

दो (जैसे कि उत्तर प्रदेश लोक सेवा) (अनुसूचित जातियों, अनुसूचित जन जातियों और अन्य पिछड़े वर्गों के लिये आरक्षण) (संशोधन) अधिनियम, 2001 द्वारा प्रतिस्थापित किया गया है एवं जो उत्तर प्रदेश लोक सेवा (अनुसूचित जातियों, अनुसूचित जन जातियों 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 पांच 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/वृत्तमारी ..... तथा/अथवा उनका परिवार उत्तर प्रदेश के ..... जिले में सामान्यतया रहता है।

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

**उ.प्र. के विकलांगों के लिये प्रमाण-पत्र**  
**CERTIFICATE FOR PHYSICALLY HANDICAP OF U.P.**

NAME & ADDRESS OF THE INSTITUTE/HOSPITAL  
Certificate No..... Date .....

**DISABILITY CERTIFICATE**

Recent Photograph of the candidate showing the disability duly attested by the Chairperson of the Medical Board.

This is certified that Shri/Smt/Kum.....  
son/wife/daughter of Shri.....age.....  
sex.....identification mark (S).....is suffering from permanent disability of following category:

- A. Locomotor or cerebral palsy:**
- (i) BL-Both legs affected but not arms.
  - (ii) BA-Both arms affected
    - (a) Impaired reach
    - (b) Weakness of grip
  - (iii) BLA-Both legs and both arms affected
  - (iv) OL-One leg affected (right or left)
    - (a) Impaired reach
    - (b) Weakness of grip
  - (v) OA-One arm affected
    - (a) Impaired reach
    - (b) Weakness of grip
    - (c) Ataxic
  - (vi) BH-Stiff back and hips (Cannot sit or stoop)
  - (vii) MW-Muscular weakness and limited physical endurance.
- B. Blindness or Low Vision:**
- (i) B-Blind
  - (ii) PB-Partially Blind
- C. Hearing impairment:**
- (i) D-Deaf
  - (ii) PD-Partially Deaf
- (Delete the category whichever is not applicable)
2. This condition is progressive/non-progressive/likely to improve/not likely to improve. Re-assessn of this case is not recommended/is recommended after a period of.....year.....months.
3. Percentage of disability in his/her case is.....percent.
4. Sh./Smt./Kum. ....meets the following physical requirements discharge of his/her duties:
- (i) F-can perform work by manipulating with fingers. Yes/No
  - (ii) PP-can perform work by pulling and pushing. Yes/No
  - (iii) L-can perform work by lifting. Yes/No
  - (iv) KC-can perform work by kneeling and crouching. Yes/No
  - (v) B-can perform work by bending. Yes/No
  - (vi) S-can perform work by sitting. Yes/No
  - (vii) ST-can perform work by standing. Yes/No
  - (viii) W-can perform work by walking. Yes/No
  - (ix) SE-can perform work by seeing. Yes/No
  - (x) H-can perform work by hearing/speaking. Yes/No
  - (xi) RW-can perform work by reading and writing. Yes/No

(Dr. ....) (Dr. ....) (Dr. ....)  
Member Member Chairperson  
Medical Board Medical Board Medical Board

Countersigned by the  
Medical Superintendent/CMO/HQ  
Hospital (with seal)

Strike out which is not applicable.

**उ.प्र. के स्वतंत्रता संग्राम सेनानियों के आश्रितों के लिए प्रमाण-पत्र**

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी..... निवासी..... ग्राम.....  
तहसील..... जिला..... उत्तर प्रदेश लोक सेवा (शासिक रूप से विकलांग,  
स्वतंत्रता संग्राम सेनानियों के आश्रित और भूतपूर्व सैनिक के लिए आरक्षण) अधिनियम 1993 के अनुसार स्वतंत्रता संग्राम सेनानी हैं और श्री/श्रीमती/कुमारी (आश्रित)..... पुत्र/पुत्री/पौत्र/पौत्री उपर्युक्त अधिनियम 1993 के ही प्रावधानों के अनुसार उक्त श्री/श्रीमती (स्वतंत्रता संग्राम सेनानी)..... के आश्रित हैं।

हस्ताक्षर.....  
स्थान..... पूरा नाम.....  
दिनांक..... मुहर.....  
जिलाधिकारी.....  
सील.....

**कुशल खिलाड़ियों के लिये प्रमाण-पत्र जो उ.प्र. के मूल निवासी हैं**  
**शासनादेश संख्या-22/21/1983-कामिक-2 दिनांक 28 नवम्बर, 1985**  
**प्रमाण-पत्र के फार्म - 1 से 4 प्रारूप - 1**

(मान्यता प्राप्त क्रीडा/खेल में अपने देश की ओर से अन्तराष्ट्रीय 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/वृत्तमारी..... आत्मज/पत्नी/आत्मजा श्री..... निवासी..... ने दिनांक..... से दिनांक..... तक..... (स्थान का नाम) में आयोजित..... (क्रीडा/खेल-कूद का नाम) की प्रतियोगिता/दूर्नामेन्ट में देश की ओर से भाग लिया।  
उनके टीम के द्वारा उक्त प्रतियोगिता/दूर्नामेन्ट 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 क्रीडा/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 लिये प्रमाण-पत्र

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी..... आत्मज/पत्नी/आत्मजा श्री..... निवासी (पूरा पता)..... से दिनांक..... तक..... (क्रीडा/खेल-कूद का नाम) की प्रतियोगिता/दूर्नामेन्ट में..... स्थान प्राप्त किया गया।  
उनके टीम के द्वारा उक्त प्रतियोगिता/दूर्नामेन्ट 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 क्रीडा/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 लिये कुशल खिलाड़ियों के लिए प्रमाण-पत्र

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी..... आत्मज/पत्नी/आत्मजा श्री..... निवासी (पूरा नाम)..... के विद्यार्थी ने दिनांक..... से दिनांक..... तक..... (स्थान का नाम) में आयोजित अन्तर्विश्वविद्यालय

..... (क्रीडा/खेल-कूद का नाम) प्रतियोगिता/दूर्नामेन्ट में..... विश्वविद्यालय की ओर से भाग लिया। उनके टीम के द्वारा उक्त प्रतियोगिता/दूर्नामेन्ट में..... स्थान प्राप्त किया गया। यह प्रमाण-पत्र डीन आफ 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 आफ स्पोर्ट्स या इंचार्ज खेल-कूद द्वारा व्यक्तिगत रूप से किये गये हस्ताक्षर होने पर ही मान्य होगा।

**प्रारूप - 4**

(मान्यता प्राप्त क्रीडा/खेल में अपने स्कूल की ओर से राष्ट्रीय खेल-कूद में भाग लेने वाले खिलाड़ी के लिये)  
डायरेक्ट्रेट आफ पब्लिक इन्स्ट्रक्शन्स/निदेशक, शिक्षा, उत्तर प्रदेश..... राज्य स्तर की सेवाओं/पदों पर नियुक्ति के लिये कुशल खिलाड़ियों के लिये प्रमाण-पत्र

प्रमाणित किया जाता है कि श्री/श्रीमती/कुमारी..... आत्मज/पत्नी/आत्मजा श्री..... निवासी (पूरा नाम)..... से दिनांक..... तक..... (क्रीडा/खेल-कूद का नाम) प्रतियोगिता/दूर्नामेन्ट में..... स्थान प्राप्त किया गया।  
उनके टीम के द्वारा उक्त प्रतियोगिता/दूर्नामेन्ट में..... स्थान प्राप्त किया गया।  
यह प्रमाण-पत्र डायरेक्ट्रेट आफ 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 डायरेक्ट्रेट ऑफ पब्लिक इन्स्ट्रक्शन्स/शिक्षा..... द्वारा व्यक्तिगत रूप से हस्ताक्षर होने पर मान्य होगा।

**APPENDIX - III**  
**PLAN OF EXAMINATION :** The competitive examination 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 will consist of two compulsory papers of which answer sheet be on OMR sheets. The syllabus is mentioned in Appendix-IV 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 150-150 questions. 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.

**SUBJECTS FOR THE MAIN (WRITTEN) EXAMINATION :** The Written examination will consist of the following compulsory and optional subjects. The syllabus whereof is mentioned in Appendix-V of this advertisement. The candidates have to select any two subjects from the list of optional subjects for main examination. Each optional subject will consist of two papers.

- (A) COMPULSORY SUBJECTS**
- 1. General Hindi 150 marks
  - 2. Essay 150 marks
  - 3. General Studies (i-Paper) 200 marks
  - 4. General Studies (ii-Paper) 200 marks
- General studies paper - I & Paper - II :** Shall be objective type containing 150 questions and for solving the questions two hours time is allowed. For other compulsory and optional papers three hours time is allowed. Two hundred maximum marks has been allotted for each optional question paper.
- Note :** 1. Timing of Examination paper of 2 hours will be 9.30 am to 11.30 am and 2.30 pm to 4.30 pm. 2. Timing of examination paper of 3 hours is 9.30 am to 12.30 am & 2 pm to 5 pm. 3. A candidate shall be required to obtain such minimum marks in the compulsory paper of General Hindi, as may be determined by the Government or the Commission, as the case may be. There shall be Two sections in all the question papers of all Optional subjects and each section will include Four questions. Candidates are required to answer only Five questions while they must select minimum, Two question from each section.
- (B) OPTIONAL SUBJECT ARE AS BELOW**
- |                       |   |                        |                        |               |             |
|-----------------------|---|------------------------|------------------------|---------------|-------------|
| Agriculture           | Zology                                      | Chemistry              | Physics                | Mathematics   | Geogra-     |
| phy Economics         | Sociology                                   | Philosophy             | Geology                |               |             |
| Psychology            | Botany                                      | Law                    | Animal Husbandry       | Statistics    |             |
|                       |   |                        | & Veterinary Science   |               |             |
| Management            | Political Science & International Relations |                        | History                | Social Work   |             |
| Anthropology          | Civil Engineering                           | Mechanical Engineering | Electrical Engineering | English Lit.  |             |
| Urdu Lit.             | Arabic Lit.                                 | Hindi Lit.             | Persian Lit.           | Sanskrit Lit. | Comerce &   |
| Public Administration |   |                        |                        |               | Accountancy |
| Defence Studies       |   |                        |                        |               |             |

**Note:** A candidate will not be allowed to offer more than one subject from the -

**Group 'A'**  
1. Social Work  
2. Anthropology  
3. Sociology

**Group 'B'**  
1. Mathematics  
2. Statistics

**Group 'C'**  
1. Agriculture  
2. Animal Husbandry and Veterinary Science

**Group 'D'**  
1. Civil Engineering  
2. Mechanical Engineering  
3. Electrical Engineering  
4. Agriculture Engineering

**Group 'E'**  
1. English Literature  
2. Hindi Literature  
3. Urdu Literature  
4. Arabic Literature  
5. Persian Literature  
6. Sanskrit Literature

**Group 'F'**  
1. Political Science and International Relations  
2. Public Administration

**Group 'G'**  
1. Management  
2. Public Administration

**(C) PERSONALITY TEST (VIVA-VOCE) TOTAL MARKS 200**  
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 - IV**  
**SYLLABUS FOR THE PRELIMINARY EXAMINATION**

- PAPER - I (200 marks) Duration: Two hours**
- Current events of national and international importance.
  - History of India and Indian National Movement.
  - Indian 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
- PAPER-II (200 marks) Duration: Two hours**
- 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- Arithmetic, Algebra, Geometry and Statistics.
  - General English upto Class X level.
  - General Hindi upto Class X level.

**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 and 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.

**Indian 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:-** Candidate are expected to have general awareness about the above subjects with special reference to Uttar Pradesh.

**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 curves (ogives), Measures of Central tendency: Arithmetic mean, Median and Mode.

**GENERAL ENGLISH UPTO CLASS X LEVEL**

(1) Comprehension.

Continued....

- (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 चिह्न,
- (2) शब्द रचना, वाक्य रचना, अर्थ,
- (3) शब्द-रूप,
- (4) संधि, समास,
- (5) क्रियाएँ,
- (6) अनेकार्थी शब्द,
- (7) विलोम शब्द,
- (8) पर्यायवाची शब्द,
- (9) मुहावरे एवं लोकोक्तियाँ,
- (10) उत्सम एवं तद्भव, देशज, विदेशी (शब्द भंडार)
- (11) वर्तनी
- (12) अर्थबोध
- (13) हिन्दी भाषा के प्रयोग में होने वाली अशुद्धियाँ
- (14) उठपठ की मुख्य बोलियाँ

#### RULES AND SYLLABUS FOR THE MAIN 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 and optional subjects 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.

#### APPENDIX - V : MAIN EXAMINATION GENERAL STUDIES, PAPER-I

1. History of India-Ancient, Mediaeval, 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, culture Agriculture, 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 the 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.

#### 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.

#### 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।

#### AGRICULTURE : Paper- I (SECTION - A)

Ecology And its Relevance to man.natural resources. their management and conservation. Environment factors of cropdistribution and production. climatic elements as factor of crop growth. impact of changing environment on cropping pattern.Environmental pollution and associated hazards to crops animals and humans.cropping patterns in different agro.climatic zones of U.P.impact of high yieldingand short duration varieties on shifts in cropping patterns. Concepts of multiple cropping.multistorey.relay and intercropping and their importance in relation to sustainable crop production. package of practices for production of important cereals, pulses, oilseedes, fibre, suger and cash crop grown during Kharif and Rabi seasons in different regions of U.P. important features, scopes and propagation of various type of forestry plants with reference to agro, forestry and social forestry, weeds, their characteristics, dissemination and association with various field crops, their multiplication, cultural biological and chemical control of weeds.

Processes and factors of soil formation, classification of Indian soils including modern concepts. Mineral and organic constituent of soils and their role in maintaining soil productivity. Problems soil, extent and distribution in India and their reclamation. Essential plant nutrients and other beneficial elements in soils and plants, their occurrence, factors affecting their distribution, function and cycling on soil. Symbiotic and non symbiotic nitrogen fixation. Principles of soil fertility and its evaluation for judicial fertiliser use. Soil conservation planning on water shed basis, erosion nitrogen and run off management in hillfeet hills and valley lands; processes and factors affecting them. Dryland agriculture and its problems. Technology for stabilising agriculture production in rained agriculture area of U.P.

#### SECTION- B

Water use efficiency in relation to crop production, criteria for scheduling irrigations, ways and means of reducing run off losses of irrigation water. Drainage of water-logged soils. Form management scope importance and characteristics, farm planning and budgeting. Economics of different types of farming systems. Marketing and pricing of agriculture inputs and outputs, price fluctuations and their cost, role of co-operatives in agricultural economy, types and system of farming and factors affecting them. Agricultural extension, its importance and role, method of evaluation of extension programmes, diffusion, communication and adoption of innovations, people's participation and production and motivation, Farm mechanization and its role in agricultural production and rural employment Training programme for extension workers and farmers, Extension systems and programmes. Training & Visits, KVK, KKG, NATP and IFLP.

#### PAPER - II (SECTION-A)

Heredity and variation, Mendel's law of inheritance, Chromosomal theory of inheritance. Cytoplasmic inheritance. Sex linked, Sex influenced and sex limited characters. Spontaneous and induced mutations. Role of chemicals in mutation. Origin and domestication and field crop. Morphological patterns of venetions in varieties and related species of important field crop. Cause and utilization of variation in crops improvement. Application of the principles of plant breeding to the improvement of major field crops, methods of breeding to self and cross-pollinated crops, Introduction, selection, hybridization, Male sterility and self incompatibility, utilizator of mutation and polyploidy in breeding. Seed technology and its importance production, processing, storage and testing of seeds. Role of national and state seed organization in production, Processing and marketing of improved seeds. Physiology and its significance in agriculture, physical properties and chemical constitution of protoplasm, inhibition, surface tension, diffusion and osmosis, absorption and translocation of water, transpiration and water economy.

#### SECTION- B

Enzymes and plant pigments, Photosynthesis-modern concepts and factors effecting the process, aerobic and anaerobic respiration, Growth and development. Photoperiodisms and vernalization. Plant growth regulators and their mechanism of action & importance in crop production. Climatic requirements and cultivation of major fruits and vegetable crops; package of practices and the scientific basis for the same. Pre and post harvest physiology of fruits and vegetables. Principle method of preservation of fruits and vegetables, Processing techniques and equipment. Landscape and Floriculture including raising of ornamental plant. Design and layout of lawns and gardens. Diseases and pests of vegetables, fruits and plantation crops of U.P. and measures to control plant diseases, integrated management of pests and diseases. Pesticides and their formulations, plant protection equipment, their care and maintenance. Storage pest of cereals and pulses, hygiene of storage, godowns, preservation and remedial measures, Food production and consumption trends. In India, National and International food policies, Procurements, distribution, processing and production constraints.

#### ZOOLOGY : PAPER-I

Non Chordata, Chordata, Ecology, Ethology, Biostatistics and Economic Zoology.

#### SECTION A-NON-CHORDATA AND CHORDATA

1. **General Survey:** Classification and Interrelationship of various Phyla. 2. **Protozoa:** Locomotion, Nutrition, Reproduction and Human Parasite. 3. **Porifers:** Canal system; Skeleton and Reproduction. 4. **Cnidaris:** Polymorphism; Coral reefs Metagenesis. 5. **Helminthiases:** Parasitic adaptation and host-parasite relationships. 6. **Annelida:** Adaptive radiation in Polychaeta. 7. **Arthropoda:** Larval form and parasitism in Crustacea. Appendages of prawn: Vision and respiration in Arthropoda, Social life and metamorphosis in insects. 8. **Mollusca:** Respiration, Pearl formation. 9. **Echinodermata:** General organisation, larval forms and affinities. 10. **Chordata:** Origin: Lung fishes; Origin of tetrapods. 11. **Amphibis:** Neoteny and parental care. 12. **Rep-**

tilia: Skull types (Anapsid; Diapsid; Parapsid and synpaid) Dinosaurs. 13. **Aves:** Origin aerial adaptations and migration; Flightless birds. 14. **Mammalia:** Prototheria and Metatheria: Skin derivatives of Eutheria.

#### SECTION- B- Ecology, Ethology, Biostatistics and Economic Zoology.

1. **Ecology:** Abiotic and biotic factors; Inter and intraspecific relations, ecological succession; Different types of biomes; Biogeochemical cycles. Food web; Ozone layer and Biosphere; Pollution of air, water and land. 2. **Ethology:** Types of animal behaviour, Role of hormones and phenomones in behaviour; Methods of studying animal behaviour, Biological rhythms. 3. **Biostatistics:** Sampling methods, frequency distribution and measures of central tendency, standard deviation, standard error correlation and regression chi-square and t-test. 4. **Economic Zoology:** Insect pests of crops (Paddy, Gram and Sugarcane) and stored grains, Agriculture, Sericulture, Lacculture, pisciculture and Oyster culture.

#### PAPER- II

Cell Biology Genetics, Evolution and Systematics, Bio-Chemistry, Physiology and Development Biology.

#### SECTION- A

1. **Cell Biology:** Cell membrane, Active transport and Sodium potassium AT Pase Pump, Mitochondria, Golgibodies; endoplasmic reticulum; ribosomes and lysosomes; cell division mitotic spinal and chromosome movements and meiosis, chromosome mapping Gene concept and function; Watson-Crick model of DNA, Genetic code Protein synthesis, Sex chromosomes and sex determination. 2. **Genetics:** Mendelian laws of inheritance, recombination linkage and linkage maps, multiple alleles, mutation (natural and induced, mutation and evolution, chromosome number and form structural rearrangements, polyploidy, regulation of gene expression in prokaryotes and eukaryotes; Human corosomal abnormalities, gene and diseases, Eugenics, Genetic engineering, recombinant DNA technology and gene cloning. 3. **Evolution and systematics:** Theories of evaluation; sources and nature of organic variation; natural selection; Hardy Weinberg law; cryptic and cematic colouration; mimicry; isolating mechanisms and their role, insular fauds, concept of species and sub-species; principles of taxonomy; Zoological nomenclature and International code; Fossils; Geological Bras; Phylogeny of horse and elephant; origin and evolution of man; principles and theories of continental distribution of animals; Zoogeographical realms of the world.

#### SECTION - B - Biochemistry, Physiology and Development Biology.

1. **Biochemistry:** Structure of carbohydrates, lipids (including saturated and unsaturated fatty acids) amino acids, proteins and nucleic acides, Glycolysis; Kreb's cycle, Oxidation and reduction, oxidative phosphorylation, Energy conservation and release. ATPC-AMP; types of enzymes, mechanism of enzyme action; Immunoglobulins and immunity; vitamins, 2. **Physiology (with special reference to mammals):** Composition of blood, blood group in man, agglutination; oxygen and carbon dioxide transport, haemoglobin, breathing and its regulation Formation of urea and urine, acide-base balance and homeostasis; Thermo-regulation in Man; Nerve impulse conduction and transmission across synpse, neurotransmitters; Vision, hearing and olfaction; Types of muscles; Digestion and absorption of protein, carbohydrate, fat and nucleic acid, control of secretion of digestive juices, balanced diet of man, steroid, protein peptide and aminoacids, driven hormones; role of hypothalamus, pituitary thyroid, parathyroid, pancreas, adrenal glands and pineal organ and their relationship, physiology of human reproduction, hormonal control of development in man; Pheromones in mammals. 3. **Development Biology:** Gametogenesis, fertilisation, types of eggs, cleavage and gastrulation in Brachirotoma frog and chick; fate maps of frog and chick; metamorphosis in frog; formation and fate of extra embryonic membrane in chick; formation of amino allantois and types of placenta in mammals, organiser phenomenon, regeneration genetic control of development organogenesis of brain, eye and heart; aging.

#### 3. CHEMISTRY: PAPER-I

**Atomic Structure :** Bohr's model and its limitation de Broglie equation, Heisenberg's suncertainty principle, quantum mechanical operators and the Schrodinger wave equation, physical significance of wave function and its characteristics (normalized orthogonal), radial distribution and shapes of s.p.d. and f-orbitals, particle in a one-dimensional box, quantisation of electronic energies (qualitative treatment of hydrogen atom). Paul's Exclusion principle. Hund's rule of maximum multiplicity, Aufbau principle, Electronic configuration of atoms, Long form of periodic table including translawrencium elements. Periodicity in progeties of the elements such as atomic and ionic radionization potential election affinity, electronegativity and hydration energy.

**Nuclear and Radiation Chemistry :** Structure of nucleus (shell model), nuclear forces, nuclear stability-NP ration, nuclear binding energy Kinetics, detection and measurement of radioactivity, Artificial transmutation of elements and nuclear reactions, nuclear fission & fusion, radioactive isotopes and their applications. Radio cartoon dating, Elementary ideas of radiation chemistry, radiolysis of water and aqueous solution, unit of radiation, chemical yield (G-value), Fricke's dosimetry. **Chemical Bonding :** Valence bond theory (Heitler-London and Pauling-Slater theories), hybridization, VSEPR theory and molecular orbital energy lever diagrams, for homo and hetro nuclear diatomic molecules, bond order, bond length and bond strength, signa- and p-bonds, hydrogen bond, characteristics of covalent bond. **Chemistry of s- and p-block elements :** General properties of s-and p-block elements, chemical reactivity of elements and group trends. Chemical behaviour with respect of their hybrids, halidas and oxides. **Chemistry of Transition Elements :** General Characteristics, variable oxidation stases, complex formation, colour, magnetic and catalytic properties. Comparative study of 4d and 5d transition elements with 3d analogues with respect to their ionic radil, oxidation stasis and magnetic properties. **Chemistry of Lanthanides and Actinides :** Lanthanide contraction, oxidation stasis, Principles of separation of lanthanides and actinides. Magnetic and spectral properties of their compounds. **Coordination Chemistry :** Werner's Theory of coordination compounds. IUPAC system of nomenclature, effective atomic number (EAN) Isomerism in coordination compounds. Valence bond theory and its limitations. Crystal held theory, Crystal held splitting of d-orbitals in octahedral, tetrahedral and square planer complexes. Eq and factors affecting its magnitude, calculation of Crystal held stabilisation energies (CFSE) for d1 to d9 week and strong field, octahedral complexes, spectrochemical series. Electronic spectre of d-transition metal complexes, types of electronic transitions, selection rules for electronic transitions, Spectroscopic ground states for d1 to d10 systems. **Bio-Inorganic Chemistry:** Essential and trace elements in biological processes, Metalloporphyrins with special reference to haemoglobin and myoglobin, Biological role of alkali and alkaline earth metal ions with special reference to Ca2+.

**Preparation, Properties and Uses of the following Inorganic Compounds :** Heavy water, boric acid, diborane, hydrazine, hydroxylamine, potassium dicromate, potassium permanganate, Ce (IV) sulphate and titanium (III) sulphate. **Polymers :** Molecular weight of polymers by sedimentation light scattering viscosity and osmotic pressure. Number average and weight average molecular weights, elasticity and crystallinity of polymers. **Borazines :** Silicons and phosphonitric halide polymers. **Chemical Thermodynamics :** Thermodynamic functions, Laws of thermodynamics and their applications to various physico-chemical process. Concept of chemical potential. Glibbs Duhem equation, Classius-Clapeyron equation, thermodynamic treatment of colligative properties. **Chemical Kinetics:** Order and molecularity of a reaction Rate laws, methods for determining the order of a reaction. Energy of activation, Collision theory of reaction rate. Steady state approximations. Transition state, theory of reaction rates, consecutive and side reactions. **Phase Equilibria :** Phases, components, degrees of freedom, phase diagram of one and two component systems, Nearest distribution law, Applications of distribution law. **Electrochemistry :** Theory of strong electrolytes. Debye-Huckert theory of activity coefficient laws of electrolytic conduction, transport number determination of transport number (Hittorts and moving boundary method). Applications of conductance for determining the solubility and solubility products. Ionic equilibria, ionic product of water, pH, acid-base indicators, common ion effect, buffer solubility buffer index, buffer capacity solubility product and applications in analysis. **Solid State Chemistry :** Classification of solids, seven crystal systems, elements of symmetry in crystals, space lattice and unit cell, classification of crystals on the basis of bond types ionic solids, metallic solids, covalent solids, and molecular solids. The close packing of spheres, hexagonal close ionic solids, metallic solids, covalent solids, and molecular solids. The close packing of spheres, hexagonal close packing, cubic close packing and body centered cubic packing, coordination number and radius ratio effect. Bargg's law of X-ray diffraction, powder pattern method, crystal structure of NaCl and KCl. **Surface Chemistry:** Stability of and origin of charge on colloids, Electrokinetic potential. Physical and chemical absorption, various types of adsorption isotherms. Homogenous and heterogeneous catalysis enzyme catalysis (Michelis-Menton) equation. **Molecular Spectra :** Rotational Spectra Rigid and non-rigid rotator models. Determination of bond distance of diatomic molecules, linear triatomic molecules isotopic substitution. **Vibrational-Rotational Spectra :** Harmonic and anharmonic vibrations, vibrational energies of diatomic molecules, zero point energy, evaluation of force constant. Fundamental frequencies, overtones, trot bands, degrees of freedom of polyatomic molecules. Concept of group frequencies. **Raman Spectra :** Raman effect stokes and antistokes fines and their intensity difference. Rule of mutual exclusion. **Electronic Spectra :** Electronic transitions, Frank con-dom Principle, Phosphorescence and fluorescence.

#### PAPER- II

**General Organic Chemistry :** Electronic displacement inductive, electromeric and mesmoeric effects, Conjugation and hyperconjugation, Resonance and its application to organic compounds, Electrophilies, nucleophilies, carbocations, carbanions and free radical. Organic acids and bases. Effects of structure on the strength of organic acids and bases. Hydrogen bond and its effect on the properties of organic compounds. **Concepts of Organic Reaction Mechanism :** Mechanism of addition, substitution, elimination, reactions and molecular rearrangements, Mechanism of Electrophilic and nucleophilic automatic substitution. Mechanism of the following reactions : Aldol condensation, Claims condensation Beckmann rearrangement, Perkin reaction, Reiner-Tiemann reaction, Cannizzaro's reaction, Friedel Craft's reaction, Refonnatsky's reaction and Wagner-Meerwein rearrangement. **Aliphatic Compounds :** Chemistry of simple organic compounds belonging to following classes with special reference to the mechanisms of the reactions involved therein, alkanes, alkenes, alkynes alkyl, halides, alcohol, ethers, thiols aldehydes, ketones, a busnaltruated carbonyl compounds, acids and their derivatives, amines, aminoacids, hydroxy acids, unsaturated acids and diabasic acids, Synthetic uses of malonic easier acetoaceliceasier, Gridnand's reagent, carbene, diazomelhane and phosphoranes. **Carbohydrates :** Classification, configuration and general reaction of simple monosaccharides. Ozone formation, mutarotation, pyranose and furanose structures. Chain lengthening and chain shortening in aidoses and Kethses. Interconversion of glucose and fructose. **Stereochemistry and conformations :** Elements of symmetry, optical and geometrical isomerism in simple organic compounds. Absolute configuration (R & S); confugations of geometrical isomers, E & Z notations, Conformation of mono and distributed cyciohexnaes. Boat and chair form, **Aromatic Compounds :** Modern structure of benzene; Concept of aromaticity. Huckle rule and its simple application to non-benzenoid aromatic compounds. Activating and deactivating effect of substituent groups, directive influence. Study of the compounds containing following groups attached to the alky and benzene ring halogen, hydroxy, nitro and amino groups. Sulphonic acids, benzaldelyde, salicy dehyde, acetophenone, Benzoic, salicylic, phthalic, cannamic and mandelic acids. **Naphthalene & Pyridine :** Synthesis, structure and important reactions. **Alkaloids :** General methods of structure elucidation of alkaloids, chemistry of nicotine. **Organic Polymers :** Mechanism of polymerization, polymers of industrial importance, synthetic fibers, **Chemistry of Living Cells :** A Brief introduction, chemical constituents, cell membranes, acid base balance, Diffusion and active transport. Donnan membranes equilibria. **Enzymes and Coenzymes :** Nomenclature and characteristics, factors which affect enzyme activity. **NMR Spectroscopy :** Principle of PMR, chemical shift, spin-spin coupling, interpretation of PMR spectra of simple organic molecules. **Evaluation of analytical Data :** Errors, accuracy and precision. Relative and standard deviation rejection of doubtful, observations, t-test, Q-test. **Solvent Extraction :** Distribution law, Craigs concept of counter-current distribution, important solvent extraction systems. **Chromatography :** Classification of Chro-

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