

SYLLABUS FOR ALL INDIA BOARD EXAMINATION FOR THE
FINGERPRINT EXPERTS (AIBE)

Part-A

THEORY - INDEX OF TOPICS

- I. History of Fingerprint science and its developments
- II. Science of Fingerprint Identification
- III. Application of law of probability to fingerprint science
- IV. Taking fingerprints of living persons and of dead bodies
- V. Classification and sub-classification system for recording of fingerprint slips and for conducting search
- VI. Comparison of papillary ridges and their counts
- VII. Application of fingerprint science in detection of crimes and other uses
- VIII. Scene of crime & methods of developing FP & latest developments in the field
- IX. Photography in Fingerprint Identification
- X. Computerization of 10-digit fingerprints/Automated Finger Print Identification system (AFIS)
- XI. Laws Relating to Fingerprint Evidence & Presenting FP Evidence in the court of law
- XII. Poroscopy, Edgeoscopy and Forgery of Finger Prints
- XIII. Modern Biometrics
- XIV. DNA Fingerprinting
- XV. Modern Finger Print Lab & Field Equipment

Theory (Content in detail)**Chapter -I****History of Fingerprint science and its developments.**

Anthropometry, the origin of fingerprint science and the stages of its evolution, the pioneering contributions to fingerprint science and its development through times, Galton, Herschel, Faulds Henry, Aziz-ul-Haque and others

Chapter -II**Science of Fingerprint identification**

When fingerprint was first conceived as a tool of identification and tracing the origin & circumstances leading to its use. Its Impact on the jurisprudence, policing and homeland security. The chief contributors and their contributions in this sphere - Galton, Faulds, E.R. Henry, Chatterjee and others

Chapter-III**Application of law of probability to fingerprint science**

Theory of law of probability & use of mathematics for establishing uniqueness or individuality of fingerprints, Chatterjee's calculation based on eight 08 identical ridge characteristics, calculations of probability by other international scientists

Chapter -IV**Taking fingerprints of living persons and of dead bodies.**

The different procedures of recording fingerprints, the methods of taking fingerprints of living, types of prints-rolled, plain (slap). Precautions in recording of fingerprints. Taking finger prints of dead bodies-fresh, rigor mortis, techniques of recording fingerprints of dead bodies of different stages, viz, immediately after death & after rigor mortis, decomposed & charred bodies. Precautions that are to be taken during the process, need of taking fingerprints of cadavers and its subsequent use

Chapter -V**Classification and sub-classification system for recording of fingerprint slips and for conducting search.**

Fingerprint Patterns - core & delta, counting & tracing of ridges, evolution of different system of classifications, and their modification till date, their utilities,

Henry system and other systems of classification. Classifications of ten-digit fingerprint slip & search, Classification formula, Classification of palm prints.

Chapter- VI

Comparison of papillary ridges and their counts

Papillary ridge, methods of comparison of papillary ridges, need of comparison and marking of ridge characteristics in identical prints

Chapter-VII

Application of fingerprint science in detection of crimes and its other uses

The significance of fingerprint science in crime detection through the ages, forgery in fingerprints, document case examination & furnishing of expert opinion thereof, Contribution of fingerprint science towards domestic and global security.

Chapter-VIII

Scene of Crime & methods of developing chance fingerprints & Latest developments in the field

Scene of Crime Prints, types of Chance Prints, composition of sweat various powders-black, grey, universal powder etc, Composition of powders, and various chemical and other modern equipment / techniques used in the lifting/developments of FP on different surfaces/articles.

Chapter-IX

Photography in Fingerprint Identification

Different techniques used in photography. Diapositives, Analogue & Digital format, Photography in oblique light, photography of FPs developed with fluorescent powder, Use of camera lens filters while using ALS, Macro and Micro lens, the role of Digital F.P. Photography under the Information & Technology Act.

Chapter-X

Computerization of 10-digit fingerprint slips (Automated Finger Print Identification System/AFIS)

History of computerization- use of battley lens & single digit system, need for automation, 40 digit code, evolution of AFIS, AFIS in present form, manual fingerprint and AFIS, the effect of AFIS in modern times, Critical evaluation of AFIS vis-à-vis manual methods, live scanner (FED) and AFIS, a comparison.

Advantages of AFIS, NAFIS, NIST & WSQ standards, Introduction to CCTNS. FACTS and its Features, Versions of FACTS in India, Integration of other Biometrics parameters.

Chapter-XI

Laws Relating to Fingerprint Evidence & Presenting FP Evidence in the Court of Law

Identification of Indian prisoners' Act 1920 Section 3, 4, 5, 6, (police officers, Magistrates, use of necessary means to secure the finger, Resistance or refusal to give FPs, Section 186 IPC, Section 75 IPC (enhanced punishment), Indian Evidence Act of 1872, Section 45 of IEA-1872, modifications to the Indian evidence act of 1872 in accordance with the Information and Technology Act 2000 (IT Act-2000), who is an authorised person to take fingerprints, who can be asked to furnish fingerprints, evidence in court, who is an expert, international standard for furnishing opinion in the court of law vis-à-vis Indian standard, Important Supreme Court Ruling pertaining to FP Evidence. Information Technology Act 2000 and its relevance to Fingerprint Photography, amendment to Indian evidence act of 1872 in view of the IT Act of 2000, digital data, securing digital data, production of digital evidence in court of law, Basic concept of cyber-laws, sec-65 and sec-66 of IT act 2000, Provision of Expert evidence, Presentation of fingerprint evidence before the court of law. Cross examination, legal provisions and other related matters.

Chapter-XII

Poroscopy, Edgeoscopy and Forgery of Finger Prints

Level Three detail, Poroscopy & edgeoscopy, definitions, Use of poroscopy & edgeoscopy in identification in cases of insufficient ridge details, Dr. Edmond Locards method for identification on the basis of poroscopy, S.K. Chaterjee's guidelines for using edgeoscopy for individualization, equipment required for study/research in proroscopy, Some cases solved on the basis of poroscopy, Forgery, Forged and Fabricated Fingerprints, How fabrication of FPs is done, how to detect a forged FP, how to check cases of forgery, any important recent case/cases of detection of FP forgery

Chapter-XIII

Modern Biometrics

Biometrics, physiological and behavioral characters, F.P. Live scanning system, major types of biometrics –Fingerprint, Iris, Signature, Gait etc., UIDAI Specifications for FP biometrics device and iris device, use of biometrics in Civil and police work, Increase in use of Biometrics in day to day life, future of Biometrics, Multi-modal Biometrics systems, UIDAI, Aadhaar, Difficulties in capturing FP images through FED system, Remedies, Standards in FED Systems.

Chapter-XIV

DNA Fingerprinting

DNA Fingerprinting/Analysis, Role of Alec Jefferys in DNA Analysis, Comparison of DNA Analysis and Finger Print Science, DNA patterns and Fingerprints of Monozygotic twins, Protocol for collection of DNA and FP evidence from the scene of Crime (what needs to be collected first), Touch DNA, DNA database, Use of DNA Analysis in Crime Investigation in India.

Chapter-XV

Modern Finger Print Lab & Field Equipment and Chemicals

Alternate Light Source (ALS) i.e. Poly light, Cyanoacrylate Fumigation Chamber, Cyanowand Iodine Fuming apparatus, Electrostatic Dust Lifting Kit (DLK), Electric FP Comparator, Reflective Ultraviolet Imaging System (RUVIS), Fluorescent FP powders for multi-coloured surfaces, SPR (Suspended Particle Reagent, Reagent for wet surfaces

Part-B

(100 marks)

Practical Examination- Index of Topics

1. Taking of fingerprints
2. Developments of latent fingerprints
3. Lifting of latent fingerprints on different items, different surfaces,
4. Comparison of partial, blurred fingerprints
5. Comparison of Questioned/ latent fingerprints
6. Classification of Ten digit fingerprints
7. Report writing as in document case

Practical Examination: Content in detail

CHAPTER-I

Taking of fingerprints

Recording of 10-digit fingerprints, plain & rolled fingerprints, manual methods & live scanner or Fingerprint enrolment devices (FED)

CHAPTER-II

Developments of latent fingerprints

Latent and visible fingerprints, fingerprints at the scene of crimes, lifting of chance prints, securing the SOC, photography in SOC, lifting of chance prints from different surfaces, plastic prints, magnetic brush. Techniques involved in development of latent fingerprints, use of various powders, magnetic and fluorescent powder, Cyano- acrylate chamber & fuming technique, visiting SOCs, photography of SOC / latents prints

CHAPTER-III

Lifting of latent fingerprints

Lifting of latent fingerprints on different surfaces, fingerprint on dark surfaces, light surfaces, making dia-positives, role of photography, macro & micro lens, visiting SOCs, modern techniques,

CHAPTER-IV

Comparison of partial, blurred fingerprints

Use of various techniques & equipments for the purpose

CHAPTER-V

Comparison of questioned/latent fingerprints

Use of various techniques & modern trends.

CHAPTER-VI

Classification of Ten digit fingerprints

Henry system and other systems of classification & classification formulae

CHAPTER-VII

Report writing as in document case

Writing of report –enclosure, questionnaire etc, along with forwarding letter

Part-C

Viva-voce

(50 Marks)

Evaluation of the comprehensive efficacy of the candidate & to judge, whether, post-accreditations, he/she is equal to all the tasks a fingerprint expert needs to perform.

BOOKS:

1. Finger, Palm and Sole prints Chatterjee, S.K: 1967
2. Finger Prints or Dactyloscopy and Ridgeoscopy Chatterjee, S.K. and Hague, R.V. 1988
3. Fingerprints and Other Ridge Skin Impressions Christophe Champod, Chris J. Lennard, Pierre Margot, Milutin Stoilovic 2004, 2016 (2nd edi.)
4. The Science of Fingerprints United States. Federal Bureau of Investigation 2015
5. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology David R. Ashbaugh 1999
6. Lee and Gaensslen's Advances in Fingerprint Technology, Third Edition Robert Ramotowski 2012