APPENDIX - I

SCHEME AND SYLLABUS OF EXAMINATION FOR THE PURPOSE OF FILLING UP THE POST OF SCIENTIFIC OFFICER (BIOLOGY), SCIENTIFIC OFFICER (QUESTIONED DOCUMENTS), SCIENTIFIC OFFICER (CHEMISTRY);-

1. The examination will consist of 2 papers:-

PAPERS	SUBJECT	FULL MARKS	TIME ALLOWED
PAPER-I	General English & General Knowledge	100 MCQ/ Conventional	2.00 hours.
PAPER-II	Compulsory Subject in their respective Specialized discipline	300 MCQ & Conventional	3.00 hours.
VIVA-VOCE/Personality Test- 50 marks			

2. *PAPER-I: GENERAL ENGLISH*

The question will be designed to test the candidate's understanding and command of the English language. Mode of Examination patter shall be objective MCQ, Conventional/MCQ for both Paper-I, General English-General Knowledge and Paper-II (Compulsory Subject in their respective specialized discipline).

English: Candidate will be required to answer questions designed to test their understanding of English and workman like use of words. The patterns of questions would be broadly as follows;-

i. Comprehension & Grammar.
ii. Letter Writing/Report Writing/Project Writing

General Knowledge: Knowledge of current events of local, National and International importance and of such matter of everyday observation and experience in their scientific aspects as may be expected of any educated person who has not made a special study of any scientific subject.

3. **PAPER-II**
FORENSIC BIOLOGY AND SEROLOGY
UNIT 1: FORENSIC BIOLOGY:

1. **Microscopy:** Basic Microscopy, Basics of PCR, electrophoresis, centrifugation.
2. **Biological Evidence:** Significance of hair and fiber evidence. Transfer, persistence and recovery of hair evidence. Comparison of hair and fiber samples. Comparison of human and animal hair. Identification of wood, leaves, pollens as botanical evidence. Diatoms and their forensic significance.
3. **Wildlife Forensics Fundamentals**: Significance of wildlife forensic. Illegal trading in wildlife items, such as skin, fur, bone, horn, teeth.
4. **Introduction to osteology and odontology:** Examination and identification of skeletal remains and determination of age, sex, race and stature. Osteometric and somatometric analysis for facial reconstruction of living and dead.
5. **General Biology**: Insects and their forensic significance. Antigens- & Antibodies. Agglutination, Precipitation. DNA fingerprinting and its applications in forensics.

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UNIT II: FORENSIC SEROLOGY:

1. **Immuno-chemical Techniques:** Precipitin reaction, Gel immune-diffusion technique.
2. **Forensic Importance of Body fluids**: Common body fluids. Collection and preservation of blood evidence. Distinction between human and non-human blood. Determination of blood groups.
   Semen: Forensic significance of semen. Collection, evaluation and tests for identification of semen. Individualization on the basic of semen examination. Tests for the identification of saliva, sweat, milk and urine. Distinction between and human and non-human body fluids. Determination of blood groups from other body fluids.

4. SYLLABUS FOR QUESTIONED DOCUMENTS

UNIT 1

Definition of terms

Document, characteristic (general and individual), holographic documents, disputed documents (questioned document), opinion, document examiner, microscopic examination, natural variation, transmitted light examination, infra-red, ultraviolet examination. Terms-arc, beard, buckle, body, eye, foot, hook, loop, oval, retrace, shoulder, spur, staff, tick, cross bar, sheriff, vertices, arm and terminal.

UNIT II

Alteration in documents.

Altered documents, addition alteration, alteration by cutting, restoration by different method, advantages and disadvantage, decipherment. Erasure by chemicals, abrasion, scratching and effect on writing material by fountain pen, soft tip or fiber tip pen, ball pen. Ink: iron base in ink, synthetic dye ink and carbon ink. Sequence of writing, fluid ink and ball point pen, overwriting and intersection.

UNIT III

Identification of signatures and detection of forgery

Genuine signatures : alignment, slant, pen pressure. Difference between literate an semiliterate writing. Commencement and execution of signatures, positions of pen, movement (finger, hand or arm or a combination of these), modified or simplification, variation and class of variation. Usual genuine signatures: receipt signatures, signatures influenced by alcohol and drugs, illness and old age. Detection of forgery : traced forgery and types, simulated forgery, spurious signatures and spouse's imitation.

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UNIT IV

Preparation and collection of handwriting standards

Handwriting standards, types and its principal points, sources of standards, collected and requested writings, special considerations for request signatures.

UNIT V

Identification of handwriting

Writing forms and qualities, arrangement of writing, writing variation, class and individual characteristics, identification in practical situation, nonidentity of writings, holographic wills, inhibiting factor and disguise writings.

UNIT VI

Indian currency notes of different denomination

Security features: languages, water mark, security thread, latent image, micro lettering, intaglio, florescence, optically variable links, see through register and identification mark of all denomination.

5. **SYLLABUS FOR CHEMISTRY:**

1. **Forensic Science**

Introduction, Definitions, Importance of Forensic Science, Different Aspects of Forensic Science, Medico Legal Aspect.

2. **Chemistry**

Analysis of Alcohols, Petroleum Products, Petroleum Adulteration, Metals, Arson cases, Acid Attack Cases.

3. **Toxicology**

Introduction, Definition of Poisons, Types of Poison, Corrosive Poisons, Irritant Poisons, Cerebral Poisons, Spinal Poisons, Cardiac Poisons, Asphyxiants, Plant Poisons, Peticidal Poisons, Metallic Poisons, Gaseous Poisons, analysis of Poisons from Human Viscera, Body fluid and other substances.

4. **Drugs and Narcotics**

Introduction, Definition of Drugs, Definition of Narcotics, Classification of Drugs, Sedatives: Hypnotics, Stimulants, Tranquilisers, Hallucinogens, Opiates and Narcotics, Methodology and Analysis.

5. **Chromatography**

Definition, Types of Chromatography,Thin Layer Chromatography, basic Principle, Working Principle, applications, Gas Chromatography, Working Principle, Applications, High Performance Liquid Chromatography, Working Principle, Application, Importance of Chromatography.

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