THE HIGH COURT OF MEGHALAYA AT SHILLONG

NOTIFICATION
(SYLLABUS DETAILS FOR SYSTEMS OFFICER)
Dated, Shillong, the 6th November, 2015

No.HCM.II/142/2015-Estt/3307 The Syllabus Details appended herein below is the Syllabus Details for the post of Systems Officer notified vide this Registry's Advertisement No.HCM.II/98/2015/1673 Dated 11th June, 2015, is hereby notified for information of all concerned.

SYLLABUS DETAILS

Data Structures:
Notion of abstract data types, Stack, Queue, List, Set, String, Tree, Binary search tree, Heap, Graph;

Programming Methodology:
C Programming, Program control (iteration, recursion, Functions), Scope, Binding, Parameter passing, Elementary concepts of Object oriented, Functional and Logic Programming;

Algorithms for problem solving:
Tree and graph traversals, Connected components, Spanning trees, Shortest paths; Hashing, Sorting, Searching; Design techniques (Greedy, Dynamic Programming, Divide-and-conquer);
IMP: Analysis, design and algorithm CONCEPT:
concept of algorithm, component of algorithms, numerical algorithms, review of searching algorithm, review of sorting algorithm, recursion v/s iteration, introduction to graph theory,, matrix representation, trees, divide & conquer: binary search,max – min search & merge sort, integer multiplication, cassette filling, knapsack problem, job scheduling, backtracking, branch & bound, shortest path, minimal spanning trees, technique for graphs.

Compiler Design:
Lexical analysis, Parsing, Syntax directed translation, Runtime environment, Code generation, Linking (static and dynamic);

Operating Systems:
Classical concepts (concurrency, synchronization, deadlock), Processes, threads and Inter-process communication, CPU scheduling, Memory management, File systems, I/O systems, Protection and security.

Databases:

Database management system concepts, database system concept and architecture, Entity relationship and enhanced e-r relational data model and relational algebra, relational database design, query language-sql, normalization.

IMP: Relational model (ER-model, relational algebra, tuple calculus), Database design(integrity constraints normal forms), Query languages (SQL), File structures (sequential files, indexing, B+ trees), Transactions and concurrency control

Computer Networks:

ISO/OSI stack, sliding window protocol, LAN Technologies (Ethernet, Token ring), T C P/U D P, IP, Basic concepts of switches, gateways, and routers

IMP: Network Types and topologies: Network types, ethernet, Intranet and extranet, star ring and bus topology, SUBNET, network hardware, N.I.C., hubs, routers, switches

Network APPLICATION: telnet, s m t p, p o p 3, f t p, p i ng, network services: D N S, W I N S

Distributed computing on networks (Distributed computing).

Computer Hardware:

Digital Logic:

Logic functions, Minimization, Design and synthesis of Combinational and Sequential circuits; Number representation and Computer Arithmetic (fixed and floating point);

Computer Organization:

Machine instructions and addressing MODES, ALU and Data-PATH, hardwired and micro-programmed CONTROL, Memory interface, I/O interface (Interrupt and DMA mode), Serial communication interface, Instruction pipelining, Cache, main and secondary storage.

By order;

REGISTRAR GENERAL