



## ગુજરાત જાહેર સેવા આયોગ

છ-૩ સર્કલ પાસે, છ રોડ, સેક્ટર-૧૦/એ, ગાંધીનગર-૩૮૨૦૧૦

જા.ક.૧૦૮/૨૦૨૪-૨૫, મદદનીશ નિયામક(આઇ.ટી.), વર્ગ-૧

ના સંશોધિત અભ્યાસક્રમ બાબત.

૧. તા. ૦૧/૦૨/૨૦૨૫ના રોજ જા.ક.૧૦૮/૨૦૨૪-૨૫ મદદનીશ નિયામક (આઇ.ટી.), વર્ગ-૧ના સંયુક્ત અભ્યાસક્રમ પ્રસિદ્ધ કરવામાં આવેલ.

૨. સદર સંયુક્ત અભ્યાસક્રમમાં ભાગ-૧ “સામાન્ય અભ્યાસ”નો અભ્યાસક્રમ યથાવત રહેશે. તથા ભાગ-૨ “સંબંધિત વિષય”નો સંશોધિત અભ્યાસક્રમ આ સાથેના બિડાણ મુજબનો ધ્યાને લેવાનો રહેશે. જેની સંબંધિત ઉમેદવારોએ નોંધ લેવી.

તા. ૦૬/૦૨/૨૦૨૫

સંયુક્ત સચિવ

ગુજરાત જાહેર સેવા આયોગ



## ગુજરાત જાહેર સેવા આયોગ

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**Syllabus for the preliminary test for the recruitment on  
the post of Assistant Director (IT), Class-I under  
Science and Technology Department  
Advertisement no. 108/2024-25**

**Part-II (Concerned Subject)**

**Marks – 200**

**Questions – 200**

**Medium-English**

- 1. Programming and Data Structures :**  
Programming and Data Structures Programming in C. Recursion.  
Arrays, stacks, queues, linked lists, trees, binary search trees, binary  
heaps, graphs.
- 2. Discrete Mathematics:**  
Propositional and first order logic. Sets, relations, functions, partial  
orders and lattices. Groups. Graphs: connectivity, matching, coloring.  
Combinatorics: counting, recurrence relations, generating functions.
- 3. Algorithms:**  
Analysis, Asymptotic notation, Space and Time Complexity, Worst case  
and average analysis, Divide and conquer, tree and graph traversals,  
Searching, sorting & hashing Algorithms, Algorithm design  
techniques: greedy, dynamic programming and divide-and- conquer.  
Graph search, minimum spanning trees,,and shortest paths.
- 4. Databases:**  
Integrity constraints, Normal forms, File organization, Indexes, B andB+  
trees, Transaction processing, various types of schedules, concurrency

control.

**5. Hardware and Operating Systems:**

Basic knowledge of Hardware Operating System Processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU scheduling. Memory management and virtual memory. File systems.

**6. Computer Networks:**

Computer Networks Concept of layering. LAN technologies (Ethernet). Flow and error control techniques, switching. IPv4/IPv6, routers and routing algorithms (distance vector, link state).

TCP/UDP and sockets, congestion control. Application layer protocols (DNS, SMTP, POP, FTP, HTTP). Basics of Wi-Fi. Network security: authentication, basics of public key and private key cryptography, digital signatures and certificates, firewalls.

**7. Analytics:**

Descriptive and predictive analytics, OLAP, differences between OLTP and OLAP systems, Data Cubes, Data Warehousing, star, snowflake and fact constellation schema models, overview data mining techniques, in-database Analytics, Advanced SQL.

**8. NoSQL Databases:**

Differences between SQL and NoSQL, Different representation of NoSQL data types, CAP theorem, properties of NOSQL Databases.

**9. Data Centre:**

Data storage, Data availability, Data management; Cloud Infrastructure, Virtualization, Pipelining; Public cloud, private cloud, hybrid cloud; Businessdata/ service scalability, reliability.

**10. Mobile Application:**

Mobile platforms, Phones, PDAs, Cellular Technologies- @G, 3G, 4G, GSM, CDMA networks, App Development, UI design.

- 11. Software Engineering:**  
Software engineering principles, Agile Programming, Software Testing and project management, SLA, SCADA, Software quality.
- 12. Cyber Security:**  
Threats, Vulnerabilities and attacks, data security, data privacy, data protection, Ethical hacking, DoS attacks, WiFi hotspot, Botnet, IT security and risk management, CERT-In roles and functions, National Cyber Security Policy-2013, Cyber Laws, Roles and Responsibilities of CISO(Chief Information Security Officer), IT Act 2000 as amended from time to time.
- 13. E-Governance:**  
Roles of Electronic Commerce ©, Business (B), Governance (G) in Digital India; G2G, C2C, C2B, C2G, B2C; Collaborative APIs; Collaborative application development; Collaborative digital. platforms; Electronic Data Interchange (EDI); Enterprise resource planning (ERP), Citizen Relationship Management; IT/ITeS usage policy devising for organization and enterprise application; familiarity in COBIT5; Smart villages and smart cities; e-Utilities to citizens, Services on demand; e-Empowerment, e-Employment; e- Learning, various modes of digital payments, digital libraries; Public safety, ethics and social responsibilities.
- 14. General awareness of IT Projects:**  
Mission Mode Projects, Digitization India Platform (DIP), Digital locker, GI CLOUD (MEGHARAJ), E-KRANTHI etc., E-governance policies and programmes, Gujarat IT/ITeS policy 2022-27, Various organization of Union and State Government related to Information and Technology, Science, Technology and Innovation Policy of Gujarat, Legislative framework in our Country in the field of IT.
- 15. Current Trends and Recent Advancement in the Field of Information Technology.**

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