पाठ्यक्रम

छत्तीसगढ़ उच्च न्यायालय, बिलासपुर के अंतर्गत
सॉफ्टवेयर इंजीनियर एवं सहायक प्रोग्रामर

कुल अंक –150

Section I: **50 Marks**

- **Details of Section I:**

1. Analytical Reasoning Skills -(15 marks)
2. Quantitative Skills: Arithmetic, Elementary Algebra, Commonly known concepts of Geometry-(15 marks)
3. Verbal Skills: Reading Comprehension, Sentence Correction, and Sentence Completions-(20 marks)

Section II: **100 Marks**

- **Details of Section II:**

Digital Logic: Boolean algebra. Combinational and sequential circuits. Minimization. Number representations and computer arithmetic (fixed and floating point).

Computer Organization and Architecture: Machine instructions and addressing modes. ALU, data-path and control unit. Instruction pipelining. Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode).

Programming and Data Structures: Programming in C. Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.

Algorithms: Searching, sorting, hashing. Asymptotic worst case time and space complexity. Algorithm design techniques: greedy, dynamic programming and divide-and-conquer. Graph search, minimum spanning trees and shortest paths.

Operating System: Processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU scheduling. Memory management and virtual memory. File systems. UNIX, Linux, Windows XP.

Databases: ER-model. Relational model: relational algebra, tuple calculus, SQL. Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees). Transactions and concurrency control.

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.

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SYLLABUS FOR SKILL TEST FOR THE POST OF SOFTWARE ENGINEER AND ASSISTANT PROGRAMMER

Software Engineer	Programming knowledge of PHP Database: Postgres SQL Clustering System Software (Linux) and Application Software System Software (Linux), Shell Script (Total marks for Skill Test : **50 marks)**
Assistant Programmer	Programming knowledge of PHP Data base Postgres SQL, Shell Script. (Total marks for Skill Test : **50 marks)**

The unreserved candidates shall have to secure minimum 50% marks and SC, ST & OBC category candidates shall have to secure minimum 40% marks for qualifying the respective skill tests mentioned above.

The select lists for the posts will be prepared on the basis of total marks obtained by the candidates in the respective Written, Skill Tests & Interview

4.11.2018

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