<u>PROGRAMMER</u>

DETAILED SYLLABUS

<u>Module 1</u>

- Digital computer principles:

Number systems- Binary, Decimal, Octal and Hexadecimal Conversions, Arithmetic Operations, Boolean Algebra, Logic gates, SOP, POS, minterm and maxterms, Boolean expression, Simplifications, postulates and theorems, K-map, Combinational logic circuits- Adder, Subtractor, Multiplexer, Demultiplexer, Encoder, Decoder, Sequential Circuits-SR,JK,T,D flipflops, Shift registers, Asynchronous, Synchronous and Modulo n Counters.

- Computer Architecture:

Multiprocessors and microcomputers, Assembly language, Assembler directives, Seminconductor memory-internal organization, SRAM, DRAM,SDRAM,Rambus memory, ROM technology, Cache memory, virtual memory, working of magnetic disks and tapes, optical disks, instruction sequencing, instruction execution, Hardwired control and microprogrammed control, micro instructions, Pipelining

- Microprocessors

Internal architecture of 05 and 06, interfacing with peripheral devices, microcontrollers.

<u>Module 2</u>

- Set theory and statistics:

Sets, relations, functions, groups, partial orders, lattices, algebraic structures, mathematical induction, The principle of inclusion-Exclusion, Probability theory:Sample spaces, Events and probability, Discrete Probability: Union,Intersection and Compliment of events, Conditional probability, Bayer's theorem, Linear correlation coefficient, Linear regression, Non linear regression, Multiple correlation and Multiple regression, Theory of sampling and population.

- Theory of Computation

Regular languages and finite automata, Context-free languages and pushdown automata, recursively enumerable sets and Turing machines, Undecidability.

- System Software and Operating Systems

Compiler design, lexical analysis, parsing, syntax directed translation, code generationand optimization, Assemblers, linkers and loaders, macroprocessors, cpu scheduling, Deadlocks, Memory management, file systems, disk scheduling, process, threads and their synchronization, Real time os: clock synchronization and task scheduling, System initialization, booting and handling users accounts, Backup and restore, Bourne shell programming for linux

<u>Module 3</u>

- Computer Networks:

 Layered architecture, LAN technologies , wireless LAN, flow and error control, routing algorithms, congestion control, TCP/UDP and sockets, IPv4, IPv6, ICMP, DNS, SMTP, POP, FTP, HTTP, MIME, Hubs, switches, routers and gateways, public key and private key cryptography, digital signature, firewalls, wireless networks, 2G and 3G networks, Bluetooth.

- Distributed System:

Characteristics, inter-process communication, distributed file systems

- Web technologies

Two and three tier client server architecture , web servers, HTML and XML, Style sheets, client side scripting-java script and VB script: server side scripting-php, jsp, and ASP.NET

programming for creating dynamic web pages using database, forms and sessions: AJAX and signalR

Module 4

- **Data structures:**

Data structures: Linked list, stack, queue, priority queues, Hashing, Binary trees, Tree traversal, BST, AVL trees, Graphs-shortest paths, minimum spanning trees, sorting algorithms.

- **Algorithms:**

Analysis, space and time complexity, Design-greedy approach, Dynamic programming, divide and conquer, sorting and searching , complexity classes-P, NP,NP-hard, NP-complete.

- **Programming Concepts in C :**

Operators and expressions, control statements, storage structures, functions, arrays, strings, structures, pointers and dynamic memory management, file handling.

Module 5

- **Database management system:**

Keys, E-R models, Normalization-1NF to 5NF:Relational algebra, SQL, Aggregate functions, Nested sub queries, views, joined Relations, Transaction –ACID properties: concurrency control, triggers, stored procedures.

- **Software Engineering:**

System modelling, system engineering process, life cycle models, desing and implementation, validation, evolution, automated,process support-software requirements, SRS, feasibility studies-elicitation and analysis-validation-management-system models, context models, behaviour models, data models, object models, object-oriented design evolution, real time software design, critical system specifications-critical system development, software testing.

STRATEGIES AND TIPS

- Know the Exam Pattern and Syllabus thoroughly...
- Prepare a Timetable to Ease Your Preparations....
- Give Utmost Importance to Practices Previous year question Papers....
- Never Overwork Yourself....
- Refer to the Best Study Materials Available...

Is it easy to get a role of computer programmer under government ?

Yes. It all starts with a dream , a dream to become a government employee under kerala government with the right preparations, one can clear the exam for programmer in first attempt. Work hard , practice previous year question papers and cover the entire syllabus which makes your steps easier.

Will only studying the topics from the syllabus enough to get a government job?

NO. In previous years many questions are coming outside the syllabus for various technical exams. So give importance to practice more previous year question papers.