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 (36 question from unit I to V (60%) – core subject and 24 questions from Unit – VI to VII (40%) – Marathi Proficiency)
Negative Marking: No Negative Marking
Examination Duration: 60 Minutes

Examination Schedule:

Check the university website regularly for more details

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 language Fundamentals, literature and culture, general rules of Marathi grammar, write and speak concepts in Marathi language etc.,

UNIT-VII

Sentence formation, Sentence Completion Sentence Transformation - correction or error identification and correction in Marathi language, Logical Contradictions, Functional Usage, question and answer from paragraph in Marathi language etc.,