ગુજરાત જાહેર સેવા આયોગ

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

જા.ક્ર.૧૧૦/૨૦૨૪-૨૫, આઇ.સી.ટી. ઓફીસર,વર્ગ-૨ના સંશોધિત અભ્યાસક્રમ બાબત.

૧. તા.૦૧/૦૨/૨૦૨૫ના રોજ જા.ક્ર.૧૧૦/૨૦૨૪-૨૫ આઇ.સી.ટી. ઓફીસર,વર્ગ-૨ના સંયુક્ત અભ્યાસક્રમ (ભાગ-૧ સામાન્ય અભ્યાસક્રમ અને ભાગ-૨ સંબંધિત વિષય) 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 લેવા વિનંતી.

તા. ૦૬/૦૨/૨૦૨૫

સંયુક્ત સચિવ

ગુજરાત જાહેર સેવા આયોગ

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

Syllabus for the preliminary test for the recruitment on the post of ICT Officer,Class-II under Science and Technology Department

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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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