

**SYLLABUS FOR DIRECT RECRUITMENT TO JUNIOR SCIENTIFIC OFFICER
(CYBER FORENSICS)**

Paper	Subject	Marks	Duration
Paper-I	General Knowledge (50 questions)	100	3 hours with compensatory time of 20 minutes per hour for persons with benchmarked disabilities
	General English (25 questions)	50	
	English Comprehension (25 questions)	50	
	Total	200	
Paper-II	Basic Computer Knowledge (50 questions)	100	3 hours with compensatory time of 20 minutes per hour for persons with benchmarked disabilities
	Simple Arithmetic (30 questions)	60	
	General Intelligence & Reasoning (20 questions)	40	
	Total	200	
Paper-III (Only for technical/specialised posts and such other posts wherein the Recruitment Rules/Service Rules prescribed technical/special qualifications which merits conduct of examination in the knowledge of concerned technical/specialised subject)	Technical/Specialised subject (100 questions)	200	3 hours with compensatory time of 20 minutes per hour for persons with benchmarked disabilities
	Total	200	

Notes:

- 1) Questions shall be set in Objective Type Multiple Choice pattern only with all questions carrying equal marks and answers for each of the questions shall be marked using blue or black ball point pen. In other words, there shall be multiple probable answers (at least four) wherein the candidate has to choose the correct answer for every objective type question.
- 2) Questions will be set in tune with the level of educational qualifications prescribed in the corresponding Recruitment Rules/Service Rules for the post(s).
- 3) A brief description of the common syllabus for direct recruitment to Group 'B' posts is as follows:

Paper-I

General Knowledge: Questions will be designed to test the candidate's knowledge of current events and of such matters of everyday observation and experience as may be expected of an educated person. The test will also include questions relating to Indian history and culture, Indian polity including the Constitution of India, geography, economy and general science. Questions on Mizo history and culture will also form part of the syllabus.

General English: Questions in this component will be designed to test the candidate's understanding and knowledge of English Language and will be based on error recognition, fill in the blanks (using verbs, preposition, articles etc), Vocabulary, Spellings, Grammar, Sentence Structure, Synonyms, Antonyms, Sentence Completion, Phrases and Idiomatic use of Words, etc.

English Comprehension: There will be questions on comprehension of passages also to test the vocabulary, grammar, logical thought ability and overall grasp of the candidates over English language.

Paper-II

Basic Computer knowledge: Introduction to Computers, introduction to Graphical user interface based Operating System, elements of Word Processing, Spreadsheets, Power point presentations, Computer communication and internet, world wide web and web browser, communication and collaboration.

Simple Arithmetic: Number system, simplification, roots, averages, discounts, percentages, profit & loss, ratio and proportion, partnership, chain rule, time & work, time & distance, simple & compound interest, mensuration, permutations & combinations, heights & distances, line graphs, bar graphs, pie charts and tabulation.

General Intelligence & Reasoning: It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, spatial visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc

Paper-III

TECHNICAL PAPER

Full Marks : 200

1. Computer Architecture and Organisation (40 Marks)

Digital Computer – Introduction, General Organisation, Functional Units, Basic Computer Organisation and Design; Computer Registers, Register Transfer, Bus System; Machine Language; Assembly Language; Control Unit(Hardware and Microprogrammed Control); Floating Point Representation of numbers; BCD Representation; Addition; Subtraction; Multiplication and Division of numbers in different types of representation; Instruction Formats; Addressing Mode; Peripheral Devices; Asynchronous function of I/O and I/O bus; Memory Hierarchy, Main Memory, Virtual Memory System; Parallel processing; RISC and CISC Architectures. ARM architecture.

2. Operating System (50 Marks)

Instruction of OS objective and function ; The Evaluation of OS; OS Structure; System components; OS service; System Structure; Concurrent Processes; Process Concept; Principles of concurrency; Process Generation; Process Scheduling; Scheduling criteria; Scheduling algorithms; Thread scheduling; The critical-section problem; Synchronization hardware; Semaphores; Deadlocks – Deadlock characterization, Deadlock Prevention, Deadlock Avoidance, Deadlock detection; Memory Management; Swapping; Paging; Segmentation; File concept; Access methods; Disk management; Thrashing; Cache memory organization; I/O Management and Disk Scheduling; I/O buffering; Disk I/O; Operating System Design issues.

3. Database Management Systems (50 Marks)

Database Applications; Evolution of DB & DBMS; Need for data management; Data models & Database Architecture; E-R Diagrams; Relational Model; E-R to Relational Mapping; Constraints; Keys; Dependencies; Normalization – First, Second, Third & Fourth Normal Forms; BCNF; Join Dependencies; Introduction to SQL; Data Constraints; Triggers; Database Security; Introduction to Transactions; System & Media Recovery; Two phase Commit Protocol – Recovery with SQL; Indexing & Hashing Technique; Query Processing & Optimization; Sorting & Joins; Database tuning.

4. Computer Networks (60 Marks)

Introduction – Uses of computer network; types of network – LAN, MAN, WAN; Network hardware; Network software; Reference models – OSI/ISO, TCP/IP, comparison of OSI and TCP reference model. Network Architecture – Layers – HTTP – DNS; FTP, Telnet; SNMP; User Datagram Protocol (UDP); Transmission Control Protocol (TCP); Flow Control; Congestion Control; Circuit Switching; Packet Switching; Virtual Circuit Switching; IP; DHCP; ICMP; Routing; Subnetting – CIDR – Interdomain Routing; IPV6 Basic; Ethernet; Wireless LAN; Bridges; Switches; Data Transmission; Transmission Media; Multiplexing; Network Management and security.