष की अवधि के लिये सकल वार्षिक आय आठ लाख रुपये या इससे अधिक नहीं है तथा इनके पास धनकर अधिनियम, 1957 में यथा विहित छूट सीमा से अधिक सम्पत्ति भी नहीं है।

श्री/श्रीमती/कुमारी ..... तथा/अथवा उनका परिवार उत्तर प्रदेश के ग्राम ..... तहसील ..... नगर ..... जिला ..... में सामान्यतया रहता है।

स्थान ..... हस्ताक्षर .....
दिनांक ..... पूरा नाम .....
मुहर ..... पद कानाम .....

जिलाधिकारी/अतिरिक्त जिलाधिकारी/सिटी मजिस्ट्रेट/परगना मजिस्ट्रेट/तहसीलदार।

(प्रपत्र–I)
उत्तर प्रदेश सरकार

कार्यालय का नाम.....

आर्थिक रूप से कमजोर वर्ग के सदस्य द्वारा प्रस्तुत किया जाने वाला आय एवं परिसम्पत्ति प्रमाण–पत्र

प्रमाण पत्र संख्या..... दिनांक .....

वित्तीय वर्ष ..... के लिए मान्य

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी..... पुत्र/पति/पुत्री..... ग्राम/कस्बा..... पोस्ट ऑफिस ..... थाना ..... तहसील ..... जिला ..... राज्य ..... पिन कोड ..... के स्थायी निवासी हैं, जिनका फोटोग्राफ नीचे, अभिप्रमाणित है, आर्थिक रूप से कमजोर वर्ग के सदस्य हैं, क्योंकि वित्तीय वर्ष ..... में इनके परिवार की कुल वार्षिक आय 8 लाख (आठ लाख रूपये मात्र) से कम है। इनके परिवार के स्वामित्व में निम्नलिखित में से कोई भी परिसम्पत्ति नहीं है:–

I. 5 (पॉच) एकड़ कृषि योग्य भूमि अथवा उससे ऊपर।
II. एक हजार वर्ग फीटअथवा इससे, अधिक क्षेत्रफल का फ्लैट।
III. अधिसूचित नगरपालिका के अंतर्गत 100 वर्ग गज अथवा इससे अधिक का आवासीय भूखण्ड।
IV. अधिसूचित नगरपालिका से इतर 200 वर्ग गज अथवा इससे अधिक का आवासीय भूखण्ड।

2. श्री/श्रीमती/कुमारी ..... जाति ..... के सदस्य हैं जो अनुसूचित जाति, अनुसूचित जनजाति तथा अन्य पिछड़े वर्गों के रूप में अधिसूचित नहीं हैं।

आवेदक का पासपोर्ट साईज का अभिप्रमाणित फोटोग्राफ

हस्ताक्षर .....(कार्यालय का मुहर सहित)
पूरा नाम .....
पदनाम .....
जिलाधिकारी/अतिरिक्त जिलाधिकारी/सिटी मजिस्ट्रेट/परगना मजिस्ट्रेट/तहसीलदार।

(प्रपत्र–।।)
आर्थिक रूप से कमजोर वर्ग के लाभार्थ स्वयं घोषणा पत्र
स्वयं घोषणा पत्र

मैं ..... पुत्र/पुत्री/पत्नी ..... ग्राम/कस्बा ..... पोस्ट ऑफिस ..... थाना .. .. ब्लाक ..... तहसील ..... जिला ..... राज्य ..... ने आर्थिक रूप से कमजोर वर्ग के प्रमाण पत्र हेतु आवेदन दिया है, एतद् द्वारा घोषणा करता/करती हूँ:–

1. मैं ..... जाति से सम्बन्ध रखता/रखती हूँ, जो उत्तर प्रदेश हेतु अधिसूचित अनुसूचित जाति, अनुसूचित जनजाति, एवं अन्य पिछड़ा वर्ग की सूची में सूचीबद्ध नहीं है।
2.मेरे परिवार की कुल श्रोतों (वेतन, कृषि, व्यवसाय, पेशा इत्यादि) से कुल वार्षिक आय रू ..... (शब्दों में) है।
3. मेरे परिवार के पास उल्लिखित आय के सिवाय अथवा इसके अतिरिक्त अन्यत्र कोई परिसम्पत्ति नहीं है।

अथवा

कई स्थानों पर स्थित परिसम्पत्तियों को जोड़ने के पश्चात भी मैं (नाम) ..... आर्थिक रूप से कमजोर वर्ग के दायरे में आता/आती हूँ।

4.मैं घोषणा करता/करती हूँ कि मेरे परिवार की सभी परिसम्पत्तियों को जोड़ने के पश्चात् निम्नलिखित में से किसी भी सीमा से अधिक नहीं है।

I. 5 (पॉच) एकड़ कृषि योग्य भूमि अथवा उससे ऊपर।
II. एक हजार वर्ग फीट अथवा इससे, अधिक क्षेत्रफल का फ्लैट।
III. अधिसूचित नगरपालिका के अंतर्गत 100 वर्ग गज अथवा इससे अधिक का आवासीय भूखण्ड।
IV. अधिसूचित नगरपालिका से इतर 200 वर्ग गज अथवा इससे अधिक का आवासीय भूखण्ड।

मैं प्रमाणित करता/करती हूँ कि मेरे द्वारा उपरोक्त जानकारी मेरे ज्ञान और विश्वास के अनुसार सत्य है और मैं आर्थिक रूप से कमजोर वर्ग के लिए आरक्षण सुविधा प्राप्त करने हेतु पात्रता धारण करता/करती हूँ। यदि मेरे द्वारा दी गई जानकारी असत्य/गलत पायी जाती है तो मैं पूर्ण रूप से जानता हूँ/जानती हूँ कि इस आवेदन पत्र के आधार पर दिये गये प्रमाण पत्र के द्वारा शैक्षणिक संस्थान में लिया गया प्रवेश/लोक सेवाओं एवं पदों में प्राप्त की गई नियुक्ति निरस्त कर दी जायेगी/कर दिया जायेगा अथवा इस प्रमाण पत्र के आधार पर कोई अन्य सुविधा/लाभ प्राप्त किया गया है उससे भी वंचित किया जा सकेगा और इस सम्बन्ध में विधि एवं नियमों के अधीन मेरे विरूद्ध की जाने वाली कार्यवाही के लिए मैं उत्तरदायी रहूँगा/रहूँगी।

नोटः– जो लागू नहीं हो उसे काट दें।

स्थान :– **आवेदक/आवेदिका का हस्ताक्षर तथा पूरा नाम।**

दिनांकः–

उ0प्र0 के दिव्यांग व्यक्तियों के लिये प्रामाण–पत्र
(दिव्यांगजन प्रारूप)
Form-II
Certificate of Disability

(In cases of amputation or complete permanent paralysis of limbs or dwarfism and in case of blindness) (Name and Address of the Medical Authority issuing the Certificate)

Recent passport size attested photograph (showing face only) of the person with disability

Certificate No. **Date:**

This is to certify that I have carefully examined Shri/Smt./Kum..... ..... son/wife/daughter of Shri.....Date of Birth (DD/MM/YY).....Age .....years, male/female..... registration No. ..... permanent resident of House No. ..... Ward/Village/Street .....Post office..... District.....State.....

whose photograph is affixed above, and am satisfied that:

(A) he/she is a case of:
- locomotor disability
- dwarfism
- blindness

(Please tick as applicable)

(B) The diagnosis in his/her case is.....

(A) he/she has .....% (in figure)..... percent (in words) permanent locomotor disability/ dwarfism/blindness in relation to his/her..... (part of body) as per guidelines (.....number and date of issue of the guidelines to be specified).

2. The applicant has submitted the following document as proof of residence:-

Nature of Document	Date of Issue	Details of authority Issuing certificate

3. Signature and seal of the Medical Authority.

(Dr.....) Member Medical Board with seal
(Dr.....) Member Medical Board with seal
(Dr.....) Chairperson Medical Board with seal
Countersigned by the Chief Medical Officer (with seal)

Signature/thumb impression of the person in whose favour certificate of disability is issued

Form-III
Certificate of Disability
(In cases of multiple disabilities)
(Name and Address of the Medical Authority/Board issuing the Certificate)

Recent passport size attested photograph (showing face only) of the person with disability

Cerficate No. **Date:**

This is to certify that we have carefully examined Shri/Smt./Kum ..... son/wife/ daughter of Shri ..... Date of birth (DD/MM/YY).....age..... years, male/ female.....Registration No..... permanent resident of House No..... Ward/Village/Street..... Post Office..... District..... State..... whose photograph is affixed above, and am satisfied that:

(A) he/she is a case of
Multiple Disability. His/her extent of permanent physical impairment/ disability has been

evaluated as per guidelines (..... number and date of issue of the guidelines to be specified) for the disabilities ticked below, and is shown against the relevant disability in the table below:

S. No.	Disability	Affected part of body	Diagnosis	Permanent physical/impairment/ mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy Cured			
4.	Dwarfism			
5.	Cerebral Palsy			
6.	Acid attack Victim			
7.	Low Vision	#		
8.	Blindness	#		
9.	Deaf	£		
10.	Hard of Hearing	£		
11.	Speech and Language disability			
12.	Intellectual Disability			
13.	Specific Learning Disability			
14.	Autism Spectrum Disorder			
15.	Mental illness			
16.	Chronic Neurological Conditions			
17.	Multiple sclerosis			
18.	Parkinson's disease			
19.	Haemophilia			
20.	Thalassemia			
21.	Sickle Cell disease			

(B) In the light of the above, his/her over all permanent physical impairment as per guidlines (.....number and date of issue of the guidelines to be specified), is follows:

In figures.....percent.

In words.....percent

2. This condition is progressive/non-progressive/likely to improve/not likely to improve.

3. Reassessment of disability is:-

(i) not necessary,

or

(ii) is recommended/ after..... years..... months, and therefore this certificate shall be valid till ....

(DD) (MM) (YY)

@ -e.g. Left/right/both arms/legs

- e.g. Single eye

£ - e.g. Left/Right/both ears

4. The applicant has submitted the following document as proof of residence:-

Nature of Document	Date of Issue	Details of authority Issuing certificate

5. Signature and seal of the Medical Authority.

Name and Seal of Member	Name and Seal of Member	Name and Seal of the Chairperson
Signature/thumb impression of the person in whose favour certificate of disability is issued		Countersigned by the Chief Medical Officer (with seal)

Form-IV

Certificate of Disability

(In cases of other than those mentioned in Forms II and III)

(Name and Address of the Medical Authority/Board issuing the Certificate)

Recent passport size attested photograph (showing face only) of the person with disability

Cerficate No. **Date:**

This is to certify that we have carefully examined

Shri/Smt./Kum..... son/wife/daughter of Shri ..... Date of birth (DD/MM/YY) .....age ..... years, male/female.....Registration No..... permanent resident of House No.....Ward/Village/Street.....Post Office..... District.....State..... whose photograph is affixed above, and am satisfied that he/she is a case of Disability.

His/her extent of percentage physical impairment/disability has been evaluated as per guidelines (.....number and date of issue of the guidelines to be specified) and is shown against the relevant disability in the table below

S. No.	Disability	Affected part of body	Diagnosis	Permanent physical/impairment/ mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy Cured			
4.	Cerebral Palsy			
5.	Acid attack Victim			
6.	Low Vision	#		
7.	Deaf	£		
8.	Hard of Hearing	£		
9.	Speech and Language disability			
10.	Intellectual Disability			
11.	Specific Learning Disability			
12.	Autism Spectrum Disorder			
13.	Mental illness			
14.	Chronic Neurological Conditions			
15.	Multiple sclerosis			
16.	Parkinson's disease			
17.	Haemophilia			
18.	Thalassemia			
19.	Sickle Cell disease			

(Please strike out the disabilities which are not applicable)

2. The above condition is progressive/non-progressive/liklye to improve/not likely to improve.

3. Reassessment of disability is :-

(i) not necessary.

or

(ii) is recommended/after ..... years ..... months, and therefore this certificate shall be valid till (DD/MM/YY) .....

@ e.g. Left/right/both arms/legs

e.g. Single eye/both eyes

£ e.g. Left/Right/both ears

4. Signature and seal of the Medical Authority.

Name and Seal of Member	Name and Seal of Member	Name and Seal of the Chairperson
Signature/thumb impression of the person in whose favour certificate of disability is issued		Countersigned by the Chief Medical Officer (with seal)

उत्तर प्रदेश लोक सेवा (शारीरिक रूप से विकलांग, स्वतंत्रता संग्राम सेनानियों के आश्रितों और भूतपूर्व सैनिकों के लिये आरक्षण), अधिनियम, 1993 (यथासंशोधित) के अनुसार स्वतंत्रता संग्राम सेनानी के आश्रित के प्रमाण–पत्र का प्रपत्र।

प्रमाण–पत्र

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी ..... निवासी ..... ग्राम..... तहसील.....नगर..... जिला ..... उत्तर प्रदेश लोक सेवा (शारीरिक रूप से विकलांग, स्वतंत्रता संग्राम सेनानियों के आश्रितों और भूतपूर्व सैनिकों के लिये आरक्षण) अधिनियम, 1993 के अनुसार स्वतंत्रता संग्राम सेनानी हैं और श्री/श्रीमती/कुमारी (आश्रित) ..... पुत्र/पुत्री/पौत्र (पुत्र का पुत्र या पुत्री का पुत्र) तथा पौत्री (पुत्र की पुत्री या पुत्री की पुत्री) (विवाहित अथवा अविवाहित) उपरांकित अधिनियम, 1993 (यथासंशोधित) के प्राविधानों के अनुसार उक्त श्री/श्रीमती (स्वतंत्रता संग्राम सेनानी) .....के आश्रित हैं।

स्थान..... हस्ताक्षर .....

दिनांक..... पूरा नाम .....

पदनाम .....

मुहर .....

जिलाधिकारी.....

सील.....

कुशल खिलाड़ियों के लिये प्रमाण–पत्र जो उ.प्र. के मूल निवासी हैं

शासनादेश संख्या–22/21/1983–कार्मिक–2 दिनांक 28 नवम्बर, 1985

प्रमाण–पत्र के फार्म – 1 से 4

प्रारूप –1

(मान्यता प्राप्त क्रीड़ा/खेल में अपने देश की ओर से अन्तरराष्ट्रीय प्रतियोगिता में भाग लेने वाले खिलाड़ी के लिये)

सम्बन्धित खेल की राष्ट्रीय फेडरेशन/राष्ट्रीय एसोसिएशन का नाम..... राज्य सरकार की सेवाओं/पदों पर नियुक्ति के लिए कुशल खिलाड़ियों के लिए प्रमाण–पत्र

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी ..... आत्मज/पत्नी/आत्मजा श्री ..... निवासी ..... पूरा पता ..... ने दिनांक ..... से दिनांक ..... तक ..... (स्थान का नाम) में आयोजित..... (क्रीड़ा/खेल–कूद का नाम) की प्रतियोगिता/टूर्नामेन्ट में देश की ओर से भाग लिया। उनके टीम के द्वारा उक्त प्रतियोगिता/टूर्नामेन्ट में ..... स्थान प्राप्त किया गया।

यह प्रमाण–पत्र राष्ट्रीय फेडरेशन/राष्ट्रीय एसोसिएशन/(यहाँ संस्था का नाम दिया जाये) ..... में उपलब्ध रिकार्ड के आधार पर दिया गया है।

स्थान ..... हस्ताक्षर .....

दिनांक ..... नाम .....

पद .....

संस्था का नाम .....

मुहर .....

नोट : यह प्रमाण–पत्र नेशनल फेडरेशन/नेशनल एसोसिएशन के सचिव द्वारा व्यक्तिगत रूप से किये गये हस्ताक्षर होने पर ही मान्य होगा।

प्रारूप – 2

(मान्यता प्राप्त क्रीड़ा/खेल में अपने प्रदेश की ओर से राष्ट्रीय प्रतियोगिता में भाग लेने वाले खिलाड़ी के लिये) सम्बन्धित खेल की प्रदेशीय एसोसिएशन का नाम .....राज्य सरकार की सेवाओं/पदों पर नियुक्ति के लिए कुशल खिलाड़ियों के लिए प्रमाण–पत्र

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी ..... आत्मज/ पत्नी/आत्मजा श्री ..... निवासी (पूरा पता) .....ने दिनांक.....से दिनांक.....तक.....में (क्रीड़ा/खेल–कूद का नाम) की प्रतियोगिता (टूर्नामेन्ट स्थान का नाम).....आयोजित राष्ट्रीय..... में (क्रीड़ा/खेल–कूद का नाम) की प्रतियोगिता/ टूर्नामेन्ट में प्रदेश की ओर से भाग लिया।

उनके टीम के द्वारा उक्त प्रतियोगिता/टूर्नामेन्ट में ..... स्थान प्राप्त किया गया।

यह प्रमाण–पत्र ..... (प्रदेशीय संघ का नाम) में उपलब्ध रिकार्ड के आधार पर दिया गया है।

स्थान ..... हस्ताक्षर .....

दिनांक ..... नाम .....

पद .....

संस्था का नाम .....

मुहर .....

नोट : यह प्रमाण–पत्र प्रदेशीय खेल–कूद संघ के सचिव द्वारा व्यक्तिगत रूप से किये गये हस्ताक्षर होने पर ही मान्य होगा।

प्रारूप – 3

(मान्यता प्राप्त क्रीड़ा/खेल में अपने विश्वविद्यालय की ओर से अन्तर्विश्वविद्यालय प्रतियोगिता में भाग लेने वाले खिलाड़ी के लिये)

विश्वविद्यालय का नाम ..... राज्य स्तर की सेवाओं/पदों पर नियुक्ति के लिए कुशल खिलाड़ियों के लिए प्रमाण–पत्र

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी ..... आत्मज/पत्नी/आत्मजा श्री ..... निवास (पूरा नाम) ..... विश्वविद्यालय की कक्षा ..... के विद्यार्थी ने दिनांक ..... से दिनांक ..... तक ..... (स्थान का नाम) में आयोजित अन्तर्विश्वविद्यालय ..... (क्रीड़ा/खेल–कूद का नाम) प्रतियोगिता/टूर्नामेन्ट में ..... विश्वविद्यालय की ओर से भाग लिया। उनके टीम के द्वारा उक्त प्रतियोगिता/टूर्नामेन्ट में ..... स्थान प्राप्त किया गया। यह प्रमाण–पत्र डीन ऑफ स्पोर्ट्स अथवा इंचार्ज खेल कूद .....विश्वविद्यालय में उपलब्ध रिकार्ड के आधार पर दिया गया है।

स्थान ..... हस्ताक्षर .....

दिनांक ..... नाम .....

पद .....

संस्था का नाम .....

मुहर .....

नोट : यह प्रमाण–पत्र विश्वविद्यालय के डीन ऑफ स्पोर्ट्स या इंचार्ज खेल–कूद द्वारा व्यक्तिगत रूप से किये गये हस्ताक्षर होने पर ही मान्य होगा।

प्रारूप – 4

(मान्यता प्राप्त क्रीड़ा/खेल में अपने स्कूल की ओर से राष्ट्रीय खेल–कूद में भाग लेने वाले खिलाड़ी के लिये)

डाइरेक्ट्रेट ऑफ पब्लिक इन्स्ट्रक्शन्स/निदेशक, शिक्षा, उत्तर प्रदेश ..... राज्य स्तर की सेवाओं/पदों पर नियुक्ति के लिए कुशल खिलाड़ियों के लिए **प्रमाण–पत्र**

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी ..... आत्मज/पत्नी/आत्मजा श्री .... निवासी (पूरा पता) ..... में ..... स्कूल में कक्षा ..... के विद्यार्थी ने दिनांक ... . से दिनांक ..... तक .....(स्थान का नाम) में आयोजित स्कूलों के नेशनल गेम्स की ..... . (क्रीड़ा/खेल–कूद का नाम) प्रतियोगिता/टूर्नामेन्ट में ..... स्कूल की ओर से भाग लिया। उनके टीम के द्वारा उक्त प्रतियोगिता/ टूर्नामेन्ट में ..... स्थान प्राप्त किया गया।

यह प्रमाण–पत्र डाइरेक्ट्रेट ऑफ पब्लिक इन्स्ट्रक्शन्स/शिक्षा में उपलब्ध रिकार्ड के आधार पर दिया गया है।

स्थान .....हस्ताक्षर .....

दिनांक ..... नाम .....

पद .....

संस्था का नाम .....

मुहर .....

नोट : यह प्रमाण–पत्र निदेशक/या अतिरिक्त/संयुक्त या उपनिदेशक डाइरेक्ट्रेट ऑफ पब्लिक इन्स्ट्रक्शन्स/शिक्षा ..... द्वारा व्यक्तिगत रूप से हस्ताक्षर होने पर मान्य होगा।

APPENDIX- 2
PLAN OF EXAMINATION

The competitive examination for the Combined State / Upper Subordinate Services Examination, 2025 And Assistant conservator of Forest/Range Forest Officer Services Examination 2025 comprise three successive stages viz :-

1- Preliminary Examination (Objective Type & Multiple choice).

2- Main Examination (Conventional Type, i.e. Written examination).

3- Viva- Voce (Personality Test).

PRELIMINARY EXAMINATION

The Preliminary examination for the Combined State / Upper Subordinate Services Examination And Assistant conservator of Forest/Range Forest Officer Services Examination 2025 will consist of two compulsory papers of which answer sheet be on OMR sheets. The syllabus for Preliminary Examination is mentioned in Appendix-3 of this advertisement. The papers shall be 200 marks each and of two hours durations. Both the papers shall be objective Type & multiple choice in which there shall be 150-100 questions Respectively. The timing of paper I will be from 9.30 to 11.30 A.M. and paper II from 2.30 to 4.30 P.M.

Note : **(1) Paper-II of the Preliminary Examination will be a qualifying paper with minimum qualifying marks fixed at 33%.**

(2) It is mandatory for the Candidates to appear in both the papers of Preliminary Examination for the purpose of evaluation. Therefore a candidate will be disqualified in case he does not appear in both papers.

(3) The merit of the Candidates will be determined on the basis of marks obtained in Paper-I of the Preliminary Examination.

SUBJECTS FOR THE COMBINED STATE / UPPER SUBORDINATE SERVICES MAIN (WRITTEN) EXAMINATION : The Written examination will consist of the following compulsory subjects. The syllabus whereof is mentioned in Appendix-4 of this advertisement.

(A) COMPULSORY SUBJECTS

1. General Hindi	Conventional	150 marks
2. Essay	Conventional	150 marks
3. General Studies (First Paper)	Conventional	200 marks
4. General Studies (Second Paper)	Conventional	200 marks
5. General Studies (Third Paper)	Conventional	200 marks
6. General Studies (Fourth Paper)	Conventional	200 marks
7. General Studies (Fifth Paper)	Conventional	200 marks
8. General Studies (Sixth Paper)	Conventional	200 marks

Note : All Papers Shall be Conventional type and for solving the questions three hours time is allowed. Timing of examination papers will be 9.30 am to 12.30 pm & 2 pm to 5 pm.

A candidate shall be required to obtain such minimum marks in the paper of General Hindi, as may be determined by the Government or the Commission, as the case may be.

(B) PERSONALITY TEST (VIVA-VOCE) TOTAL MARKS 100

The test will relate to the matter of general interest keeping the matter of academic interest in view and for general awareness, intelligence, character, expression power/personality and general suitability for the service.

Appendix-3

Syllabus for Preliminary Examination Pertaining to the Combined State / Upper Subordinate Services Examination And Assistant conservator of Forest/Range Forest Officer Services Examination both.

Paper-I
General Studies-I

Duration: Two hours
Marks - 200

- Current events of national and international importance.
- History of India and Indian National Movement.
- India and World geography - Physical, Social, Economic geography of India and the World.
- Indian Polity and governance - Constitution, Political System, Panchayati Raj, Public Policy, Rights Issues etc.
- Economic and Social Development - Sustainable Development, Poverty Inclusion, Demographics, Social Sector Initiatives, etc.
- General Issues on Environmental ecology, Bio-diversity and Climate Change- that do not require subject specialization.
- General Science

Current events of national and international Importance:- On Current Events of National and International Importance, candidates will be expected to have knowledge about them.

History of India & Indian National Movement:- In History emphasis should be on broad understanding social, economic and political aspects of Indian History. In the Indian National Movement, the candidates are expected to have synoptic view of nature and character of the freedom movement, growth of nationalism and attainment of Independence.

India and World Geography - Physical, Social, Economic geography of India and the World: In World Geography only general understanding of the subject will be expected. Questions on the Geography of India will relate to Physical, Social & Economic Geography of India.

Indian Polity and Governance - Constitution, Political System, Panchayati Raj, Public Policy, Rights Issues, etc.:- In Indian Polity, Economic and Culture, questions will test knowledge of country's political system including Panchayati Raj and Community Development, broad features of Economic policy in India and Indian Culture.

Economic and Social Development Sustainable Development, Poverty, Inclusion, Demographics, Social Sector Initiatives, etc.:- The candidates will be tested with respect to problems and relationship between Population, Environment and Urbanisation. General Issues on Environmental ecology, Bio-diversity and Climate Change - that do not require subject specialization, General awareness of the subject is expected from candidates.

General Science:- Questions on General Science will cover general appreciation and understanding of Science including matters of every day observation and experience, as may be expected of a well educated person, who has not made a special study of any scientific discipline.

Note:- Candidates are expected to have general awareness about the above subjects with special reference to Uttar Pradesh.

Paper-II
General Studies-II

Duration : Two hours
Marks - 200

· Comprehension.
· Interpersonal skills including communication skills.
· Logical reasoning and analytical ability.
· Decision making and problem solving.
· General mental ability
· Elementary Mathematics upto Class X level- Arithmatic, Algebra, Geometry and Statistics.
· General English upto Class X level.
· General Hindi upto Class X level.

Elementary Mathematics (Upto Class X Level)

1. Arithmetic:- (i) Number systems: Natural Numbers, Integers, Rational and Irrational numbers, Real numbers, Divisors of an Integer, prime Integers, L.C.M. and H.C.F. of integers and their Interrelationship. (ii) Average (iii) Ratio and proportion (iv) Percentage (v) Profit and Loss (vi) Simple and Compound Interests (vii) Work and Time (viii) Speed,

Time and Distance

2. Algebra :- (i) Factors of polynomials, L.C.M. and H.C.F. of polynomials and their Interrelationship, Remainder theorem, simultaneous linear equations, quadratic equations. (ii) Set Theory:- Set, null set, subsets and proper subsets of a set, operations (Union, Intersections, difference, symmetric difference) between sets, venn diagram.

3. Geometry:- (i) Constructions and theorems regarding triangle, rectangle, square, trapezium and circles, their perimeter and area. (ii) Volume and surface area of sphere, right circular cylinder, right circular Cone and Cube.

4. Statistics:- Collection of data, Classification of data, frequency, frequency distribution, tabulation, cumulative frequency. Representation of data - Bar diagram, Pie chart, histogram, frequency polygon, cumulative frequency curves (ogives), Measures of Central tendency: Arithmetic Mean, Median and Mode.

General English Upto Class X Level

1. Comprehension
2. Active Voice and Passive Voice
3. Parts of Speech
4. Transformation of Sentences
5. Direct and Indirect Speech
6. Punctuation and Spellings
7. Words meanings
8. Vocabulary & Usage
9. Idioms and Phrases
10. Fill in the Blanks

सामान्य हिन्दी (हाईस्कूल स्तर तक) के पाठ्यक्रम में सम्मिलित किये जाने वाले विषय

(1) हिन्दी वर्णमाला, विराम चिन्ह
(2) शब्द रचना, वाक्य रचना, अर्थ
(3) शब्द–रूप
(4) संधि, समास
(5) क्रियायें
(6) अनेकार्थी शब्द
(7) विलोम शब्द
(8) पर्यायवाची शब्द
(9) मुहावरे एवं लोकोक्तियां
(10) तत्सम एवं तद्भव, देशज, विदेशी (शब्द भंडार)
(11) वर्तनी
(12) अर्थबोध
(13) हिन्दी भाषा के प्रयोग में होने वाली अशुद्धियाँ
(14) उ0प्र0 की मुख्य बोलियाँ

APPENDIX- 4
RULES AND SYLLABUS FOR THE COMBINED STATE / UPPER SUBORDINATE SERVICES MAIN (WRITTEN) EXAMINATION

1. No candidate shall be admitted to the examination unless he holds a certificate of admission from the Commission. The decision of the Commission as to the eligibility or otherwise of a candidate for admission to the examination shall be final. **2. CANDIDATES ARE WARNED THAT THEY SHOULD NOT WRITE THEIR ROLL-NUMBERS ANYWHERE EXCEPT IN THE SPACE PROVIDED ON THE COVER OF THEIR ANSWER BOOK/BOOKS OTHERWISE THEY WILL BE PENALISED BY A DEDUCTION OF MARKS. ALSO THEY SHOULD NOT WRITE, THEIR NAMES ANY-WHERE OTHERWISE THEY MAY BE DISQUALIFIED. 3.** If a Candidate's handwriting is not easily legible, deduction may be made from the total marks. **4.** A candidate may answer question papers in English Roman Script or Hindi in Devnagri Script or in Urdu in Persian script provided that the language papers as a whole must be answered in any of the above script unless it is otherwise indicated in question paper. **5.** The question papers shall be in English in Roman Script and Hindi in Devnagri Script. **6.** The standard of knowledge required of candidates in compulsory papers will be such as a young man holding a Bachelor's Degree of a University is expected to have except where the syllabus indicating otherwise.

सामान्य हिन्दी

(1) दिये हुए गद्य खण्ड का अवबोध एवं प्रश्नोत्तर। (2) संक्षेपण। (3) सरकारी एवं अर्धसरकारी पत्र लेखन, तार लेखन, कार्यालय आदेश, अधिसूचना, परिपत्र। (4) शब्द ज्ञान एवं प्रयोग। (अ) उपसर्ग एवं प्रत्यय प्रयोग, (ब) विलोम शब्द, (स) वाक्यांश के लिए एकशब्द, (द) वर्तनी एवं वाक्य शुद्धि, (5) लोकोक्ति एवं मुहावरे।

ESSAY

There will be three sections in the question paper of Essay. Candidates will have to select one topic from each section and they are required to write essay in 700 words on each topic. In the three sections, topics of essay will be based on following sphere :

Section A : (1) Literature and Culture. **(2)** Social sphere. **(3)** Political sphere.

Section B: (1) Science, Environment and Technology. **(2)** Economic Sphere **(3)** Agriculture, Industry and Trade.

Section C: (1) National and International Events. **(2)** Natural Calamities, Land slide, Earthquake, Deluge, Drought etc. **(3)** National Development programmes and projects.

Main Examination Syllabus for General Studies paper I to VI

GENERAL STUDIES-I

1- History of Indian Culture will cover the salient aspects of Art Forms, literature and Architecture from ancient to modern times.

2- Modern Indian history (from A.D.1757 to A.D. 1947): Significant events, personalities and issues, etc.

3- The Freedom Struggle-its various stages and important contributors/contributions from different parts of the country.

4-Post-independence consolidation and reorganization within the country (till 1965A.D.).

5- History of the world will include events from 18th century to middle of the 20th century such as French revolution of 1789, Industrial revolution, World Wars, redraw of nationalboundaries, Socialism, Nazism, Fascism etc-their forms and effect on the society.

6-Salient features of Indian Society and culture.

7- Role of Women in society and women's organization, population and associated issues, poverty and developmental issues, urbanization, their problems and their remedies.

8- Meaning of liberalization, privatization and globalization and their effects on economy, polity and social structure.

9-Social empowerment, communalism, regionalism & secularism.

10- Distribution of major natural resources of World- Water, Soils, Forests in reference to South and South-East Asia with special reference to India. Factors responsible for the location of industries (with special reference to India).

11- Salient features of Physical Geography- Earthquake, Tsunami, Volcanic activity, Cyclone, Ocean Currents, winds and glaciers.

12-Oceanic resources of India and their potential.

13- Human migration-refugee problem of the World with focus on India.

14-Frontiers and boundaries with reference to Indian sub-continent.

15- Population and Settlements- Types and Patterns, Urbanization, Smart Cities and Smart Villages.

GENERAL STUDIES-II

1- Indian Constitution- historical underpinnings, evolution, features, amendments, significant provisions and basic structure, Role of Supreme Court in evolution of basic provisions of Constitution.

2- Functions and responsibilities of the Union and the States: Issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.

3-Role of Finance Commission in Centre-State financial relations.

4-Separation of powers, dispute redressal mechanisms and institutions. Emergence and use of alternative dispute redressal mechanisms.

5- Comparison of the Indian constitutional scheme with that of other major democratic countries.

6- Parliament and State legislatures-structure, functioning, conduct of business, powers and privileges and concerned issues.

7- Structure, organization and functioning of the Executive and the Judiciary: Ministries and Departments of the Government, Pressure groups and formal/informal associations and their role in the Polity, Public Interest Litigation (PIL).

8-Salient features of the Reperesentation of People's Act. Appointment to various Constitutional posts, Powers, functions and their responsibilities.

10- Statutory, regulatory and various quasi-judicial bodies including NITI Aayog, their features and functioning.

11- Government policies and interventions for development in various sectors and issues arising out of their design, implementation and Information Communication Technology (ICT).

12- Development processes- the role of Non Governmental Organizations (NGOs), Self Help Groups (SHGs), various groups and associations, donors, charities, institutional and other stakeholders.

13-Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes, mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

14-Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

15-Issues relating to poverty and hunger, their implication on body politic.

16- Important aspects of governance. Transparency and accountability, e-governance applications, models, successes, limitations and potential, citizens, charters and institutional measures.

17-Role of Civil Services in a democracy in the context of emerging trends.

18-India and its relationship with neighbouring Countries.

19- Bilateral, Regional and Global groupings and agreements involving India and/ or affecting India's interest.

20- Effect of policies and politics of developed and developing countries on India's interests-Indian diaspora.

21- Important International Institutions, Agencies their structure, mandate and functioning.

22-Current affairs and events of Regional, National and International importance.

GENERAL STUDIES-III

1-Economic planning in India, objectives and achievements. Role of NITI Aayog, Pursuit of Sustainable Development Goals (SDG's).

2-Issues of Poverty, Unemployment, Social justice and inclusive growth.

3-Components of Government Budgets and Financial System.

4-Major Crops, Different types of irrigation and irrigation systems, storage, transport and marketing of agricultural produce, e-technology in the aid of farmers.

5-Issues related to direct and indirect farm subsidies and minimum support prices, Public Distribution System- objectives, functioning, Limitations, revamping, issues of buffer stocks and food security, Technology missions in agriculture.

6- Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management.

7-Land reforms in India since independence.

8- Effects of liberalization and globalization on the economy, changes in industrial policy and their effects on industrial growth.

9-Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

10- Science and Technology-developments and applications in everyday life and in National Security, India's Science and Technology policy.

11- Achievements of Indians in science & technology, indigenization of technology. Developments of New technologies, transfer of technology, dual and critical use technologies.

12-Awareness in the fields of Information and Communication Technology (ICT) andSpace Technology, Computers, Energy resources, nano- technology, microbiology, bio- technology. Issues relating to intellectual property rights (IPR) and digital rights.

13- Environmental security and Ecosystems, Conservation of Wild life, Biodiversity, Environmental pollution and degradation, environmental impact assessment.

14- Disaster as a Non-traditional security and safety challenge, disaster mitigation and management.

15- Challenges of International Security: Issues of Nuclear proliferation, Causes and

spread of extremism, Communication networks, role of media and social networking, Basics of cyber security, money laundering and human trafficking.

16- India's internal security challenges: Terrorism, corruption, insurgency and organized crimes.

17-Role, kind and mandate of security forces, Higher defence organizations in India

18-Issues in Agriculture, Horticulture, Forestry and Animal Husbandry.

GENERAL STUDIES-IV

1- Ethics and Human Interface: Essence, determinants and consequences of Ethics in human action, dimensions of ethics, ethics in private and public relationships. Human Values-lessons from the lives and teachings of great leaders, reformers and administrators, role of family, society and educational institutions in inculcating values.

2- Attitude: Content, structure, function, its influence and relation with thought and behavior, moral and political attitudes, social influence and persuasion.

3- Aptitude and foundational values for Civil Service, integrity, impartiality and non-partisanship, objectivity, dedication to public services, empathy, tolerance and compassion towards the weaker-sections.

4- Emotional Intelligence- concept and dimensions, its utility and application in administration and governance.

5-Contributions of moral thinkers and philosophers from India and world.

6- Public/Civil Service values and ethics in Public Administration: status and problems, ethical concerns and dilemmas in government and private institutions, laws, rules, regulations and conscience as sources of ethical guidance, accountability and ethical governance, strengthening of moral values in governance, ethical issues in international relations and funding, corporate governance.

7- Probity in Governance: concept of public service, philosophical basis of governance and probity, information sharing and transparency in government. Right to Information, codes of ethics, codes of conduct, citizen's charter, work culture, quality of service delivery, utilization of public funds, challenges of corruption.

8-Case studies on above issues.

GENERAL STUDIES-V

1-History, Civilization, Culture and Ancient Cities of UP.

2-Architecture, their significance and maintainability, museum, archive and archaeology of UP.

3-Contributions of UP in Pre and post 1857 freedom struggles of India.

4-Eminent freedom fighters and personalities of UP.

5- Rural, Urban and Tribal issues: social structure, festivals, fairs, music, folk dances, literature and languages/dialects, social customs of UP.

6- Political System of UP: Governance, Governor, Chief Minister, Council of Ministers, State Assembly and State Council, Center-State Relation.

7- Public Service, Public Service Commission, Auditing, Advocate General, High Court and its jurisdiction in UP.

8- Special State Selection Criteria, Official Language, Consolidated Fund andContingency fund, Political Parties and State Election Commission of UP.

9- Local Self Government: Urban and Panchayati Raj, Public Policy, Right related issues in UP.

10- Good Governance, Eradication of Corruption, Lokayukta, Citizen Charters, E-Governance, Right to Information, Redressal Policy.

11-Land Reforms and its impact in UP.

12-Issues Related to Security in UP.(I) Linkage between development and spread of extremism.(ii) Role of External, State and Interstate actors in creating challenges to internal security through communication networks, media and social networking sites,(iii) Basic rules of cyber security, money-laundering and its prevention.(iv) Various security forces and agencies and their mandate.(v) Security challenges and their management in border areas, linkage of organized crimes with terrorism.

13-Law and Order and Civil Defense in UP.

14- Medical and Health issues in UP

15-State Education System of UP.

16-Contribution of U P in development of India,

17-Current Affairs of UP.

18-Implementation of Jal Shakti Mission and other central welfare scheme in UP.

19-NGOs in UP: Issues, Contribution and Impact.

20-Tourism in UP: Issues and prospects.

21-Emphasis on Innovation in various fields in UP: Issues and it's impact on employement and socio-economic development of the society.

GENERAL STUDIES- VI

1- Overview of Economy of UP: Main features of economy and State Budgets, Infrastructure and importance of Physical Resources.

2-Trade, Commerce and industries of UP.

3-UP Government Schemes, Projects and Planned Development for welfare of People, Human Resources and Skill Development.

4-Investment in UP: Issues and Impact

5- Public Finance and Fiscal Policy, Tax and Economic Reforms, One District One Product Policy of UP Government.

6-Planning and management of renewable and non-renewable energy resources of UP.

7-Demography, Population and Censuses of UP.

8-Commercialization of agriculture and production of agricultural crops in UP.

9-UP New Forest Policy.

10-Agro and Social Forestry in U.P

11-Agricultural Diversity, Problems of agriculture and their solutions in UP.

12-Developmental Indices of UP in various fields.

13- Geography of UP: Geographical Location, Relief and Structure, Climate, Irrigation, Minerals, Drainage System and Vegetation.

14-National Parks and Wild Life Sanctuaries in UP.

15-Transport Network in UP.

16-Power Resources, Infrastructure and Industrial Development of UP.

17-Pollution and Environmental Issues in UP, Pollution Control Board and its functions.

18-Natural Resources of UP-Soil, Water, Air, Forests, Grasslands, Wetlands.

19-Climate Change and Weather Forecasting issues in UP.

20- Habitat and Ecosystem, structure and function, adjustment, Flora and Fauna with reference to UP.

21-Science and Technology: Its issues, advancements and efforts in UP.

22- Aquaculture, Viticulture, Sericulture, Floriculture, Horticulture, Arboric culture in up and its impact on development of UP.

23-Evolvement of Public-Private Partnership (PPP) for development of UP.

APPENDIX-5

PLAN OF EXAMINATION AND SYLLABUS for Main (Written) Examination of Assistant Conservator of Forest / Range Forest Officer Services Examination.

Plan of Main (Written) Examination

S.N.	Question Paper	Time Period	Marks
01	Paper-I General Hindi and Essay (Conventional Type)	3 hours	200
02	Paper-II General Studies-Ist Paper (Objective Type)	2 hours	200
03	Paper-III General Studies-IInd Paper (Objective Type)	2 hours	200
04	Paper-IV Optional Subject-I (First Question Paper) (Conventional Type)	3 hours	200
	Paper-V Optional Subject-I (Second Question Paper) (Conventional Type)	3 hours	200
05	Paper-VI Optional Subject-II (First Question Paper) (Conventional Type)	3 hours	200
	Paper-VII Optional Subject-II (Second Question Paper) (Conventional Type)	3 hours	200
	Total Marks of all the question papers		**1400**

Personality Test (Interview) - 150 Marks

Grand Total - 1400 + 150 = 1550 Marks

Any two subjects to be selected from the following list of the optional subjects

1. Agriculture
2. Agriculture Engineering
3. Botany
4. Chemistry
5. Chemical Engineering
6. Civil Engineering
7. Forestry
8. Geology
9. Mathematics
10. Mechanical Engineering
11. Physics
12. Statistics
13. Zoology
14. Animal Husbandry and Veterinary Science
15. Horticulture
16. Environmental Science.

Provided that the candidates will not be allowed to offer the following combination of subjects-

(a) Agriculture, Agriculture Engineering and Horticulture

(b) Mathematics and Statistics

(c) Chemistry and Chemical Engineering

(d) of the Engineering Subjects viz. Agriculture Engineering, Chemical Engineering, Civil Engineering and mechanical Engineering not more than one subject. **Note-** The standard and syllabus of the subjects mentioned above are given in this advertisement under schedule to the **appendix-6**.

APPENDIX -6

General Instructions and Syllabus for Main (Written) Examination of Assistant Conservator of Forest / Range Forest Officer Services Examination

1. All the question papers for the examination will be of conventional (essay) type but general studies will be objective type.

2. All question papers must be answered in Hindi or English. Question papers will be set in Hindi and English.

3. The duration of each of the papers referred to above will be three hours but general studies will be two hours.

Personality Test

The candidate will be interviewed by a board of competent and unbiased observers. Personality test will be 150 Marks.

Schedule

The standard of papers in General Hindi and General Studies will be such as may expected of a Science or Engineering Graduate of an Indian University. **The Scope of the Syllabus for optional subject papers for the examination is broadily of the Honour's Degree level i.e. available higher than the Bachelor's Degree and lower than the Master's Degree. In the case of Engineering subject, the level corresponds to the Bachelor's Degree. There shall be no practical exam. in any subject.**

OPTIONAL SUBJECTS

Total number of questions in the question papers of optional subjects will be eight. All questions will carry equal marks. Each paper will be divided into two parts, viz. Part A and Part B, each part containing four questions. Out of eight questions, five questions are to be attempted. One question in each part will be compulsory. Candidates will be required to answer three more questions out of the remaining six questions, taking at least one question from each part. In this way, at least two questions will be attempted from each part i.e. one compulsory question plus one more.

सामान्य हिन्दी एवं निबन्ध

प्रथम खण्ड **सामान्य हिन्दी** **निर्धारित अंक 100**

1. अपठित गद्यांश का संक्षेपण, उससे सम्बन्धित प्रश्न रेखांकित अंशों की व्याख्या एवं उसका उपयुक्त शीर्षक।

2. शासकीय, अर्द्धशासकीय, वैयक्तिक तथा व्यवसायिक समस्याओं के निराकरण हेतु सम्बन्धित को सम्बोधित पत्र, कार्यालय आदेश, अधिसूचना और परिपत्र सम्बन्धी पत्रलेखन/आलेखन।

3. अनेकार्थी शब्द, विलोम शब्द, पर्यायवाची शब्द, तत्सम एवं तद्भव, क्षेत्रीय, विदेशी (शब्द भण्डार), वर्तनी, अर्थबोध, शब्द–रूप, संधि, समास, क्रियायें, हिन्दी वर्णमाला, विराम चिन्ह, शब्द रचना, वाक्य रचना, अर्थ, मुहावरे एवं लोकोक्तियाँ, उ.प्र. की मुख्य बोलियाँ तथा हिन्दी भाषा के प्रयोग में होने वाली अशुद्धियाँ।

द्वितीय खण्ड **हिन्दी निबन्ध** **निर्धारित अंक 100**

इसके अन्तर्गत दो उपखण्ड होंगे। प्रत्येक उपखण्ड से एक–एक निबन्ध (कुल मिलाकर दो निबन्ध) लिखने होंगे। प्रत्येक

निबन्ध की विस्तार सीमा 700 शब्द होगी। निबन्ध हेतु निम्नवत् क्षेत्र होंगे:–
(अ) (i) साहित्य, संस्कृति (ii) राष्ट्रीय विकास योजनायें / क्रियान्वयन (iii) कृषि, उद्योग एवं व्यापार।
(ब) (i) विज्ञान, पयार्वरण (ii) प्राकृतिक आपदायें एवं उनके निवारण (iii) राष्ट्रीय, अन्तर्राष्ट्रीय, सामयिक सामाजिक समस्यायें / निदान।

General Studies, Paper-I

1. History of India - Ancient, Medieval, Modern
2. Indian National Movement and Indian Culture.
3. Population, Environment and Urbanization in Indian Context.
4. World Geography, Geography of India and its natural resources.
5. Current events of national and International Importance.
6. Indian Agriculture, Trade and Commerce.
7. Specific Knowledge of U.P. regarding education, Cultural, Agricultural, Trade, Commerce, the methods of living and Social Customs.

History of India and Indian culture will cover the broad history of the country from about the middle of the nineteenth century and would also include questions on Gandhi, Tagore and Nehru. The part on current events of national and international Importance will include questions also on sports and games.

General Studies, Paper-II

1. Indian Polity
2. Indian Economy
3. General Science (Role of Science and technology in the development of India including science in every day life)
4. General Mental ability.
5. Statistical Analysis, Graphs and Diagrams.

The part relating to Indian polity will include questions on the political system in India and Indian constitution. The Indian economy will cover broad features of economic policy in India. The part relating to role and impact of science and technology in the development of India, questions will be asked to test the candidates awareness in this field. Emphasis will be on the applied aspects. The part relating to statistical analysis, graphs and diagrams will include exercise to test the candidates ability to draw common sense conclusions from information presented in statistical graphical or diagrammatical form and to point out deficiencies limitation or inconsistencies there in.

OPTIONAL SUBJECTS

Total number of questions in the question papers of optional subjects will be eight. All questions will carry equal marks. Each paper will be divided into two parts, viz. Part A and Part B, each part containing four questions. Out of eight questions, five questions are to be attempted. One question in each part will be compulsory. Candidates will be required to answer three more questions out of the remaining six questions, taking at least one question from each part. In this way, at least two questions will be attempted from each Part i.e. one compulsory question plus one more.

AGRICULTURE

PAPER-I

Ecology and its relevance to man, natural resources, their sustainable management and conservation, Physical and Social environment as factors of crop distribution and production Climatic elements as factors of crop growth, Impact of changing environment on cropping pattern as indicators of environments. Environmental pollution and associated hazards to crops, animals, and humans.

Cropping pattern in different agro-climatic zones of the country, Impact of high-yielding and short-duration varieties on shifts in cropping pattern. Concepts of multiple cropping, multi-storey, relay and inter-cropping, and their importance in relation to food production. Package of practices for production of important cereals, pulses, oil seeds, fibres, sugar, commercial and fodder crops grown during Kharif and Rabi seasons in different regions of the country.

Important features, scops and propagation of various types of forestry plantations such as extension, social forestry, agro-forestry and natural forests.

Weeds, their characteristics, dissemination and association with various crops; their multiplications; cultural, biological and chemical control of weeds. Soil-physical, chemical and biological properties, Processes and factors of soil formation. Modern classification of Indian soils, Mineral and organic constituents of soils and their role in maintaining soil productivity. Essential plant nutrients and other beneficial elements in soils and plants. Principles of soil fertility and its evaluation for judicious fertiliser use, integrated nutrient management. Losses of nitrogen in soil, nitrogen-use efficiency in submerged rice soils, nitrogen fixation in soils. Fixation of phosphorus and potassium in soils and the scope for their efficient use. Problem soils and their reclamation methods.

Soil conservation planning on watershed basis, Erosion and run-off management in hilly, foot hills and valley lands; processes and factors affecting them. Dry land agriculture and its problems. Technology of stabilising agriculture production in rain fed agriculture area. Water-use efficiency in relation to crop production, criteria for scheduling irregations, ways and means of reducing run-off losses of irrigation water. Drip and sprinkler irrigation. Drainage of water- logged soils, quality of irrigation water, effect of industrial effluents on soils and water pollution.

Farm management, scope, important and characteristics, farm planning. Optimum resources use and budgeting. Economics of different types of farming systems. Marketing and pricing of agricultural inputs and outputs, price fluctuations and their cost; role of co-operatives in agricultural economy; types and systems of farming and factors affecting them.

Agricultural extension, its importance and role, methods of evaluation of extension, programmes, socio-economic survey and status of big, small and marginal farmers and landless agricultural laborers; farm mechanization and its role in agricultural production and rural employment. Training programmes for extension workers; lab-to-land programmes.

AGRICULTURE

PAPER-II

Cell Theory, cell structure, cell organelles and their function, cell division, nucleic acids structure and function, gene structure and function. Laws of heredity, their significance in plant breeding, Chromosome structure, chromosomal aberrations, linkage and cross-over and their significance in recombination breeding. Polyploidy, euploids and aneuploids, Mutation-micro and macro-and their role in crop improvement, variation components of variation. Heritability, sterility and incompatibility, classification and their application in crop improvement, Cytoplasmic inheritance, sex-linked, sex-influenced and sex-limited characters.

History of plant breeding, Modes of reproduction, selfing and crossing techniques, Origin and evolution of crop plants, centre of origin, law of homologous series, crop genetic resources-conservation and utilization, Application of principles of plant breeding to the Improvement of major field crops. Pure-line selection, pedigree, mass and recurrent selections, combining ability, its significance in plant breeding. Hybrid vigour and its exploitation, backcross method of breeding, breeding for disease and pest resistance, role of interspecific and intergeneric hybridization. Role of biotechnology in plant breeding. Improved varieties, hybrids, composites of various crop plants.

Seed technology, its importance. Different kinds of seeds and their seed production and processing techniques. Role of public and private sectors in seed production, processing and marketing in India.

Physiology and its significance in agriculture, imbibition, surface tension, diffusion and osmosis. Absorption and translocation of water, transpiration and water economy. Enzymes and plant pigments; photosynthesis-modern concepts and factors affecting the process, aerobic and nonaerobic respiration; c, c and CAM mechanisms, Carbohydrate, protein and fat metabolism.

Growth and development; photoperiodism and vernalization. Auxins, hormones and other plant regulators and their mechanism of action and importance in agriculture. Physiology of seed development and germination; dormancy. Climatic requirements and cultivation of major fruits, plants, vegetables crops and flower plants; the package of practices and their scientific basis. Handling and marketing problems of fruit and vegetables. Principal methods of preservation of Important fruits and vegetable products, processing techniques and equipment. Role of fruits and vegetables in human nutrition. Raising of ornamental plants and design and layout of lawns and gardens.

Diseases and pests of field vegetables, orchard and plantation crops of India. Causes and classification of plant pests and diseases. Principles of control of plant pests and diseases. Biological control of pests and diseases. Integrated pest and disease management. Epidemiology and forecasting. Pesticides, their formulations and modes of action. Compatibility with rhizobial Inoculants. Microbial Toxins, Storage pests and diseases of cereals and pulses and their control.

Food production and consumption trends in India. National and International food policies. Production, procurement, distribution and processing constraints. Relation of food production to national dietary pattern, major deficiencies of calorie and protein.

AGRICULTURAL ENGINEERING

PAPER-I

SECTION A

1. Soil and Water Conservation: Scope of - Soil and water conservation. Mechanics and types of erosion, their causes. Mechanics and types of erosion, their causes. Rainfall, runoff and sedimentation relationships and their measurement. Soil erosion control measures-biological and engineering including stream bank protection-vegetative, barriers, contour bunds, contour trenches, contour stone walls, contour ditches, terraces, outlets and grassed waterways. Gully control structures-temporary and permanent-design of permanent soil conservation structures such as chute, drop and drop inlet spiliways. Design of farm, ponds and percolation ponds. Principles-of flood control-flood routing. Watershed Management-investigation, planning and implementation-selection of priority areas and water shed work plan, water harvesting and moisture conservation. Land development-levelling, estimation of earth volumes and costing. Wind Erosion process design of shelter belts and wind brakes and their management. Forest (Conservation) Act.

2. Aerial Photography and Remote Sensing: Basic characteristics of photographic images, interpretation keys, equipment for interpretation, imagery interpretation for land use, geology soil and forestry.

Remote sensing-merits and demerits of conventional and remote sensing approaches. Types of satellite images, fundamentals of satellite image interpretation, techniques of visual and digital interpretations for soil, water and land use management. Use of GIS in planning and development of watersheds, forests including forest cover, water resources etc.

SECTION B

3. Irrigation and Drainage: Sources of water for irrigation. Planning and design of minor irrigation projects. Techniques of measuring soil moisture-laboratory and in situ, soil-water plant relationships. Water requirement of crops. Planning conjunctive use of surface and ground water. Measurement of irrigation water, measuring devices-orifices, weirs and flumes. Methods of irrigation-surface, sprinkler and drip, fertigation. Irrigation efficiencies and their estimation. Design and construction of canals, field channels, underground pipelines, head-gates, diversion boxes and structures for road crossing.

Occurence of ground water, hydraulics of wells, types of wells (tube wells and open wells) and their construction. Well development and testing. Pumps-types, selection and installation. Rehabilitation of sick and failed wells.

Drainage causes of water logging and salt problems. Methods of drainage-drainage of irrigated and unirrigated lands, design of surface, sub-surface and vertical drainage systems. Improvement and utilization of poor quality water. Reclamation of saline and alkali soils. Economics of irrigation and drainage systems. Use of waste water for irrigation standards of waste water for sustained irrigation, feasibility and economics.

4. Agricultural Structures: Site selection, design and construction of farmstead-farm house, cattle shed, dairy barn, poultry shed, hog housing, machinery and implement shed, storage structures for food grains, feed and forage. Design and construction of fences and farm roads. Structures for plant environment-green houses, poly houses and shade houses. Commonbuilding materials used in construction-timber, brick, stone, tiles, concrete etc. and their properties. Water supply, drainage and sanitation systems.

AGRICULTURAL ENGINEERING

PAPER-II

SECTION 'A'

1. Farm power and machinery: Agricultural mechanization and its scope. Sources of farm power-animate and electromechanical, Thermodynamics, construction and working of internal combustion engines. Fuel, ignition, lubrication, cooling and governing system of IC engines. Different types of tractors and power tillers. Power transmission, ground drive, power take off (p.t.o.) and control system. Operation and maintenance of farm machinery for primary and secondary tillage. Traction theory, Sowing transplanting and interculture implements and tools. Plant protection equipment-spraying and dusting.

Harvesting, threshing and combining equipment. Machinery for earth moving and land development methods and cost estimation. Ergonomics of man-machine system. Machinery for horticulture and agro-forestry, feeds and forages. Haulage of agricultural and forest produce.

2. Agro-energy: Energy requirements of agricultural operations and agroprocessing. Selection, Installation, safety and maintenance of electric motors for agricultural applications. Solar (thermal and photovoltic), wind and biogas energy and their utilization in agriculture, gasification of biomass for running IC engines and for electric power generation. Energy efficient cooking stoves and alternate cooking fuels. Distribution of electricity for agricultural and agro-industrial applications.

Section 'B'

3. Agricultural Process Engineering: Post harvest technology of crops and its scope. Engineering properties of agricultural produces and by products. Unit operations cleaning grading, size reduction, densification, concentration, drying/dehydration, evaporation, filtration, freezing and packaging of agricultural produces and by- products. Material handling equipment belt and screw conveyors, bucketelevators, their capacity and power requirement.

Processing of milk and dairy products- homogenisation, cream separation, pasteurization, sterilization, spray and roller drying, butter making, Ice cream, cheese and shrikhand manufacture. Waste and by product utilization rice husk, rice bran, sugarcane bagasse, Plant residues and coir pith.

4. Instrumentation and computer applications in Agricultural Engineering: Electronic devices and other characteristics rectifiers, amplifiers, oscillators, multivibrators, Digital circuits-sequential and combinational system. Application of microprocessors in data acquisition and control of agricultural engineering processes measurement systems for level, flow, strain, force, torque, power, pressure, vacuum and temperature. Computer-intruduction, input/output devices, central processing unit, memory devices, operating systems, processors, keyboards and printers. Algorithms, flowchart specification, programme translation and problem analysis in Agricultural Engineering. Multimedia and Audio-Visual aids.

BOTANY

PAPER-I

1. Microbiology and Plant Pathology: Viruses; bacteria and plasmids-structure and reproduction, General account of infection, Phytoimmunology. Applications of microbiology in agriculture, industry, medicine and pollution control in air, soil and water. Important plant diseases caused by viruses, bacteria, mycoplasma, fungi nematodes. Mode of infection and dissemination. Molecular basis of infection and disease resistance/defence. Physiology of parasitism and control measures, Fungal toxins.

2. Cryptogams: Algae, Fungi, Bryophytes Pteridophytes-structure and reproduction from evolutionary view point. Distribution of Cryptogams in India and their economic potential.

3. Phanerogams Gymnosperms: Concept of Progymnosperms, Classfication and distribution of Gymnosperms. Salient features of Cycadales, Conferrals and Gnetales, their structures and reproduction, General account of Cycadofilicales, Bennettitales and Cordaitales.

Angiosperms: Systmatics, anatomy, embryology, palynology and phylogeny. Comparative account of various systems of Angiosperm Classification. Study of angiospermic families-Magnoliaceae, Ranunculaceae, Brassicaceae (Cruciferae), Rosacea Leguminosae, Euphorbiaceae, Malvaceae, Dipterocarpaceae Apiaceae (Umbelliferae), Asclepiadaceae Verbenaceae, Solanaceae, Rubiaceae Cucurbitaceae, Asteraceae (Composite) Poaceae (Gramineae), Arecaceae (Palmae), Liliaceae, Musaceae, Orchidaceae.

Stomata and their types. Anomalous secondary growth, Anatomy of C3 and C4 plants. Development of male and female gametophytes, pollination, fertilization, Endosperm-its development and function. Patterns of embryo development, Polymbryony, apoxmis, Applications of palynology.

4. Plant Utility and Exploitation: Origin of cultivated plants, Vavilovs centres of origin. Plants as sources for food, fooder, fibres, spices, beverages, drugs, narcotics, insecticides, timber, gums, resins and dyes. Latex, cellulose Strach and their products. Perfumery, importance of Ethnobotany in Indian context. Energy plantation, Botanical Gardens and Herbaria.

5. Morphogenesis: Totipotency, polarity, symmetry and differentiation, Cell, tissue, organ and protoplast culture, Somatic hybrids and Cybrids.

BOTANY

PAPER-II

1. Cell Biology: Techniques of Cell Biology, Prokaryotic and eukaryotic cells- structural and Ultrastructural details. Structure and function of extracellular matrix of ECM (cell wall) and membranes-cell adhesion, membrane transport and vesicular transport-structure and function of cell organelles (chloroplasts, mitochondria, ER, ribosome's, endosomes, lysosomes, peroxisomes, hydrogenosome). Nucleus, nucleolus, nuclear pore complex, Chromatin and nucleosome. Cell signalling and cell receptors. Signal transduction (G-1 proteins, etc.), Mitosis and meiosis; molecular basis of cell cycle. Numerical and structural variations in chromosomes and their significance. Study of polytene, lampbrush and B-chromosomes-structure, behaviour and significance.

2. Genetics, Molecular Biology and Evolution : Development of genetics, and geneversus allele concepts (Pseudoalleles). Quantitative genetics and multiple factors. Linkage and crossing over- methods of gene mapping including molecular maps (idea of mapping function). Sex chromosomes and sexlinked inheritance, sex determination and molecular basis of sex differentiation. -Mutation (biochemical and molecular basis). Cytoplasmic inheritance and cytoplasmic genes (including genetics of male sterility). Prions and prion hypothesis. Structure and synthesis of nucleic acids and protines. Genetic code and regulation of gene expression. Multigene families.

Organic evolution-evidences, mechanism and theories. Role of RNA in origin and evolution.

3. Plant Breeding, Biotechnology and Bio-statistics: Methods of plant breeding introduction, selection and hybridisation' (pedigree, backcross, mass selection, bulk method). Male sterility and heterosis breeding. Use of apomixes in plant breeding. Micropropagation and genetic and genetic engineering methods of transfer of genes and transgenic crops; development and use of molecular markers in plant breeding, Standard deviation and coefficient of variation (CV). Tests of significance (Z-test, t-test and chi square tests). Probability and distributions (normal, binomial and Poisson distributions), Correlation and regression.

4. Physiology and Biochemistry: Water relations, Mineral nutrition and ion transport, miniral deficiencies. Photosynthesis-photochemical reactions, photophosphory-lation and corbon pathways including C pathway (photorespiration), C, C and CAM pathways. Respiration (anaerobic and aerobic, including fermentation)-electron transport chain and oxidative phosporylation, Chemiosmotic theory and ATP synthesis. Nitrogen fixation and nitrogen metabolism. Enzymes, coenzymes, energy transfer and energy conservation. Importance of secondary metabolites. Pigments as photoreceptors (plastidial pigments and phytochrome). Photoperiodism and flowering, vernalization, senescence. Growth substances-their chemical nature, role and applications in agri-horticulture, growth indices, growth movements. Stress physiology (heat, water, salinity, metal). Fruit and seed physiology. Dormancy, storage and germination of seed. Fruit ripening-its molecular basis and manipulation.

5. Ecology and Plant Geography: Ecological factors, Concepts and dynamics of community. Plant succession. Concepts of biosphere, Ecosystems and their conservation. Pollution and its control (including phytoremediation).

Forest types of India-afforestation, deforestation and social, forestry. Endangered plants, endemism and Red Data Books. Biodiversity, Convention of Biological Diversity, Sovereign Rights and Intellectual Property Rights. Biogeochemical cells, Global warming.

CHEMISTRY

PAPER-I

1. Atomic Structure

Quantum theory, Heisenberg's uncertainity principle, Schordinger wave equation (time independent). Interpretation of wave function, particle in one-dimensional box, quantum numbers, hydrogen atom wave functions. Shapes of s, p and d orbitals.

2. Chemical Bonding

Ionic bond, characteristics of Ionic compounds, factors affecting stability of Ionic compounds, lattice energy, Born-haber cycle; covalent bond and its general characteristics, polarities of bonds in molecules and their dipole moments. Valence bond theory, concept of resonance and resonance energy. Molecular orbital theory (LCAO method); bonding in homonuclear molecules: H2+, H2 to Ne2 NO, CO, HF, CN, CN, BeH2 and CO2. Comparison of valence bond and molecular orbital theories, bond order, bond strength and bond length.

3. Solid State

Forms of solids, law of constancy of interfacil angles, crystal systems and crystal classes (crystallographic groups). Designation of crystal faces, lattice structures and unit cell. Laws of rational indices. Bragg's law. X-ray diffraction by crystals. Close packing, radious ratio rules, calculation of some limiting radius ration values. Structures of NaCl, ZnS, CsCl, CaF2, Cdl2 and rutile. Imperfection in crystals, stoichiometric and nonstoichiometric defects. Impurity defects, semi-conductors, Elementary study of liquid crystals.

4. The gaseous state

Education of state for real gases, Intermolecular Interactions, liquification of gases and critical phenomena, Maxwell's distribution of speeds, intermolecular collisions, collisions of the wall and effusion.

5. Thermodynamics and statistical thermodynamics

Thermodynamic systems, states and processes, work, heat and internal energy; first law of thermodynamics, work done on the systems and heat absorbed in different types of processes; calorimetry, energy and enthalpy changes in various processes and their temperature dependence.

Second law of thermodynamics; entropy as a state function, entropy changes in various process, entropy-reversibility and Irreversibility, Free energy functions; criteria for equilibrium, relation between equilibrium constant and thermodynamic quantities; Nernst heat theorem and third law of thermodynamics.

Micro and macro states; canonical esnemble and canonical partition function; electronic, rotational and vibrational partition functions and thermodynamic quantities; chemical equilibrium in ideal gas reactions.

6. Phase equilibria and solutions

Phase equilibria in pure substances; Clauslus-Clapeyron equation; phase diagram for a pure substance; phase equilibria in binary systems, partially miscible liquids- upper and lower critical solution temperatures; partial molar quantities, their significance and determination; excess thermodynamic functions and their determination.

7. Electrochemisty- Debye-Huckel theory of strong electrolytes and Debye-Huckel limiting Law for various equilibrium and transport properties.

Galvanic cells, concentration cells; electro-chemical series, measurement of e.m.f. of cells and its applications fuel cells and batteries.

Processes at electrodes; double layer at the interface; rate of charge transfer, current density; over-potential; electra-analytical techniques-voltameter, polarography, ampero metry, cyclic-votametry, ion selective electrodes and their use.

8. Chemical Kinetics

Concentration dependence of rate of reaction; defferential and integral rate equations for zeroth, first, second and fractional order reactions. Rate equations involving reverse, parallel, consecutive and chain reactions; effect of temperature and pressure on rate constant. Study of fast reactions by stop-flow and relaxation methods, Collisions and transition state theories.

9. Photochemistry

Absorption of light; decay of excited state by different routes; photochemical reactions between hydrogen and halogens and their quantum yields.

10. Surface phenomena and catalysis

Adsorption from gases and, solutions on solid absorbents, adsorption isotherms-Langmuir and B.E.T. isotherms; determination of surface area, characteristics and mechanism of reaction on heterogeneous catalysts.

11. Bio-inorganic chemistry

Metal ions in biological systems and their role in ion-transport across the membranes (molecular-mechanism), Ionophores, photosynthesis-PSI, PSII; nitrogen fixation, oxygen uptake proteins cytochromes and ferredoxins.

12. Coordination chemistry

(a) Electronic configurations; introduction of theories of bonding in transition metal complexes, Valence bond theory, crystal field theory and its modifications; applications of theories in the explanation of magnetism and electronic spactra of metal complexes.

(b) Isomerism in coordination compounds. IUPAC nomenclature of coordination compounds; stereochemistry of complexes with 4 and 6 coordination numbers; chelate effect and **polynuclear** complexes; trans effect and its theories; kinetics of substitution reaction in square-planer complexes; thermodynamic and kinetic stability of complexes.
(c) Synthesis and structures of metal carbonyls; carobxylate anions, cabonyl hydrides and metal nitrosyl compounds.
(d) Complexes with aromatic systems, synthesis, structure and bonding in metal olefin complexs, alkyne complexes and cyclopentadienyl complexes; coordi-native unsaturation, oxidative addition reactions, insertion reactions, fluxional molecules and their characterization. Compounds with metal-metal bonds and metal atom clusters.

13. General chemistry of 'f' block elements

Lanthanides and actinides; separation oxidation states, magnetic and spectral properties; lanthanide contraction.

14. Non-Aqueous Solvents

Reaction in liquid NH_3, HF, SO_2 and H_2SO_4 Failure of solvent system concept, Coordination model of non-aqueous solvents, Some highly acidic media, fluoro sulphuric acid and super acids.

CHEMISTRY

PAPER-II

1. Delocalised covalent bonding: Aromaticity, anti-aromaticity; annulenes, azulenes, tropolones, kekulene, fulvenes, sydones.

2. (a) Reaction mechanisms: General methods (both kinetic and non-kinetic) of study of mechanism or organic reactions illustrated by examples-use of isotope cross-over experiment, Intermediate trapping stereochemistry; energy diagrams of simple organic reactions- transition states and intermediates; energy of activation; thermodynamic control and kinetic control of reactions.

(b) Reactive Intermediates: Generation, geometry, stability and reactions of carbonium and carbonium ions, carbanions, free radicals, carbenes, benzynes and niternes.

(c) Substitution reactions: SN1, SN2, SNi, Sn1', SN2', SNi' and SRN1 mechanisms; neighbouring group participation; electrophilic and nucleophilic reactions of aromatic compound including simple heterocyclic compounds-pyrrole, furan thiophene, indole.

(d) Elimination reactions: E1, E2 and E1cb mechanism; orientation in E2 reactions Saytzeff and Hotfmann; pyrolytic syn elimination-acetate pyrolysis, Chugaev and Cope eliminations.

(e) Addition reactions: Electrophilic addition to C-C and C=C; nucleophilic addition to C=O, C-N, conjugated olefins and carbonyls.

(f) Rearrangements: Pinacol-pinacolune, Hoffmann, Beckmann, Baeyer-Villiger, Favorskii, Fries, Claisen, Cope, Stevens and Wagner Meerwein rearrangements.

3. Pericyclic reactions : Classification and examples; Woodward-Hoffmann, rules electrocyclic reactions, cycloaddition reactions [2+2 and 4+2] and sigmatropic shifts [1, 3; 3,3 and 1,5] FMO approach.

4. Chemistry and mechanism of reactions:

Aldol condensation (including directed aldol condensation), Claisen condensation, Dleckmann, Perkin, Knoevenagel, Witting, Clemmensen, Wolff-Kishner, Cannizzaro and von Richter reactions; Stobbe, benzoin and acyloin condensations; Fischer indole synthesis, Skraup synthesis, Bischler- Napieralski, Sandmeyer, Reimer-Tiemann and Reformatsky reactions.

5. Polymeric Systems

(a) Physical chemistry of polymers: Polymer solution and their thermodynamic properties; number and weight average molecular weights of polymers, Determination of molecular weights by sedimentation, light scattering, osmotic pressure, viscosity and group analysis methods.

(b) Preparation and properties of polymers:

Organic polymers-polyethylene, polystyrene, polvinyl chloride, Teflon, nylon, terylene, synthetic and natural rubber, Inorganic polymers-phosphonitrilic halides, borazines, silicones and silicates.

(c) Biopolymers: Basic bonding in proteins, DNA and RNA.

6. Synthetic uses of reagents: OsO_4, HIO_4, Cro_3, $Pb(OAc)_4$, SeO2, NBS, B_2H_6, Na-Liquid, NH_3, LiA1H4NaBH$_4$ n-BuLi, MCPBA.

7. Photochemist: Photochemical reactions of simple organic compounds, excited and ground stales, singlet and triplet states, Norrish-Type I and Type II reactions.

8. Principles of spectroscopy and applications in structure elucidation a) Rotational spectra: Diatomic molecules; isotopic substitution' and rotational constants.

b) Vibrational spectra: Diatomic molecules, linear triatomic molecules, specific frequencies of functional groups in polyatomic molecules.

c) Electronic spectra: Singlet and triplet states. N->p* and p->p* transitions; application to conjugated double bonds and conjugated carbonyls-Woodward Fieser rules.

d) Nuclear magnetic resonance: Isochronous and anisochronous protons; chemical shift and coupling constant; Application of H' NMR to simple organic molecules.

e) Mass spectra: Parent peak, base peak, daughter peak, matastable peak, fragmentation of simple organic molecule a cleavage, Mc-Latterly rearrangement.

f) Electron spin resonance: Inorganic complexes and free radicals.

CHEMICAL ENGINEERING

PAPER-I

Section A

a) Fluid and Particle Dynamics

Viscosity of fluids, Laminar and turbulent flows, Equation of continuity and Navier-Strokes equation- Bernoulli's theorem. Flow meters. Fluid drag and pressure drop due to friction Reynold's Number and friction factor-effect of pipe roughness. Economic pipe diameter. Pumps, water, air/stream jet ejectors, compressors, blowers and fans, agitation and mixing of liquids, Mixing of solids and pastes. Crushing and Grinding Principles and equipment. Rittinger's and Bond's laws. Filtration and filtration equipment. Fluid- particle mechanics free and hindered setting. Fluidisation and minimum fluidisation velocity, concepts of compressible and incompressible flow. Transport of solids.

b) Mass Transfer

Molecular diffusion coefficient, First and second law and diffusion, mass transfer coefflecients, film and penetration theories of mass transfer, Distillation, simple distillation, relative volatility, fractional distillation, plate and packed columns of distillation. Calculation of packed columns for distillation. Calculation of theoretical number of plates. Liquid-liquid equilibria. Extraction-theory and practice;' design of gas-absorption columns, Drying, Humidification, dehumidi-fication, Crystallisation, Design of equipment.

c) Heat Transfer

Conduction, thermal conductivity, extended surface heat transfer.

Convection-free and forced. Heat transfer coefficients-Nusselt Number. LMTD and effectiveness. NTU methods for the design of Double Pipe and Shell & Tube Heat Exchangers, Analogy between heat and momentum transfer, Boiling and condensation heat transfer, single and multiple-effect evaporators. Radiation-. Stefan-Boltzman Law, emissivity and absorptivity. Calculation of heat load of a furnace, Solar heaters.

SECTION-B

d) Novel Separation Processes:

Equilibrium separation processesion exchange, osmosis, electro-dialysis, reverse osmosis, ultra-filtration and other membrane processes, Molecular distillation. Super critical fluid extraction.

e) Process Equipment design: Factors affecting vessel design criteria Cost considerations, Design of storage vessels-vertical, horizontal spherical, under-ground tanks for atmospheric and higher pressure. Design of closures flat and eliptical head. Design of supports. Materials of construction-characteristics and selection.

f) Process Dynamics and Control: Measuring instruments of process variable like level, pressure, flow, temperature pH and concentration with indication in visual/ pneumatic/analog/ digital signal forms. Control variable, manipulative variable and load variables. Linear control theory-Laplace, transforms. PID controllers. Block diagram representation, Transient and frequency response, stability of closed loop system. Advanced control strategies. Computer based process control.

CHEMICAL ENGINEERING

PAPER II

SECTION-A

(a) Material and Energy Balances

Material and energy balance calculations in processes with recycle/bypass/purge, Combustion of solid/liquid/gaseous fuels, stoichiometric relationships and excess air requirements. Adiabatic flame temperature.

(b) Chemical Engineering Thermodynamics Laws of thermodynamics. PVT relationship for pure components and mixture, Energy functions and inter-relatioships-Maxwells relations, Fugacity, activity and chemical potential. Vapourliquid equilibria, for ideal/non ideal, single and multi component systems. Criteria for chemical reaction equilibrium, equilibrium constant and equilibrium conversions, Thermodynamic cycles-refrigeration and power.

(c) Chemical Reaction Engineering

Batch reactors-kinetics of homogeneous reactions and interpretation of kinetic data. Ideal flow reactors-CSTR, plug flow reactors and their performance equations. Temperature effects and run-away reactions. Heterogeneous reactions-catalystic and non-catalystic and gas-solid and gas-liquid reactions. Interinsic kinetics and global rate concept. Importance of interphase and intraparticle mass transfer on performance.

Effective-nessfactor. Isothermal and non isothermal reactors and reactor stability.

SECTION-B

(d) Chemical Technology

Natural organic products-Wood and wood-based chemicals, pulp and paper, Agro industries- sugar, Edible oils extraction (Including tree based seeds), Soaps and detergents, Essential oils- Biomass gasification (including biogas), Coal and coal chemical, Petroleum and Natural gas- Petroleum refining (Atmospheric distillation/cracking/reforming) Petrochemical industries- Polyethylene's (LDPE/HDPE/LLDPE), Polyvinyl Chloride, Polystyrene, Ammonia manufacture, Cement and lime industries, Paints and varnishes. Glass and ceramics Fermentation-alcohol and antibiotics.

(e) Environmental Engineering and Safety Ecology and Environment. Sources of pollutants in air and water, Green house effect, ozone layer depletion, acid rain. Micrometeorology and dispersion of pollutants in environment, Measurement techniques of pollutant levels and their control strategies. Solid wastes, their hazards and their disposal techniques, Design and performance analysis of pollution control equipment. Fire and explosion hazards rating HAZOP and HAZAN, Emergency planning, disaster management, Environmental legislations-water, air environment protection Acts. Forest (Conservation) Act.

(f) Process Engineering Economics

Fixed and working capital requirement for a process industry and estimation methods. Cost estimation and comparison of alternatives. Net present value by discounted cash flow. Pay back analysis. IRR, Depreciation, taxes and insurance, Break-even point analysis. Project scheduling-PERT and CPM, Profit and loss account, balance sheet and financial statement. Plant location and plant layout including piping.

CIVIL ENGINEERING

PAPER-1

Part-A

ENGINEERING MECHANICS, STRENGTH OF MATERIALS AND STRUCTURAL ANALYSIS, ENGINEERING MECHANICS:

Units and Dimensions, SI Units, Vectors, Concept of Force, Concept of particle and rigid body. Concurrent, Non-Concurrent- and parallel forces in a plane, moment of force and Varignon's theorem, free body diagram, conditions of equilibrium Principle of virtual work, equivalent force system.

First and Second Moment of area, Mass moment of Inertia, Static Friction, Inclined Plane and bearings, Kinematics and Kinetics, Kinematics In Cartesian and Polar Coordinates, motion under uniform and nonuniform acceleration, motion under gravity, Kinetics of particle: Momentum and Energy principles, D'Alembert's Principle, Collision of elastic bodies, rotation of rigid bodies, simple harmonic motion, Flywheel.

STRENGTH OF MATERIALS:

Simple Stress and Strain, Elastic constants, axially loaded compression members, Shear force and bending moment, theory of simple bending, Shear Stress distribution across cross sections, Beams of uniform strength, Leaf Spring, Strain Energy in direct stress, bending & shear. Deflection of beams; Mecaulay's method, Mohr's Moment area method, Conjugate beam method, unit load method, Torsion of Shafts, Transmission of power, close coiled helical springs, Elastic stability of columns, Euler's Rankin's and Secant formulae. Principal Stresses and Strains in two dimensions, Mohr's Circle, Theories of

Elastic Failure, Thin and Thick cylinder; Stresses due to internal and external pressure.- Lame's equations.

STRUCTURAL ANALYSIS:

Castiglianios theroems I and II, Unit load method of consistent deformation applied to beams and pin jointed trusses. Slope-deflection, moment distribution, Kani's method of analysis and column Analogy method applied to indeterminate beams and rigid frames. Rolling loads and influences lines: Influences lines for Shear Force and Bending moment at a section of beam. Criteria for maximum shear force and bending Moment In beams traversed by a system of moving loads. Influences lines for simply supported plane pin jointed trusses.

Arches: Three hinged, two hinged and fixed arches, rib shortening and temperature effects, influence lines in arches.

Matrix methods of analysis: Force method and displacement method of analysis of indeterminate beams and rigid frames.

Plastic Analysis of beams and frames: Theory of plastic bending, plastic analysis, statical method, Mechanism method. Unsymmetrical bending: Moment of inertia, product of inertia, position of Neutral Axis and Principle axis, calculation of bending stresses.

PART-B

DESIGN OF STRUCTURES: STEEL, CONCRETE AND SONRYSTRUCTURES.

STRUCTURAL STEEL DESIGN:

Structural Steel: Factors of safety and load factors, Rivetted, bolted and welded joints and connections. Design of tension and compression member, beams of built up section, rivetted and welded plate girders, gantry girders, stancheons with battens and lacings, slab and gussetted column bases. Design of highway and railway bridges: Through and deck type plate girder, Warren girder, Pratt truss.

DESIGN OF CONCRETE AND MASONRY STRUCTURES:

Concept of mix design, Reinforces Concrete: Working Stress and Limit State method of design-recommendations of I.S codes, design of one way and two way slabs, stair-case slabs, simple and continuous beams of rectangular, T and L sections, Compression members under direct load with or without eccentricity, Isolated and combined footings. Cantilever and counterfort type retaining walls, Water tanks: Design requirements for rectangular and circular tanks resting on ground. Prestressed concrete; Methods and systems of prestressing, anchorages, analysis and design of sections for flexure beed on workingstress loss of prestress, Disign of brick masonry as per I.S. Codes Design of masonry retaining walls.

PART-C

FLUID MECHANICS, OPEN CHANNEL FLOW AND HYDRAULIC MACHINES

Fluid Mechanics: Fluid properties and their role in fluid motion, fluid statics including forces acting on plane and curve surfaces, Kinematics and Dynamics of Fluid flow: Velocity and accelerations, stream lines, equation of continuity, irrotational and rotational flow, velocity potential and stream functions, flownet, methods of drawing flownet, sources and sinks, flow separation, free and forced vortices.

Control volume equation, continuity, momentum, energy and moment of momentum equations from control volume equation, Navier-Strokes equation, Euler's equation of motion, application to fluid flow problems, pipe flow, plane, curved, stationary and moving vanes, sluice gates, weirs, orifice meters and Venturi meters.

Dimensional Analysis and Similitude: Buckingham's Pi-theorem, dimensionless parameters, similitude theory, model laws, undistorted and distorted models.

Laminar Flow: Laminar flow between parallel, stationary and moving plates, flow through tube.

Boundary Layer: Laminar and turbulent boundary layer on a flat plate, laminar sub layer, smooth and rough boundaries, drag and lift.

Turbulent flow through pipes: Characteristics of turbulent flow, velocity distribution and variation of pipe friction factor, hydraulic grade line and total energy line, siphons, expansion and contractions in pipes, pipe networks, water hammer in pipes and surge tanks.

Open Channel Flow: Uniform and nonuniform flows, momentum and energy correction factors, Specific energy and specific force, critical depth, resistance equations and variation of roughness coefficient, rapidly varied flow, flow in contractions, flow at sudden drop, hydraulic jump and its applications surges and waves, gradually varied flow, classification of surface profiles, control section, step method of Integration of varied flow equation, moving surges and hydraulic bore.

HYDRAULIC MACHINES AND HYDROPOWER:

Centrifugal pumps-Types, characteristics, Net Positive Suction-height (NPSH), specific speed, Pumps in parallel.

Reciprocating pumps, Air vessels, Hydraulic ram, efficiency parameters, Rotary and positive displacement pumps, diaphragm and jet pumps, Hydraulic turbines, types classification, Choice of turbines, performance parameters, controls, characteristics, specific speed. Principles of hydropower development. Type, layouts and Component works, surge tanks,'types and choice, Flow duration curves and dependable flow. Storage and pondage, Pumped storage plants, Special features of mini, micro-hydel plants.

Part-D

GEO TECHNICAL ENGINEERING

Types of soil, phase relationships, consistency limits particles size distribution, classifications of soil, structure and clay mineralogy. Capillary water and structural water, effectives trees and pore water pressure, Darcy's Law, factors affecting permeability, determination of permeability, permeability of stratified soil deposits.

Seepage pressure quick sand condition, compressibility and consoli-dation, Terzaghi's theory of one dimensional consolidation, consolidation test.

Compaction of soil, field control of compaction, Total stress and effective stress parameters, pore pressure coefficients. Shear strength of soils, Mohr Coulomb failure theory, Shear tests.

Earth pressure at rest, active and passive pressure, Rankin's theory, Coulomb's wedge theory, earth pressure on retaining wall, sheetpile walls, Braced excavation, Bearing capacity, Terzaghi and other important theories, net and gross bearing pressure. Immediate and consolidation settlement. Stability of slope, Total Stress and Effective Stress methods, Conventional methods of slices, stability number.

Subsurface exploration, methods of boring, sampling, penetration tests, pressure meter tests, Essential features of foundation, types of foundation, design criteria, choice of type of foundation, stress distribution in soils, Boussinessq's theory, Newmarks chart, pressure bulb, contact pressure, applicability of different bearing capacity theories, evaluation of bearing capacity from field tests, allowable bearing capacity, Settlement analysis, allowable settlement. Proportioning of footing, Isolated and combined footings, rafts, Buoyancy rafts, Pile foundation, types of piles, plies capacity, static and dynamic analysis, design, of pile groups, pile load test, settlement of piles, lateral capacity, Foundation for Bridges. Ground improvement techniques-preloading sand drains, stone column, grouting, soil stabilisation.

CIVIL ENGINEERING

PAPER- II

Part-A

CONSTRUCTION TECHNOLOGY, EQUIPMENT, PLANNING AND MANAGEMENT

1. Construction Technology:

Engineering Materials: Physical properties of construction materials: Stones, Bricks and Tiles; Lime, Cement and Surkhi Mortars; Lime concrete and Cement concrete, Properties of freshly, mixed and hardened concrete, flooring Tiles, use of ferro-cement, fibre reinforced and polymer concrete, high strength concrete and light weight concrete. Timber: Properties and uses; defects in timber; seasoning and preservation of timber, Plastics, rubber and damp-proofing materials, termite proofing, Materials for Low cost housing.

Construction: Building components and their functions; Brick masonry: Bonds, jointing, Stone masonry, Design of Brick masonry walls as per I.S. codes, factors of safety, serviceability and strength requirements; plastering, pointing, Types of Floors & Roofs, Ventilators, Repairs in buildings, Functional planning of building; Building orientation, circulation, grouping of areas, privacy concept and design of energy efficient building; provisions of National Building Code, Building estimates and specifications; Cost of works; valuation.

2. Construction Equipment:

Standard and special types of equipment, Preventive maintenance and repair, factors affecting the selection of equipment, economical life, time and motion study, capital and maintenance cost.

Concreting equipments: Weigh batcher, mixer, vibration, batching plant, Concrete pump.

Earth-work equipment: Power shovel hoe, bulldozer, dumper, trailers, and tractors, rollers, sheep foot roller.

3. Construction Planning and Management:

Construction activity, schedules, Job layout, bar charts, organization of contracting firms, project control and supervision. Cost reduction measures.

New-work analysis: CPM and PERT analysis, Float times, cashing of activities, contraction of network for cost optimization, up dating, cost analysis and resource allocation.

Elements of Engineering Economics, methods of appraisal, present worth, annual cost, benefit-cost, incremental analysis. Economy of scale and size. Choosing between alternative sincluding levels of investments, project profitability.

Part-B

SURVEY AND TRANSPORTATION ENGINEERING

Survey: Common methods of distance and angle measurements, plane Table survey, levelling traverse survey, triangulation survey, corrections, and adjustments, contouring, topographical map. Surveying instruments for above purposes Techeometry, Circular and transition curves, Principles of photogrammetry.

Railway: Permanent way, sleepers, rail fastenings, ballast, points and crossings, design of turn outs, stations and yards, turn-tables, signals, and interlocking, level-crossing, Construction and maintenance of permanent ways: Supereleviation, creep of rail, ruling gradient, track resistance, tractive effort, relaying of track.

Highway Engineering: Principles of highway planning, Highway alignments, Geometrical design:, Cross section, camber, superelevation, horizontal and vertical curves. Classification of roads: low cost roads, flexible pavements, rigid pavements, Design of pavements and their construction, evaluation of pavement failure and strengthening.

Drainage of roads: Surface and subsurface drainage.

Traffic Engineering: Forecasting techniques, origin and destination survey, highway capacity, Channelised and unchannelised Intersections, rotary design elements, markings, sign, signals, street lighting; Traffic surveys, Principle of highway financing.

Part-C

HYDROLOGY, WATER RESOURCES AND ENGINEERING

Hydrology: Hydrologilcal cycle, precipitation, evaporation, transpiration, depression storage, infiltration, overland flow, hydrograph, flood frequency analysis, flood estimation, flood routing through a reservoir, channel flow routing- Muskingam method. **Ground water flow:** Specific yield, storage coefficient of permeability, confined and unconfined aquifers, aquifers, aquitards, radial flow into a well under confined and unconfined conditions, tube wells, pumping and recuperation tests, ground water potential.

WATER RESOURCES ENGINEERING:

Ground and surface water resource, single and multipurpose projects, storage capacity of reservoirs, reservoir losses, reservoir sedimentation, economics of water resources projects.

IRRIGATION ENGINEERING: Water requirements of crops: consumptive use, quality of water for irrigation duty and delta, irrigation methods and their efficiencies.

Canals: Distribution systems for canal irrigation, canal capacity, canal losses, alignment of main and distributory canals, most efficient section, lined canals, their design, regime theory, critical shear stress, bed load, local and suspended load transport, cost analysis of lined and unlied canals, drain-age behind lining.

Water logging: causes and control, drain-age system design, salinity.

Canal structures: Design of cross regulators, head regulators, canal falls, aqueducts, metering flumes and canal outlets.

Diversion head work: Principles and design of weirs of permeable and impermeable foundation, Khosle's theory, energy dissipation, stilling basin, sediment excluders. **Storage Works:** Types of dams, design, principles of rigid gravity and earth dams, stability analysis, foundation treatment, joints and galleries, control of seepage. Spillways: Spillway types, crest gates, energy dissipation. River training: Objectives of river training, methods of river training.

Part-D

ENVIRONMENTAL ENGINEERING

Water Supply: Estimation of surface and subsurface water resources, predicting demand for, water, impurities of water and their significance, physical, chemical and bacteriological analysis, waterborne diseases, standards for potable water.

Intake of water: Pumping and gravity schemes. Water treatment: Principles of coagulation, flocculation and sedimentation; slow-, rapid-, pressure-, filters; chlorination, softening, removal of taste, odour and salinity.

Water storage and distribution: Storage and balancing reservoirs; types, location and capacity. Distribution system; layout, hydraulics of pipe lines, pipe fittings, valves including check and pressure reducing valves, meters, analysis of distribution systems, leak detection, maintenance of distribution systems, pumping stations and their operations.

Sewerage systems: Domestic and Industrial wastes, storm sewage-separate and combined systems, flow through sewers, design of sewers, sewer appurtenances, manholes, in lets, junctions, siphon, Plumbing in Public buildings.

Sewage characterisation: BOD, COD, solids, dissolved oxygen, nitrogen and TOC, Standards of disposal in normal water course and on land.

Sewage treatment: Working principles, units, chambers, sedimentation tanks, trickling filters, oxidation ponds, activated sludge process, septic tank; disposal of sludge, recycling of waste water.

Solid waste: Collection and disposal in rural and urban contexts, management of long term ill-effects.

Environmental pollution: Sustainable development. Radioactive wastes and disposal, Environmental impact assessment for thermal power plants, mines, river valley projects, Air pollution, Pollution control acts.

FORESTRY
PAPER-I
SECTION A

1. Silviculture-General:

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, poly-bags and maintenance, water budgeting, grading and hardening of seedlings; special approaches; establishment and tending.

2. 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 with special reference to plantation silviculture, choice of species, establishment and management of standards, enrichment methods, technical constraints, intensive mechanized methods, aerial seeding, thinning.

3. Silviculture Mangrove and Cold desert; Mangrove:

Habitat and characteristics, mangrove, plantation-establishment and rehabilitation of degraded mangrove formations; silvicultural systems for mangrove; protection of habitats against natural disasters, Cold desert Characteristics, identification and management of species.

4. Silviculture of trees:

Traditional and recent advances in tropical silvicultural research and practices. Silviculture of some of the economically important species in India such as Acacia catechu, Acacia nilotica, Acacia auriculiformis, Albizzia lebbeck, Albizzia procera, Anthocephalus Cadamba, Anogeissus, latifokia. Azadirachta indica, Bamboo spp, Butea monosperma, Cassia siamea, Casuarina equisetifolia, Cedrus deodara, Chukrasia tabularis, Dalbergia sisoo, Dipterocarpus spp, Ernblica officindils, Eucalyptus spp, Gmelina Arborea, Hardwickia binata, Largerstroemia Lanceolata, Pinus roxburghi, Populus spp, Pterocarpus marsupium, Prosopis juliflora, Santalum album, Samecarpus anacrdium, Shorea robusta, Salmalla malabaricum, Tectona grandis, Terminalis tomemtosa, Tamarindus Indica.

SECTION- B

1. Agroforestry, Social Forestry, Joint Forest Management and Tribology:

Agroforestry- Scope and necessity; role in the life of people and domestic animals and in integrated land use, planning especially related to (i) soil and water conservation; (ii) water recharge; (iii) nutrient availability to crops; (iv) nature and eco-system preservation including ecological balances through pest-predator relationships and (v) Providing opportunities for enhancing biodiversity, medicinal and other flora and fauna. Agro forestry systems under different agro ecological zones; selection of species and role of multipurpose trees and NTFPs, techniques, food, fodder and fuel security. Research and Extension needs.

Social/Urban Forestry: Objectives, scope and necessity; people's participation.

JFM-Principles, objectives, methodology, scope, benefits and role of NGOs.

Tribology: Tribal scene in India; tribes, concept of races, Principles of social grouping, stages of tribal economy, education, cultural tradition, customs, ethos and participation in forestry programmes.

2. Forest Soils, Soil Conservation Watershed Management:

Forests Soils: Classification, factors affecting soil formation; physical, chemical and biological properties.

Soil Conservation: definition, causes for erosion; typeswind and water erosion; conservation and management of eroded soils/areas, wind breaks, shelter belts; sand dunes; reclamation of saline and alkaline soils, water logged and other waste lands. Role of forests in conserving soils. Maintenance and build up of soil organic matter, provision of loppings for green leaf manuring; forest leaf litter and composting; Role of micro organisms in ameliorating soils; N and C cycles, VAM.

Watershed Management: Concepts of watershed; role of mini-forests and forest trees in overall resource management, forest hydrology, watershed development in respect of torrent control, river channel stabilization, avalanche and landslide controls, rehabilitation of degraded areas; hilly and mountain areas; watershed management and environmental functions of forests; water-harvesting and conservation; ground water recharge and watershed management; role of integrating forest trees, horticultural crops, field crops, grass and fodders.

3. Environmental Conservation and biodiversity:

Environment: Components and Importance, principles of conservation, impact of deforestation; forest fires and various human 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, Role of trees and forests in environmental conservation; control and prevention of air, water and noise pollution. Environmental policy and legislation in India, Environmental impact Assessment, Economics assessment of water shed development vis-a-vis ecological and environmental protection.

4. Tree Improvement and Seed Technology: General concept 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, genetic testing programming, selection and breeding for resistance to diseases, insects, and adverse environment: the genetic base, forest genetic resources and gene conservation in situ and ex-situ, Cost benefit ratio, economic evaluation.

FORESTRY
PAPER- II
SECTION-A

1. Forest Management and Management Systems:

Objective 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. Approaches viz., (i) site-specific planning, (ii) strategic planning, (iii) Approval, sanction and expenditure, (iv) Monitoring (v) Reporting and governance. Details of steps involved such as formation of Village Forest Committees, Joint Forest Participatory Management.

2. Forest Working Plan:

Forest planning, evaluation and monitoring tools and approaches for integrated planning; multipurpose development of forest resources and forest industries development; working plans and working schemes, their role in nature conservation, bio-diversity and other dimensions; preparation and control. Divisional Working Plans, Annual Plan of Operations.

3. Forest Mensuration and Remote Sensing: Methods of measuring- diameter, girth, height and volume of trees; form-factor; 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 modelling.

4. Surveying and Forest Engineering:

Forest Surveying: different methods of surveying, maps and map reading, Basic principles of forest engineering. Building materials and construction. Roads and Bridges, General principles, objects, types, simple design and construction of timber bridges.

SECTION-B

1. Forest Ecology and Ethnobotany:

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; physiology in stress environments (drought, water logging salinity and alkalinity). Forest types in India, identification of species, composition and associations; dendrology, taxonomic classification, principles and establishment of herbaria and arboreta. Conservation of forest ecosystems. Clonal parks.

Role of Ethnobotany in Indian Systems of Medicine; Ayurveda and Unani: Introduction, nomenclature, habitat, distribution and botanical features of medicinal and aromatic plants. Factors affecting action and toxicity of drug plants and their chemical constituents.

2. Forest Resources and Utilization: Environmentally sound forest harvesting practices; logging and extraction techniques and principles transportation systems, storage and sale; Non-Timber Forest Products (NTFPs) -definition and scope; gums, resins, oleoresins, fibres, oil seeds nuts, rubber, canes, bamboos, medicinal plants, charcoal, lac and shellac, katha and Bidi leaves, collection; processing and disposal, need and importance of wood, seasoning and preservation; general principles of seasoning, air and kiln seasoning, solar dehumidification, steam heated and electrical kilns, Composite wood; adhesives manufacture, properties, uses, plywood manufacture-properties, uses, fibre boards manufacture properties, uses; particle boards-manufacture; properties, uses, Present status of composite wood industry in India and future expansion plans. Pulp-paper and rayon; present position of supply of raw material to industry, wood substitution, utilization of plantation wood; problems and possibilities.

Anatomical structure of wood, defects and abnormalities of wood, timber identification general principles.

3. Forest Protection & wildlife Biology: Injuries to forest-abiotic and biotic, destructive agencies, insect-pests and disease, effects of air pollution on forests and forest die back, Susceptibility of forests to damage, nature of damage, cause, prevention, protective measures and benefits due to chemical and biological control. General forest protection against fire, equipment and methods, controlled use of fire, economic and environmental costs; timber salvage operations after natural disasters, Role of afforestation and forest regeneration in absorption of CO_2, Rotational and controlled grazing, different methods of control against grazing and browsing animals; effect of wild animals on forest regeneration, human impacts; encroachment, poaching, grazing, live fencing, theft, shifting cultivation and control.

4. Forest Economics and Legislation:

Forest economics: Fundamental principles, cost-benefit analysis; estimation of demand and supply; analysis of trends in the national and international market and changes in production and consumption patterns; assessment and projection of market structures; role of private sector and co-operatives; role of corporate financing. Socio-economic analysis of forest productivity and attitudes; valuation of forest goods and service.

Legislation-History of forest development; Indian Forest Policy of 1894, 1952 and 1990, National Forest Policy, 1988 of People's involvement, Joint Forest Management, Involvement of women; Forestry policies and Issues related to land use, timber and non timber products, sustainable forest manage-ment; industrialisation policies; institutional and structural changes. Decentralization and Forestry Public Administration, Forest laws, necessity; general principles, Indian Forest Act 1927; Forest Conservation Act, 1980; Wildlife Protection Act 1972 and their amendments; Application of Indian Penal Code to Forestry, Scope and objectives of Forest Inventory.

GEOLOGY
PAPER-I
SECTION-A

(i) General Geology:
The Solar System, meteorities, origin and interior of the earth, Radioactivity and age of earth; Volcanoes-causes and products, volcanic belts, Earthquakes-causes, effects, earthquake belts, seismicity of India, intensity and magnitude, seismongraphs, Island arcs, deep sea trenches and mid-ocean ridges, Continental drift-evidences and mechanics; sea-floor spreading, plate tectonics. Isostasy, orogeny and epeirogeny. Continents and oceans.

(ii) Geomorphology and Remote Sensing:
Basic concepts of geomorphology, Weathering and mass wasting, Landforms, slopes and drainage. Geomorphic cycles and their interpretation, Morphology and its relation to structures and lithology. Applications of geomorphology in mineral prospecting, civil engineering, hydrology and environmental studies. Geomorphology of Indian sub continent. Aerial photographs and their interpretation-merits and limitations. The Electromagnetic Spectrum. Orbiting satellites and sensor systems. Indian Remote Sensing Satellites. Satellites data products, Applications of remote sensing in geology. The Geographic Information System and its applications. Global Positioning System.

(iii) Structural geology:
Principles of geologic mapping and map reading, projection diagrams, stress and strain ellipsoid and stress-strain relationships of elastic, plastic and viscous materials, Strain markers in deformed rocks, Behaviour of minerals and rocks under deformation conditions, Folds and faults classification and mechanics. Structural analysis of folds, foliations, lineations, joints and faults, unconformities, Superposed deformation, Timerelationship between crystallization and deformation. Introduction to petrofabrics.

SECTION- B

(iv) Paleontology:
Species definition and nomenclature. Megafossils and Microfossils. Modes of preservation of fossils, Different kinds of micro fossils. Application of microfossils in correlation, petroleum exploration, paleo-climatic and pale oceanographic studies, Morphology, geological history and evolutionary trend in Cephalopoda, Trilobita, Brachiopoda, Echi-noidea and Anthozoa, Stratigraphic utility of Ammonoidea, Trilobita and Graptoloidea, Evolutionary trend in Hominidae, Equidae and Probo-scidae. Siwalik fauna, Gondwana flora and its importance.

(v) Stratigraphy and Geology of India:
Classification of Stratigraphic sequences: Lithostratigraphic, biostratigraphic, chronostratigraphic and magnetostratigraphic and the interrelation-ships, Distribution and classification of Precambrian rocks of India, Study of stratigraphic distribution and lithology of Phanerozoic rocks of India with reference to fauna, flora and economic importance, Major boundary problems-Cambrian/Precambrian, Permian/Triassic, Cretaceous/Tertiary and Pliocene/ Pleistocene, Study of climatic conditions, paleogeography and igneous activity in the Indian subcontinent in the geological past, Tectonic framework of India. Evolution of the Himalayas.

(vi) Hydrogeology and Engineering Geology:
Hydrologic cycle and genetic classification of water. Movement of subsurface water, Springs, Porosity, permeability, hydraulic conductivity, transmissivity and storage coefficient, classification of aquifers. Water-bearing characteristics of rocks, Ground-water chemistry. Salt water intrusion, Types of wells. Drainage basin morphometry. Exploration for groundwater. Groundwater recharge, Problems and management of groundwater, Rainwater harvesting. Engineering properties of rocks. Geological Investigations for dams, tunnels and bridges, Rock as construction material. Alkali-aggregate reaction, Landslides causes, prevention and rehabilitation, Earthquake-resistant structures.

GEOLOGY
PAPER-II
SECTION-A

(i) Mineralogy:
Classification of crystals into systems and classes of symmetry. International system of crystallographic notation, Use of projection diagrams to represent crystal symmetry. Crystal defects. Elements of x-ray crystallography. Petrological microscope and accessories. Optical properties of common rock forming minerals, Pleochroism, extinction angle, double refraction birefringence, twinning and dispersion in minerals.
Physical and chemical characters of rock forming silicate mineral groups. Structural classification of silicates. Common minerals of igneous and metamorphic rocks. Minerals of the caronate, phosphate, sulphide and halide groups.

(ii) Igneous and Metamorphic Petrology Generation and crystallisation of magma. Crystallisation of albite-anorthite, diopside-anorthite and diopsidewollastonite-silica systems, Reaction principle, Magmatic differentiation and assimilation, Petrogenetic significance of the textures and structures of igneous rocks. Petrography and petrogenesis of granite, syenite, diorite, basic and ultrabasic groups, charnockite, anorthosite and alkaline rocks, Carbonatites. Deccan volcanic province, Types and agents of metamorphism, Metamorphic grades and zones, Phase rule. Facies of regional and contact metamorphism, ACF and AKF diagrams Textures and structures of metamorphic rocks, Metamorphism of arenaceous, argillaceous and basic rocks, Minerals assemblages, Retrograde metamorphism, Metasomatism and granitisation, migmatities, granulite terrains of India.

(iii) Sedimentology:
Sedimentary rocks : Processes of formation, diagenesis and lithification, Properties of sediments, Clastic and nonclastic rocks-their classification petrography and depositional environment, Sedimentary facies and provenance. Sedimenetary structures and their significance. Heavy minerals and their significance, Sedimentary basins of India.

SECTION-B

(iv) Economic Geology
Ore, ore minerals and gangue, tenor of ore, classification of ore deposits. Process of formation of minerals deposits, Controls of ore locallisation. Ore textures and structures, Metallogenic epochs and provinces, Geology of the important Indian deposits of aluminium, chromium, copper, gold, iron, lead, zinc, manganese, titanium, uranium and thorium and industrial minerals, Deposits of coal and petroleum in India, National Mineral Policy, Conservation and utilization of mineral resources, Marine mineral resources and Law of Sea.

(v) Mining Geology:
Methods of prospecting-Geological, geophysical, geo-chemical and geo-botanical, Techniques of sampling. Estimation of reserves of ore, Methods of exploration and mining metalic ores. Industrial minerals and marine mineral resources, Mineral beneficiation and ore dressing.

(vi) Geochemistry and Environmental Geology:
Cosmic abundance of elements, Composition of the planets and meteorites, Structure and composition of earth and distribution of elements, Trace elements, Elements of crystal chemistry types of chemical bonds, coordination number, Isomorphism and polymorphism, Elementary thermodynamics.
Natural hazards-floods, landslides, coastal erosion, earthquakes and volcanic activity and mitigation, Environmental impact of urbanization, open cast mining, industrial and radioactive waste disposal, use of fertilizers, dumping of mine waste and fly-ash, Pollution of ground and surface water, marine pollution, environment protection legislative measures in India.

MATHEMATICS
PAPER-I
Section-A

Linear Algebra:
Vector, space, linear dependence and independence, subspaces, bases, dimensions. Finite dimensional vector spaces. Matrices, Cayley-Hamilition theorem, eigen-values and eigenvectors, matrix of linear transformation, row and column reduction, Echelon form, equivalences, congruences and similarity, reduction to cannonical form, rank, orthogonal, symmetrical, skew symmetrical, unitary, hermitian, skew-hermitian forms- their eigenvalues. Orthogonal and unitary reduction of quadratic and hermitian forms, positive definite quardratic forms.

Calculus
Real numbers, limits, continuity, differentiability, mean-value theorems, Taylor's theorem with remainders, indeterminate forms, maxima and minima, asymptotes. Functions of several variables: continuity, differentiability, partial derivatives, maxima and minima, Lagrange's method of multipliers, Jacobian, Riemann's definition of definite integrals, indefinite integrals, infinite and improper integrals, beta and gamma functions. Double and triple integrals (evaluation techniques only). Areas, surface and volumes, centre of gravity.

Analytical Geometry
Cartesian and polar coordinates in two and three dimensions, second degree equations in two and three dimensions; reduction to cannonical forms, straight lines, shortest distance between two skew lines, plane, sphere, cone, cylinder, paraboloid, ellipsoid, hyperboloid of one and two sheets and their properties.

Section-B

Ordinary Differential Equations:
Formulation of differential equations, order and degree, equations of first order and first degree, integrating factor, equations of first order but not of first degree, Clariaut's equation singular solution. Higher order linear equations with constant coefficients, complementary function and particular integral, general solution, Euler-Cauchy equation.
Second order linear equations with variable coefficients, determination of complete solution when one solution is known, method of variation of parameters.

Dynamics, Statics and Hydrostatics:
Degree of freedom and constraints, rectilinear motion, simple harmonic motion, motion in a plane, projectiles, constrained motion, work and energy, conservation of energy, motion under impulsive forces, Kepler's laws, orbits under central forces, motion of varying mass, motion under resistance.
Equilibrium of a system of particles, work and potential energy, friction, common catenary, principle of virtual work, stability of equilibrium, equilibrium of forces in three dimensions. Pressure of heavy fluids, equilibrium of fluids under given system of forces, Bernoulli's equation, centre of pressure, thrust on curved surfaces, equilibrium of floating bodies, stability of equilibrium, meta-centre, pressure of gases.

Vector Analysis:
Scalar and vector fields, triple products, differentiation of vector function of a scalar variable, gradient, divergence and curl in Cartesian, cylindrical and spherical coordinates and their physical interpretations. Higher order derivatives, vector identities and vector equations. Application to Geometry; Curves in space curvature and torision. Serret Frenet's formulae, Gauss and Stokes' theorems, Green's identities.

MATHEMATICS
PAPER-II
SECTION-A

Algebra:
Groups, sub-groups, normal subgroups, homomorphism of groups, quotient groups, basic isomorphism theorems, Sylovi's group, permutation groups, Cayley theorem, rings and ideals, principal ideal domains, unique factorization domains and Euclidean domains. Field extensions, finite fields.

Real Analysis:
Real number system, ordered sets, bounds, ordered field, real number system as an ordered field with least upper bound property, Cauchy sequence, completeness, Continuity and uniform continuity of functions, properties of continuous functions on compact sets. Riemann integral, improper integrals, absolute and conditional convergence of series of real and complex terms, rearrangement of series, Uniform convergence, continuity, differentiability and integrability for sequences and series of functions. Differentiation of functions of several variables, change in the order of partial derivatives, implicit function theorem, maxima and minima, Multiple integrals.

Complex Analysis:
Analytic function Cauchy-Riemann equations, Cauchy's theorem, Cauchy's integral formula, power series, Taylor's series, Laurent's Series, Singularities, Cauchy's residue theorem, contour integration, Conformal mapping, bilinear transformations.

Linear Programming:
Linear programming problems, basic solution, basic feasible solution and optimal solution, graphical method and Simplex method of solutions, Duality.
Transportation and assignment problems, Travelling salesman problems.

SECTION-B

Partial differential equations:
Curves and surfaces in three dimensions, formulation of partial differentiation equations,

solutions of equations of type dx/p=dy/q=dz/r; orthogonal trajectories, Pfaffian differential equations; partial differential equation of the first order, solution by Cauchy's method of characteristics; Charpit's method of solutions, linear partial differential equations of the second order with constant coefficients, equations of vibrating string, heat equation, Laplace equation.

Numerical analysis and Computer programming: Numerical methods solution of algebraic and transcendental equations of one variable by bisection, Regula-Falsi and Newton-Raphson methods, solution of system of linear equations by Gaussian elimination and Gauss-Jordan (direct) methods, Gauss-Seidel (iterative) method. Newton's (Forward and backward) and Lagrange's method of interpolation. Numerical integration; Simpson's one-third rule, tranpezodial rule, Gaussian quadrature formula. Numerical solution of ordinary differential equations: Euler and Runge Kuttamethods, Computer Programming: Storage of numbers in computers, bits, bytes and words, binary system, arithmetic and logical operations on numbers, Bitwise operations. AND, OR, SOR, NOT, and shift/ rotate operators, Octal and Hexadecimal Systems, Conversion to and form decimal Systems. Representation of unsigned integers, signed integers and reals, double precision reals and long integers.

Algorithms and flow charts for solving numerical analysis problems.

Developing simple programs in Basic for problems involving techniques covered in the numerical analysis.

Mechanics and Fluid Dynamics:

Generalised coordinates, constraints, holonomic and non-holonomic, systems, D' Alembert's principle and Lagrange's equations, Hamilton equations, moment of inertia, motion of rigid bodies in two dimensions. Equation of continuity, Euler's equation motion for inviscid flow, stream-lines, path of a particle, potential flow, two-dimensional and axisymetric motion, sources and sinks, vortex motion, flow past a cylinder and a sphere, method of images, Navier-Stokes equation for a viscous fluid.

MECHANICAL ENGINEERING
PAPER-I

1. Theory of Machines

Kinematic and dynamic analysis of planar mechanisms, Cams, Gears and gear trains, Flywheels, Governors, Balancing of rigid rotors, Balancing of single and multi-cylinder engines, Linear vibration analysis of mechanical systems (single degree and two degrees of freedom), Critical speeds and whirling of shafts, Automatic Controls, Belts and chain drives. Hydrodynamic bearings.

2. Mechanics of Solids

Stress and strain in two dimensions, Principal stresses and strains, Mohr's construction, linear elastic materials, isotropy and anisotropy, Stress-strain relations, unilaxial loading, thermal stresses, Beams: Banding moment and shear force diagrams, bending stresses and deflection of beams, Shear stress distribution. Torsion of shafts, helical springs, Combined stresses, Thick and thin walled pressure vessels. Struts and columns. Strain energy concepts ad theories of failure. Rotating discs. Shrink fits.

3. Engineering Materials

Basic concepts on structure of solids, crystalline materials, Defects in crystalline materials, Alloys anc, binary phase diagrams, structure and properties of common engineering materials. Heat treatment of steels, plastics, Ceramics and camposite. Materials, common applications of various materials.

4. Manufacturing Science

Merchant's force analysis, Taylor's tool life equation, machinability and machining economics, Rigid, small and flexible automation, NC, CNC. Recent machining methods EDM, ECM and ultrasonic. Application of lasers and plasmas, analysis of forming processes. High energy rate forming Jigs, fixtures, tools and gauges, Inspection of length, position, profile and surface finish.

5. MANUFACTURING MANAGEMENT

Production Planning and Control, Forecasting-moving average exponential smoothing, Operations scheduling assembly line balancing. Product development, Breakeven analysis, Capacity planning, PERT and CPM, Control Operations: Inventory control-ABC analysis, EOQ model, Materials requirement planning, Job design, Job standards, work Measurement, Quality management- Quality control Operations Research: Linear programming-Graphical and Simplex methods, Transportation and assignment models, Single server queuing model. Value Engineering; Value analysis, for cost/value, Total quality management and forecasting techniques. Project management.

6. ELEMENTS OF COMPUTATION

Computer Organisation, Flow charting, Features of Common Computer Languages FORTRAN, d Base-III, Lotus 1-2-3, C and elementary programmings.

MECHANICAL ENGINEERING
PAPER-II

1. THERMODYNAMICS:

Basic concept, Open and closed systems, Applications of Thermo-dynamic Laws., Gas equations, Clapeyron equation, Availability, Irreversibility and Tds relations.

2. I.C. Engines:

Fuels and Combustion: Spark Ignition and compression ignition engines, four stroke engine and two stroke engines, mechanical, thermal and volumetric efficiency, Heat balance.

Combustion process in S.I. and C.I. engines, pre-ignition detonation in S.I. engine Diesel knock in C.I. engine, Choice of engine fuels, Octane and Cetane ratings. Alternate fuels Carburration and Fuel injection, Engine emissions and control, Solid, liquid and gaseous fuels, stoichometric air requirements and excess air factor, fuel gas analysis, higher and lower . calorific values and their measurements.

3. HEAT TRANSFER, REFRIGERATION AND AIR CONDITIONING: One and two dimensional heat conduction. Heat transfer from extended surfaces, heat transfer by forced and free convection, Heat exchangers, Fundamentals for diffusive and connective mass transfer, Radiation laws, heat exchange between black and non black surfaces, Network Analysis, Heat pump, refrigeration cycles and systems, Condensers, evaporators and expansion devices and controls, Properties and choice of refrigerant, Refrigeration Systems and components, psychometrics, comfort indices, cooling loading calculations, solar refrigeration.

4. TURBO-MACHINES AND POWER PLANTS:

Continuity, momentum and Energy Equations. Adiabatic and Isentropic flow, fanno lines, Raylegh lines, Theory and design of axial flow turbines and compressors, Flow through turbo-machine balde, cascades, centrifugal compressor. Dimensional analysis and modelling. Selection of site for steam, hydro nuclear and stand-by power plants, Selection base and peak load power plants, Modern High Pressure, High duty boilers, Draft and dust removal equipment, Fuel and cooling water systems, heat balance, station and plant heat rates, operation and maintenance of various power plants, preventive maintenance, economics of power generation.

PHYSICS
PAPER-I
SECTION-A

1. Classical Mechanics (a) Particle dynamics

Centre of mass and laboratory coordinates, conservation of linear and angular momentum, The rocket equation, Rutherford scattering, Galilean transformation, inertial and non-inertial frames, rotating frames, centrifugal and Coriolls forces; Foucault pendulum.

(b) System of particles

Constraints, degrees of freedom, generalised coordinates and momenta, Lagranje's equation and applications to linear harmonic oscillator, simple pendulum and central force problems Cyclic coordinates, Hamiltonian Lagrange's equation from Hamilton's principle.

(c) Rigid body dynamics

Eulerian angles, inertia tensor, principal moments of inertia. Euler's equation of motion of a rigid body, force-free motion of a rigid body, Gyroscope.

2. Special Relativity, Waves & Geometrical Optics

(a) Special Relativity

Michelson-Morley experiment and its implications, Lorentz transformations-length contraction, time dilation, addition of velocities, aberration and Doppler effect, mass energy relation, simple application to a decay process Minkowski diagram, four dimensional momentum vector. Covariance of equations of physics.

(b) Waves

Simple harmonic motion, damped oscillation forced oscillation and resonance, Beats. Stationary waves in a string. Pulses and wave packets. Phase and group velocities. Reflection and Refraction from Huygen's principle.

(c) Geometrical Optics

Laws of reflection and refraction from Format's principle. Matrix method in paraxial optic thin-lens formula, nodal planes, system of two thin lenses, chromatic and spherical aberrations.

3. Physical Optics

(a) Interference

Interference of light-Young's experiment, Newton's rings, Interference by thin films, Michelson Interferometer. Multiple beam Interference and Fabry-Perot interferometer. Holography and simple applications.

(b) Diffraction

Fraunhofer diffraction-single slit, double slit, diffraction grating, resolving power. Fresnel diffraction:- half-period zones and zones plates. Fersnel integrals, Application of Cornu's spiral to the analysis of diffraction at a straight edge and by a long narrow slit. Deffraction by a circular aperture and the Airy pattern.

(c) Polarisation and Modern Optics

Production and detection of linearly and circularly polarised light. Double refraction, quarter wave plate, Optical activity, Principles of fibre optics attenuation; pulse dispersion in step index and parabolic index fibres; material dispersion, single mode fibres. Lasers-Einstein A and B coefficients; Ruby and He-Ne lasers. Characteristics of laser light-spatial and temporal coherence, Focussing of laser beams, Three-level scheme for laser operation.

SECTION-B

4. Electricity and Magnetism

(a) Electrostatics and Magneto-statics

Laplace and Poisson equations in electrostatics and their applications. Energy of a system of charges, multiple expansion of scalar potential. Method of images and its applications, Potential and field due to a dipole, force and torque on a dipole in an external field. Dielectrics, polarisation, Solutions, to boundary-value problems-conducting and dielectric spheres in a uniform electric field. Magnetic shell, uniformly magnetised sphere, Ferromagnetic materials, hysteresis, energy loss.

(b) Current Electricity

Kirchhoff's laws and their applications, Biot-Savart law, Ampere's law, Faraday's law, Lenz' law. Self and mutual inductances. Mean and rms values in AC circuits, LR, CR and LCR circuits-series and parallel resonance, Quality factor, Principle of transformer.

5. EectromagneticTheory & Black Body Radiation

(a) Electromagnetic Theory

Displacement current and Maxwell's equations Wave equations in vacuum, Poynting theorem, Vector and scalar potentials, Gauge invariance, Lorentz and Coulomb gauges, Electromagnetic field tensor, cavariance of Maxwell's equations, Wave equations in Isotropic dielectrics, reflection and refraction at the boundary of two dielectrics. Fresnel' relations, Normal and anamalous dispersion, Rayleigh scattering.

(b) Blackbody radiation

Blackbody radiation and Planck radiation law-Stefan-Boltzmann law, Wien displacement law and Rayleigh-Jeans law, Planck mass, Planck length, Planck time, Planck temperature and Planck energy.

6. Thermal and Statistical Physics

(a) Thermodynamics

Laws of thermodynamics, reversible and irreversible processes, entropy, Isothermal, adiabatic, isobaric, isochoric processes and entropy change, Otto and Diesel engines, Gibb's phase rule and chemical potential. Van der Waals equation of state of real gas, critical constants, Maxwell-Boltzman distribution of molecular velocities, transport phenomena, equipartition and virial theorems, Dulong-Petit, Einstein, and Debye's theories of specific heat of solids. Maxwell relations and applications. Clausius-Clapeyron equation. Adiabatic demagnetisation, Joule-Kelvin effect and liquefication of gases.

(b) Statistical Physics

Saha ionization formula, Bose-Einstein condensation, Thermodynamic behaviour of an ideal Fermi gas, Chandrasekhar limit, elementary ideas about neutron stars and pulsars, Brownian motion as a random walk, diffusion process, Concept of negative temperatures.

PHYSICS
PAPER-II

SECTION-A

1. Quantum Mechanics: Wave-particle duality, Schroedinger equation and expectation values. Uncertainty principle, Solutions of the one-dimensional Schroedinger equation free particle (Gaussian wave-packet), particle in a box, particle in a finite well, linear, harmonic oscillator, Reflection and transmission by a potential step and by a rectangular barrier, use of WKB formula for the life-time calculation in the alpha-decay problem.

2. Quantum Mechanics II & Atomic Physics

(a) Quantum Mechanics II

Particle in a three dimensional box, density of states, free electron theory of metals, The angular momentum problem, The hydrogen atom, The spin half problem and properties of Pauli spin matrices.

(b) Atomic Physics

Stern-Gerlack experiment, electron spin, fine structure of hydrogen atom, L-S coupling, J J, coupling, Spectroscopic notation of atomic states, Zeeman effect, Frank-Condon principle and applications.

3. Molecular Physics

Elementary theory of rotational, vibrational and electronic spectra of diatomic molecules, Raman effect and molecular structure, Laser Raman spectroscopy importance of neutral hydrogen atom, molecular hydrogen and molecular hydrogen ion in astronomy Fluorescence and Phos-phorescence, Elementary theory, and applications of NMR. Elementary ideas about Lamb shift and its significance.

SECTION-B

4. Nuclear Physics

Basic nuclear properties-size, binding energy, angular momentum, parity, magnetic moment, Semi-empirical mass formula and applications, Mass parabolas, Ground state of deuteron magnetic moment and non-central forces, Meson theory of nuclear forces, Salient features of nuclear forces, Shell model of the nucleus-success and limitations, Violation of parity in beta decay, Gamma decay and internal conversion, Elementary ideas about Mossbauer spectroscopy, Q-value of nuclear reactions, Nuclear fission and fusion, energy production in stars, Nuclear reactors.

5. Particle Physics & Solid State Physics:

(a) Particle Physics

Classification of elementary particles and their interactions, Conservation laws, Quark structure of hadrons, Field quanta of electro-weak and strong Interactions, Elementary ideas about Unification of Forces, Physics of neutrinos.

b) Solid State Physics

Cubic crystal structure, Band theory of solids-conductors, insulators and semiconductors, Elements of superconductivity, Meissner effect, Joseph-son junctions and applications, Elementary ideas about high temperature superconductivity.

6. Electronics

Intrinsic and extrinsic semiconductors-p-n-p and n-p-n transistors. Amplifiers and oscillators, Op-amps, FET, JFET and MOSFET, Digital electronics-Boolean Identities, De Morgan's laws, Logic gates and truth tables, Simple logic circuits, Thermistors, solar cells, Fundamentals of microprocessors and digital computers.

STATISTICS

PAPER-I

Probability

Sample space and events, probability measure and probability space, random variable as a measurable function, distribution function of a random variable, discrete and continuous type random variable, probability mass function, probability density function, vector-valued random variable, marginal and conditional distributions, stochastic independence of events and of random variables, expectation and moments of a random variable, conditional expectation, convergence of a sequence of random variable in distribution, in probability, in p-th mean and almost everywhere, their criteria and inter-relations, Borel Cantelli lemma, Chebyshev's and Khinchine's weak laws of large numbers, strong law of large numbers and Kolmogorov's theorems, Glivenko-Cantelli theorem, probability generating function, characteristic function, inversion theorem, Laplace transform, related uniqueness and continuity theorems, determination of distribution by its moments. Linderberg and Levy forms of central limit theorem, standard discrete and continuous probability distributions, their Inter-relations and limiting cases, simple properties of finite Markov chains.

Statistical Inference

Consistency, unbiasedness, efficiency, sufficiency, minimal-sufficiency, completeness, ancillary statistic, factorization theorem, exponential family of distribution and its properties, uniformly minimum variance unbiased (UMVU) estimation, Rao-Blackwell and Lehmann-Scheffe theorems, Cramer-Rao inequality for single and several-parameter family of distributions, minimum variance bound estimator and its properties, modifications and extensions of Cramer-Rao inequality, Chapman-Robbins inequality, Bhattacharya's bounds, estimation by methods of moments, maximum likelihood, least squares, minimum chisquare and modified minimum chi-square properties of maximum likelihood and other estimators, idea of asymptotic efficiency, idea of prior and posterior distributions, Bayes', estimators.

Non-randomised and randomised tests, critical function, MP tests, Neyman-Pearson lemma, UMP tests, monotone likelihood ratio, generalised Neyman Pearson lemma, similar and unbiased tests, UMPU tests for single and several-parameter families of distributions, likelihood rotates and its large sample properties, chi-square goodness of fit test and its asymptotic distribution.

Confidence bounds and its relation with tests, uniformly most accurate (UMA) and UMA unbiased confidence bounds, Kolmogorov's test for goodness of fit and its consistency, sign test and its optimality, Wilcoxon signed-ranks test and its consistency, Kolmogorov Smirnov two-sample test, run test, Wilcoxon-Mann Whitney test and median test, their consistency and asymptotic normality.

Wald's SPRT and its properties, OC and ASN functions, Wald's fundamental identity, sequential estimation.

Linear Inference and Multivariate Analysis Linear statistical models, theory of least squares and analysis of variance, Gauss-Markoff theory, normal equations, least squares estimates and their precision, test of significance and interval estimates based on least squares theory in one-way, two-way and three-way classified data, regression analysis, linear regression, curvilinear regression and orthogonal polynomials, multiple regression, multiple and partial correlations, regression diagnostics and sensitivity analysis, calibration problems, estimation of variance and covariance components, MINQUE theory, multivariate normal distribution, Mahalanobis; D^2 and hotelling's T^2 statistics and their applications and properties, discriminant analysis, canonical correlations, one-way MANOVA, principal component analysis, elements of factor analysis.

Sampling Theory and Design of Experiments An outline of fixed-population and super population approaches, distinctive features of finite population sampling, probability sampling designs, simple random sampling with and without replacement stratified random sampling, systematic sampling and its efficacy for structural populations, cluster sampling' two-stage and multi-stage sampling ratio and regression, methods of estimation involving one or more auxiliary Variables, two-phase sampling, probability proportional to size sampling with and without replacement, the Hansen-Hurwitz and the Horvitz Thompson estimator. Non-negative variance estimation with reference to the Horvitz Thompson estimators, non-sampling errors, Warner's randomised response technique for sensitive characteristics.

Fixed effects model (two-way classification) random and mixed effects models (two-way classification with equal number of observation per cell), CRD, RBD, LSD and their analysis; incomplete block designs, concepts of chronogonality and balance, BIBD, missing plot technique, factorial designs: 2n, 3^2 and 3^3 , confounding in factorial experiments, split-plot and simple lattice designs.

STATISTICS

PAPER- II

I. Industrial Statistics

Process and product control, general theory of control charts, different types of control charts for variables and attributes, X, R, s, p, nn and c charts, cumulative sum chart, V mask, single, double, multiple and sequential sampling plans for attribute, OC, ASN, AQQ and ATI curves concepts of producer's and consumer's risks, AQL, LTPD and AOQL, sampling plans for variables, use of Dodge-Roming and Military Standard tables, Concepts of reliability, maintainability and availability, reliability of series and parallel systems and other simple configurations, renewal density and renewal function, survival models (exponential, Weibull, lognormal, Rayleigh, and bath-tub), different types of redundancy and use of redundancy in reliability improvement, Problems in life-testing censored and truncated experiments for exponential models.

II. Optimization Techniques

Different types of models in Operational Research, their construction and general methods of solution, simulation and Monte-Carlo methods, the structure and formulation of linear programming (LP) problem, simple LP model and its graphical solution, the simplex procedure, the two-phase method and the M-technique with artificial variables, the duality theory of LP and its economic interpretation, sensitivity analysis, transportation and assignment problems, rectangular games, two-person zero- sum games, method of solution (graphical and algebraic).

Replacement of failing or deteriorating items, group and individual replacement policies, concept of scientific inventory management and analytical structure of inventory problems, simple models with deterministic and stochastic demand with and without lead time, storage models with particular reference to dam type. Homogeneous discrete-time Markov chains, transition probability matrix, classification of states and ergodic theorems, homogeneous continuous-time Markov chains, Poisson process, elements of queuing theory, M/M/1, M/M/K, G/M/1 and M/G/1 queues. Solution of statistical problems on computers using well-known statistical software packages like SPSS.

III. Quantitative Economics and Official Statistics

Determination of trend, seasonal and cyclical components, Box-Jenkins method, tests for stationery of series, ARIMA models and determination of orders of autoregressive and moving average components, forecasting.

Commonly used index numbers-Laspeyre's, Peashe's and Fisher's ideal Index numbers, chain-base index numbers, uses and limitations of index numbers, index number of wholesale prices, consumer price index number, index numbers of agricultural and industrial production, test for index numbers like proportionality test, time-reversal test, factor-reversal test, circular test and dimensional invariance test.

General linear model, ordinary least squares and generalised least squares methods of estimation, problem of multi-collinearity, consequences and solutions of multi-collinearty, autocorrelation and its consequences, heteroscedasticity of disturbances and its testing, test for independence of disturbances, Zellner's seemingly unrelated regression equation model and its estimation, concept of structure and model for simultaneous equations, problem of identification-rank and order conditions of identifiability, two-stage least squares method of estimation. Present official statistical sytem in India relating to population agriculture, industrial production, trade and prices, methods of collection of official statistics, their reliability and limitation and the principal publications containing such statistics, various official agencies responsible for data collection and their main functions.

IV. Demography and Psychometry

Demographic data from census, registration, NSS and other surveys, and their limitation and uses, definition, construction and uses of vital rates and ratios, measures of fertility, reproduction rates, morbidity rate, standardized death rate: complete and abridged life tables, construction of life tables from vital statistics and census returns, uses of life tables, logistic and other population growth curves, fitting a logistic curve, population projection, stable population theory, uses of stable population and quasi-stable population techniques in estimation of demographic parameters, morbidity and its measurement, standard classification by cause of death, health surveys and use of hospital statistics.

Method of standardisation of scales and tests, Z-scores, standard scores, T-scores, percentile scores, intelligence quotient and its measurement and uses, validity of test scores and its determination, use of factor analysis and path analysis in psychometry.

ZOOLOGY

PAPER-I

Sectlon-A

I. Non-chordata and chordata

(a) Classification and relationship of various phyla up-to sub-classes; Acoelomata and Coelomata; Protostomes and Deuterostomes, Bilateralia and Radiata; Status of Protista, Parazoa, Onychophora and Hemichordata; Symmetry.

(b) Protozoa: Locomotion, nutrition, reproduction; evolution of sex; general features and life history of Paramaecium, Monocystis, Plasmodium and Leishmania.

(c)Porifera: Skeleton, canal system and reproduction.
(d) Coelenterata: Polymorphism, defensive structures and their - mechanism; coral reefs and their formation; metagenesis; general features and life history of Obelia and Aurelia.
(e) Platyhelminthes: Parasitic adaptation; general features and life history of Fasciola and Taenia and their relation to man.
(f) Nemathelminthes: General features, life history and parasitic adaptation of Ascaris; nemathelminths in relation to man.
(g)Annelida: Coelom and metarnerism; modes of life in polychaetes; general features and life history of Nereis (Neanthes), earthworm (Pheretima) and leach (Hirudinaria).
(h) Arthropoda: Larval forms and parasitism in Crustacea; vision and respiration in arthropods (prawn, cockroach and scorpion); modification of mouth parts in insects (cockroach, mosquito, housefly, honey bee and butterfly); metamorphosis in insects and its hormonal regulation; social organization in insects (termites and honey bees).
(i) Mollusca; Feeding, respiration, locomotion, shell diversity; general features and life history of Lamellidens, Pila and Sepia, torsion and detorsion in gastropods.
(j) Echinodermata; Feeding respiration, locomotion larval forms; general features and life history of Asterias.
(k)Protochordata; Origin of chordates; general features and life history of Branchiostoma and Herdamania.
(l) Pisces: Scales, respiration, locomotion, migration.
(m) Amphibia: Origin of tetrapods; parental care, paedomorphosis.
(n)Reptilia: Origin of reptiles; skull types; status of Sphenodon and crocodiles.
(o)Aves: Origin of birds; flight adaptation, migration.
(p) Mammalia: Origin of mammals; dentition; general features of egg-laying mammals,pouched mammals, aquatic mammals and primates; endocrine glands and other hormone producing structures (pituitary, thyroid, parathyroid, adrenal, pancreas, gonads) and their interrelationships.
(q) Comparative functional anatomy of various systems of vertebrates (integument and its derivatives, endoskeleton, locomotory organs digestive system, respiratory system, circulatory system including heart and aortic arches; urinogenital system, brain and sense organs (eye and ear).

Section-B

I. Ecology:
(a) Biosphere: Biogeochemical cycles, green-houses effect, ozone layer and its impact; ecological succession, biomes and ecotones.
(b)Population, characteristics, population dynamics, population stabilization.
(c)Conservation of natural resources mineral mining, fisheries, aquaculture; forestry; grassland; wildlife (Project Tiger); sustainable production in agriculture-integrated pest management.
(d)Environmental biodegradation; pollution and its impact on biosphere and its prevention.

II. Ethology:
(a) Behaviour: Sensory filtering, responsiveness, sign stimuli, learning, instinct, habituation, conditioning, imprinting.
(b) Role of hormones in drive; role of pheromones in alarm spreading; crypsis, predator detection, predator tactics, social behaviour in insects and primates, courtship (Drosophila, 3-spine stickleback and birds).
(c) Orientation, navigation, homing; biological rhythms; biological clock, tidal, seasonal and circadian rhythms.
(d)Methods of studying animal behaviour.

III.Economic Zoology:
(a)Apiculture, sericulture, lac culture, carp culture, pearl culture, prawn culture.
(b) Major infectious and communicable diseases (small pox, plague, malaria, tuberculosis, cholera and AIDS) their vectors, pathogens, and prevention.
(c)Cattle and livestock diseases, their pathogens (helminths) and vectors (ticks, mites, Tabanus, Stomoxys)
(d) Pests of sugar cane (Pyrilla perpusiella), oil seed (Achaea janata) and rice (Silophilus oryzae).

IV.Biostatistics:
Designing of experiments; null hypothesis; correlation, regression, distribution and measure of central tendency, chi square, student t-test, F-test (one-way & two-way F-test)

V. Instrumental methods:
(a)Spectrophotometry, flame photometry, Geiger-Muller counter, scintillation counting.
(b)Electron microscopy (TEM, SEM).

ZOOLOGY
PAPER-II
Section-A

I. Cell Biology:
(a) Structure and function of cell an its organelles (nucleus, plasma membrane, mitochondria, Golgibodies, endoplasmic reticulum ribosomes and lysosomes), cell division (mitosis and melosis), mitutic spindle and mitotic apparatus, chromosome movement.
(b) Watson-Crick model of DNA; replication of DNA, protein synthesis, transcription and transcription factors.

II. Genetics
(a)Gene structure and functions; genetic code.
(b)Sex chromosomes and Sex determination in Drosophilla, nematodes and man.
(c) Mendel's laws of inheritance, recombiriation, linkage, linkage-maps, multiple alleles, cistron concept; genetics of blood groups.
(d)Mutations and mutagenesis; radiation and chemical.
(e) Cloning technology, plasmids and cosmids as vectors, transgenics, transposons, DNA sequence cloning and whole animal cloning (Principles and methodology).
(f) Regulation and gene expression in pro-and eu-karyotes.
(g)Signal transduction; pedigree-analysis; congenital diseases in man.
(h)Human genome mapping; DNA fingerprinting.

III.Evolution
(a)Origin of life.
(b)Natural selection, role of mutation in evolution, mimicry, variation, isolation, speciation.
(c)Fossils and fossllization; evolution of horse, elephant and man.
(d)Hardy-Weinberg law, causes of change in gene frequency,
(e)Continental drift and distribution of animals.

IV.Systematics
(a)Zoological nomenclature; international code; cladistics.

Section-B

I. Biochemistry
(a) Structure and role of carbohydrates, fats, lipids, proteins, aminoacids, nucleic acids; saturated and unsaturated fatty acids, cholesterol.
(b)Glycolysis and Krebs cycle, oxidation and reduction, oxidative phosphorylation; energy conservation and release, ATP, cyclic AMP-its structure and role.
(c)Hormone classification (steroid and peptide hormones), biosynthesis and function.
(d) Enzymes: types and mechanisms of action; immunoglobulin and immunity; vitamins and co-enzymes.
(e)Bioenergetics.

II. Physiology (with special reference to mammals)
(a) Composition and constituents of blood; blood groups and Rh factor in man; coagulation, factors and mechanism of coagulation; acid-base balance, thermo regulation.
(b)Oxygen and carbon dioxide transport; haemoglobin: constituents and role in regulation.
(c)Nutritive requirements; role of salivary glands, liver, pancreas and intestinal glands in digestion and absorption.
(d)Excretory products; nephron and regulation of urine formation; osmoregulation.
(e)Types of muscles, mechanism of contraction of skeletal muscles.
(f) Neuron, nerve impulse-its conduction and synaptic transmission; neurotransmitters.
(g)Vision, hearing and olfaction in man.
(h)Mechanism of hormone action.
(i) Physiology of reproduction, role of hormones and phermones.

III.Developmental Biology
(a) Differentiation from gamete to neurula stage; dedifferentation; metaplasia, induction, morphogenesis and morphogon; fate maps of gastrulae in frog and chick; organogenesis of eye and heart, placentation in mammals.
(b) Role of cytoplasm in and genetic control of development; cell lineage; causation of metamorphosis in frog and insects; paedogenesis and neoteny; growth, degrowth and cell death; ageing; blastogenesis; regeneration; teratogenesis; neoplasia.
(c)Invasiveness of placenta; in vitro fertilization; embryo transfer, cloning.
(d)Baer's law; evo-devo concept.

Animal Husbandry and Vet. Science
Paper-I
Section-A

Livestock industry - its scope and potential.
Human population in relation to wild life.
Significance of wild life.
Animal Genetics and Breeding
Animal Genetics: Mendelian inheritance, Expression of genes, linkage and crossing over Sex influenced and sex linked characters. Chromosomal aberration and gene structure, DNA as genetic material, recombinant DNA technology, mutation Quantitative vs Qualitative traits. Forces changing gene frequency.
Animal Breeding: Breeding systems-Inbreeding, out breeding, up grading, hybridization, Cross breeding and out crossing system, selection and their merits, Genetic improvement of cattle, buffaloes, sheep, goat, swine, horses, Poultry and wild animals. Adaptation to the environment
Thermal balance in animals, direct and indirect effects of weather on animals, Loss of water from body, Growth rate and body weight. Photo sensitive disorder.

Section-B

Animal diseases:
Immunity and vaccination: Principles and method of immunization of animals against specific diseases.
Herd immunity, disease free zone, zero disease concept.
Diseases of cattle, Cow, Buffalo, sheep, goats and wild animals-Etiology symptoms, diagnosis, prevention, control and treatment of Antrax, Haemorrhagic Septicaemia, Black quarter, mastitis, tuberculosis, John's disease, foot and mouth disease, Rinder pest, Rabies, Trypnosomiasis, milk fever and trympanitis, diseases of newly born calf. Disease of poultry - Etiology Symtoms, diagnosis, prevention, control and treatment of Ranikhet disease, Fowl pox, Anian leucosis complex, Marek's diseases and Gumboro Disease.
Diseases of swine- swine fever, and hog cholera, diseases of Dog- Canine distemper, Parvo disease, Rabies in pets in relation to human health.
Veterinary Public Health- Zoonosis and zoonotic disease. Veterinary Jurisprudence- rule and regulations for improvement of animals, quality and prevention of animal disease, Materials and methods for collection and samples for veterolegal investigation. Extention- Principles of extention, different methods adopted to educate the farmers under rural conditions.
Generation of technology- Its transfer and feed back. Problems and constrains in transfer of technology Animal husbandry programmes for rural development.

Animal Husbandry and Vet. Science
Paper-II
Section-A

A- Animal Nutrition: General nutritional considerations, Energy and Protein nutrition, Mineral and vitamin nutrition, Hormones and additives. Evaluation of nutritional value of feeds. Ruminant and non-ruminant nutrition of animals. Meeting nutritional requirement of various classes of animals. Digestion, metabolism and absorption of nutrients in different types of animals grazing habit and food intake.

B- Animal Physiology
Physiological mechanisms and livestock product, Growth rate & animals production. Nervous and hormonal controlling mechanism, Physiology of Reproduction. Lactation and egg laying. Physiology of digestive system of various classes of animals including wild animals, Semen evaluation, preservation & artificial insemination in various classes of animals.

Section-B

A- Livestock production & Management
General care and management of livestock - Cattle, buffalo, Goats, Sheep, Pigs and Poultry. General care and management of wild animals. Feeding and management of livestock and wild animals and under drought, Flood and other natural disaster. Classification, grading and marketing of livestock and their products.

Milk and milk products
Milk-Collection, transportation of raw milk, quality testing and grading of raw milk, milk

pasteurization, standardization, & Homogenization. Reconstituted and recombined milk. **Milk Product technology-** Production, Processing, Storage, distribution and marketing of milk products such as butter, Ghee, Khoa, Chhena, Cheese, condensed and dried milk, Ice-cream, yoghurt, Dahi and Srikhand and their testing and grading, BIS specification, legal standards, quality control and nutritive properties of various milk products. Milk by product technology - whey products, butter milk, Lactose, and casein.

Horticulture "Fruit and Plantation Crops"
Paper-I
Section 'A'

Definition of horticulture and its branches. Importance and scope of fruits and plantation crops in India. Area and production of different fruit crops. Geographical Classification of fruit crops. Nutritional garden. Planning and establishment of orchard. High density planting. Propagation methods and use of root stock. Micro-propagation, Nursery management, Methods of training and pruning. Use of Phytohormone in fruit production.

Section "B"

Package of practices for the cultivation of major fruits-- Mango, Banana, Citrus, Grape, Guava, Litchi and Papaya and Minor Fruits-- Pineapple, pomegranate, Bael, Aonla, Ber, Karaunda, Phalsa and Jackfruit and Plantation crops- Coffee, Tea and Coconut. Principles of fruit preservation. Preparation of Jam, Jelly and marmalade.

Horticulture"Vegetables and Ornamental crops"
Paper-II
Section "A"

Importance and scope of vegetable and ornamental crops. Vegetable garden, Classification of vegetable crops. Area, Production and Package of practices:- Tomato, Brinjal, Chilli, Okra, Watermelon, Muskmelon, Bottlegourd, Bittergourd, Cabbage, Cauliflower, Onion, Garlic, Beans, French bean, Pea, Potato, Elephant foot, Carrot, Radish, Amaranthus and Palak. Use of phytohormones in vegetable production. Organic production of vegetable. Protected cultivation of vegetables. Off season vegetable production. Fertigation. Principles of vegetable preservation. Drying, Dehydration and canning of vegetables.

Section "B'

Importance of floriculture and ornamental gardens. Planning of ornamental garden. Style of garden and components of a garden. Use of trees, Shrubs and Climbers, Palm, Succulents and seasonal flowers in the garden. Package of practices for rose, Jasmine, Carnation, Marigold, Tuberose and gladiolus. Use of phytohormones in ornamental crops. Loose, cut and dry flowers. Medicinal and aromatic plant and spices.

Environmental Science
Paper First
Part-A

- Basics of Environmental Science, Definition meaning and Scope. Importance of the study of Environmental Science. Environmental Segments: Geosphere, lithosphere, Hydrosphere, atmosphere and biosphere- their spread, composition and Inter relationships.
- **Environmental and ecological principles:** Ecological terminology and definitions, level of organization, habitat and niche, individual, species, population. Community, biome and ecosystem organization.
- **Ecological Succession:** Hydrarch and xerarch, concept of climax and seral communities
- **Concept of ecosystem:** biotic and abiotic components, structural and functional attributes of ecosystem, productivity, energy flow, food chain, food web and ecological pyramids, terrestrial and aquatic ecosystems. Biogeochemical cycles of C, N and P and hydrological cycle.

Part-B

- **Natural resources:-** water--its sources, surface and ground water, global distribution and uses of water, water crisis and conservational strategies.
- Soil and land, resources of India and its uses, conservational strategies and Integrated land use planning.
- **Minerals and matters-** their uses and mining operations.
- Forest resources of India, forest cover, community and social forestry, afforestation programmes, forest conservation Act and national forest conservation strategy.
- Biodiversity and its significance, Keystone species and hot spots, measurements of biodiversity, cause of biodiversity loss, conservation of biodiversity
- in-situ and ex-situ conservation. Biological diversity Act.
- Wildlife sanctuaries and national parks in India, Wildlife conservation Act, concept of biosphere reserves.
- Renewable and non renewable sources of energy and its optimization.

Environmental Science
Paper- Second
Part-A

- Environmental disruptions, soil erosion, deforestation, drought, flood, fire and desertification- processes, causal factors and their mitigative measures.
- Environmental pollution: Air pollution-sources, effects on plants, animal, man and monuments and their Control measures, Air quality standards.
- Water pollution, types and major sources of water pollutants, effects of water pollutants on physico-chemical and biological properties of water bodies, process and control of eutrophication, water born diseases with special reference to water pollution.
- Types and major sources of soil pollutants, effects of soil pollutants on fertility and biological properties of soil.
- Major sources of noise pollution, effects of noise on human health.
- Anthropogenic and other biotic activities grazing, burning and mining etc. and their impact on environment and agriculture, effect of industrialization on environment.
- Introduction to global environmental problems viz: acid rain, ozone depletion, green house gases, Global warming and climatic changes.
- Solid waste disposal and its effects on surrounding environment and management, waste management in domestic, industrial and urban areas, energy generation from wastes.

Part-B

- Introduction and scope of environmental management, environmental ethics and dharma of ecology.
- Basic concepts of sustainable development, industrial ecology and recycling industry.
- Basic environmental laws and acts viz: Environmental protection Act, Air Act, Water Act.
- National and international Environmental conservation strategies and organizations.
- Population and Environment, concept of carrying capacity and population regulation.
- Natural Disasters: causes and effects of cyclone, tornadoes, earthquake, avalanches, land slides and volcanoes, disaster warning, mitigation, preparedness and management.
- Environmental education and awareness, concept and practice of restoration ecology.
- Current Environmental issues and priorities in India for environmental management.

Appendix-7
Relevant Service Rules of related Posts

(I) The Uttar Pradesh Civil Service (Executive Branch) Rules, 1982 (As Amended)
(ii) The Uttar Pradesh Industries (Directorate of Handloom and Textiles) Service Rules, 1993 (As Amended)
(iii) The Uttar Pradesh Minority Welfare Department Gazetted Officers Service Rules, 2001 (As Amended)
(iv) The Uttar Pradesh Labour Service Rules, 1991 (As Amended)
(v) The Uttar Pradesh Public Works Department Research Institute (Scientific Branch) Service Rules,1992 (As Amended)
(vi) The Uttar Pradesh Transport (Subordinate) Prosecution Service Rules, 1979 (As Amended)
(vii) The Uttar Pradesh Food Safety and Drug Administration Department (Food Safety Cadre) (Group-A, B & C) Service Rules, 2012 (As Amended)
(viii) The Uttar Pradesh Co-operative and Panchayat Audit Service Rules, 2015
(ix) The Uttar Pradesh Family Welfare District Administrative Officers Service Rules, 1992
(x) The Uttar Pradesh Subordinate Labour Service Rules, 1992 (As Amended)
(xi) The Uttar Pradesh Youth Welfare and Prantiya Rakshak Dal /Pradeshik Vikas Dal Officer's Service Rules, 2013 (As Amended)
(xii) The Uttar Pradesh Local Fund Audit Service Rules, 2015
(xiii) The Uttar Pradesh Co-operative Service Rules, 1979 (As Amended)
(xiv) The Uttar Pradesh Directorate of Geology and Mining Subordinate Technical Service Rules, 1987 (As Amended)

Secretary