

**DETAILED SYLLABUS PROPOSED FOR THE POST OF JUNIOR MANAGER  
(INFORMATION MANAGEMENT) IN KERALA STATE CIVIL SUPPLIES  
CORPORATION LTD.**

**(Cat. No.: 142/2020)**

**(TOTAL MARKS - 100)**

<b>Module No.</b>	<b>Topics</b>	<b>Marks</b>
1	<b>Data structures and algorithms:</b> Asymptotic notations, analysis of time complexity. Stack, queue, linked list, binary tree, AVL tree, binary heap. Graph data structure – DFS, BFS, minimum spanning tree algorithms. Searching and sorting algorithms. Algorithm design techniques – divide and conquer, greedy strategy, dynamic programming.	10
2	<b>Database Management Systems:</b> Data models, ER diagram, DDL, DML, SQL, trigger, views, functional dependency, normal forms, transactions, concurrency, RDBMS, OODBMS. NoSQL databases – MongoDB.	10
3	<b>Object Oriented Programming:</b> Encapsulation, inheritance, polymorphism. Object Oriented Programming in Java – Packages and Interfaces, Exception Handling, Input/Output, Threads, GUI and Event handling, Swings, JDBC. Object Oriented Programming in Python – data types and control statements, functions, list and dictionary, class and object, exceptions, data processing tools in Python.	15
4	<b>Operating Systems:</b> Process and thread, process scheduling and synchronization, memory management, paging, virtual memory. Linux operating system – kernel, commands, shell scripts, file system structure and management, process and signals.	15
5	<b>Computer Networks:</b> OSI and TCP/IP reference model, switches and routers, VLAN, SDN, SD-WAN, SAN. Routing, QoS, IP addressing, subnetting, ICMP, ARP, BOOTP, DHCP, OSPF, BGP, IPv6. TCP, UDP, FTP, DNS, SNMP, VoIP.	15
6	<b>Software Engineering:</b> Software process models, Prototyping, Requirement Analysis, Object-oriented design using the UML, Software testing strategies, Software quality assurance, Process improvement.	7

7	<b>Information Security:</b> Symmetric Key Cryptosystem, Public Key Cryptosystem, DES, RSACryptosystem, Secure hash algorithm, security attacks, intrusion detection systems. Security protocols – PGP, IPsec, HTTPS, SSH, firewall, wireless security, VPN.	10
8	<b>Cloud Computing and Blockchain Technology:</b> Virtualization, Virtual Machines, hypervisors, types of virtualization. Cloud service models, MapReduce, Hadoop, public cloud platforms – Amazon Web Services, Google App Engine. Blockchain, Decentralization, Consensus, blockchain platforms – ethereum.	10
9	<b>Web Technologies:</b> PHP, Java script, Ajax, jQuery, Node js, SOAP, WSDL, REST, XML, JSON	8

**NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper**