National Forensic Sciences University

Syllabus for the Post of Scientific Officer (Cyber & TASI) - Gr. B (Contractual Basis) Directorate of Forensic Science Laboratory, Home Department, State of Maharashtra

Paper style:

Paper type: Multiple Choice Question
Total Question: 60 (48 question from unit I to V and 12 questions from Unit – VI)
Negative Marking: No Negative Marking
Examination Duration: 60 Minutes

Examination Schedule:

Date of Examination: 7th April 2025
Venue: Upper Auditorium, National Forensic Sciences University, Sector – 9, Gandhinagar, Gujarat.
Reporting time: 09.30 am
Examination time: 11.30 am to 12.30 pm

In case of any query send email to **recruit_dfs@nfsu.ac.in.**
Check **https://nfsu.ac.in/Contarctual_Recruitment** for the syllabus, seating arrangement and any other updated related to the said recruitment.
Keep a note that the university will not send separate email individually pertaining the recruitment process of said post

Difficulty level – Moderate to High

Unit-I

Computer Science and Information Technology
Introduction to Computer Hardware and Storage Devices; Basics of programming and algorithms; Data structures (Arrays, Linked lists, Stacks, Queues, Trees, Graphs); Operating systems and system software (OS concepts, process management, memory management); OS Boot Processes; File Systems and its types; Internet fundamentals, cloud computing; IoT concepts; Databases (SQL, relational databases, database management systems).

Unit-II

Cyber Security Concepts and Practices
Cyber security principles and practices; Authentication and authorization mechanisms; Symmetric and asymmetric cryptography techniques; Substitutional Cipher and Transpositional Ciphers. Types of keys – Public Key and Private Key; Malware (viruses, worms, ransomware, Trojans) and their detection techniques; Advanced Encryption Techniques and Security Issues; Hashing: Hashing Algorithms – MD5, SHA-1, SHA-2, SHA-3, One-Way Hash, Hash Message Authentication Code.; digital signatures and public key infrastructure (PKI); Network defence

mechanisms (IDS, IPS, firewalls); VPNs, proxies, and network monitoring, Cyber Crime Investigation Procedure, MLAT, Letter of Rogetory.

Unit-III

Digital Forensics Concepts and Practices
Definition & Cardinal Rules of Digital Forensics; Digital Forensics Process; Locard's Principle of Exchange; Branches of Digital Forensics, Handling Digital Crime Scene, Important Documents and Electronic Evidence. **Introduction to Evidence Acquisition:** Identification, Acquisition, Labeling and Packaging, Transportation; Chain-of-Custody; Importance of Documentation and Preservation. **Acquisition Process:** Write-Blockers, Hardware Interfaces of storage media, Imaging Techniques, Evidence Integrity, Standard Operating Procedures for Acquisitions, and Preservation of Evidence; Understanding of Digital Forensic tools and their OEMs; Importance of Data Recovery in Forensic Investigation; Carving Methods; Difference between Data Recovery and Carving.

Unit-IV

Operating System Forensics
File Systems: FAT, NTFS, Ext, ExFAT, HFS+, APFS, CDFS, UFS, etc., **Windows Artefacts:** Registry, Event logs, Shortcut files, Executables. Alternate Data Streams (ADS), Hidden files, Slack Space. **Linux Artifacts:** Linux file system Ownership and Permissions, Hidden Files, User Accounts and Logs. **Mac OS X systems and Artifacts:** System Startup and Services, Network Configuration, Hidden Directories, System Logs, and User Artifacts. **Web Brower Artefacts and Email Forensics:** Analyzing Headers and Tracking of an Email. **Mobile Forensics:** Seizure and Preservation of Mobile Phones and PDAs, File Systems & Data Storage within Mobile Phones, Types of Data Acquisition Techniques from Mobile Phones.

Unit-V

Legal Aspects:
Definition of Law, Court, Judge, Basic Terminology in Law; FIR, Difference between civil and Criminal Justice; Laws specific to Forensic Science: Introduction to BSA, BNSS, BNS & their Cognizable and non-cognizable offences, Bailable and non-bailable offences; Cyber Law, IT Act 2000 and its amendments, DPDP Act, International Cyber Laws; Cyber Ethics, Child Sexual Abuse, various acts related to social media, privacy and security in the cyber domain.

UNIT VI – Marathi Proficiency test

Marathi language Fundamentals, literature and culture, general rules of Marathi grammar, write and speak concepts in Marathi language, sentence formation and correction or error identification and correction in Marathi language, question and answer from paragraph in Marathi language etc.,