

Syllabus for the post of Scientific Officer (Voice Analysis) in H.P. State Forensic Science Laboratory, Home Department, H.P.

Unit-I

General Forensic Science- Definition, History and Development of Forensic Science, Principles and scope of Forensic Science, Crime Scene Management, Type of Evidences, Chain of Custody, Integrity of Evidence, Report writing, Expert testimony and related laws, Concept of Quality Management System, Laboratory Information Management Systems, Research Methodology, Plagiarism, Ethics.

Unit-II

- A. Physics of Sound:** Voltage, Intensity, Decibels, Doppler Effect, Audio line levels, Vibrating Systems, Frequency measurements, Spectrum analysis, Basic Electric Circuits, Analog and Digital recorders, Microphones, Analog & Digital Sound recording methods, Noise Characteristics & Audio Enhancement, Type of Speech Signals, Fourier Analysis, Fourier Transforms, Organs of Speech production, Mechanism of Speech production, Phonetic aspects of Speech in Forensic Science, Types and applications of Signal Processing, Methods of Analog to Digital Conversion Computer Representation of Speech.
- B. Voice Identification and Authentication :** Principles of voice identification and its forensic importance, History and scope of Voice Analysis, Voice production theory, Components of voice identification- feature extraction, speaker profiling, normalization techniques, enhancement of speech signal/audio recordings, pattern matching and comparison; Approaches to voice identification- Segregation of Speech samples, auditory analysis/ listener's approach, automatic Voice identification technique, spectrographic approach, frequency & time domain representation of speech signal, acoustic parameters for examining speech samples, phonetic Transcription, linguistic & phonetic analysis, Temporal measurement, Fourier analysis, analogue to digital conversion; Type of alterations and methods for establishing authenticity of audio samples; Present scenario of Voice identification Technique.

(80 question of 80 marks)

Unit-III

Ten (10) questions consisting of General Knowledge pertaining to state of Himachal Pradesh

Ten (10) questions consisting of General Knowledge of National & International affairs

(20 questions of 20 marks)

The Screening Test (CBT/Offline) will be of 100 marks of two hour duration.