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FUNDAMENTALS OF HARDWARE

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	INTRODUCTION		
		What is a Computer?	Software & hardware
		Block Diagram	Functional Layout of a computer
2	INPUT DEVICES		
		Keyboard	Membrane Keyboard
			Working principle
			Connector Types & Pin details(PS/2,USB)
		Mouse	Optical Mouse
			Working principle
			Connectors & Pin details(PS/2,USB)
		Scanner	Functionality of Components
			Working principle(Flatbed)
3	OUTPUT		

		DEVICES	
		Monitors	Working principle of LCD
			Working principle of LED
		Printer	Working principles & Components of Laser Printer
			Working principle & Components of Inkjet Printer
4	CPU		
		Introduction	CPU & Components Registers, Clock, Accumulator, Program Counter)
		Processor	Different Processor Family
			Types of Cores
		Architecture Types	CISC
			RISC
		Operation	Fetch, Decode, Execute
		Parallelism	Multi Programming
			Multi Processing
			Multi Tasking
			Multi Threading

			Hyper Threading
5	MEMORY		
		ROM	PROM
			EPROM
			EEPROM
		RAM	SRAM
			DRAM
		Memory Class	Types of DRAM(DDR1,DDR2,DDR3)
		Cache memory	Level -1
			Level -2
			Cache Read/Write
6	MOTHERBOARD		
		Introduction	What is Motherboard
		Form Factor	Types of motherboard
		Key components	Chipset
			North bridge
			South bridge
		MEMORY MODULES	SIMM,DIMM,RIMM
		Sockets	LGA,PGA

		BUS	Types of BUS
		Expansion slots	PCI
			PCI Express
			ISA
			AGP
			CNR
			EISA
		Peripheral components Ports	Serial
			Parallel
			USB
			Video connectors
		BIOS	What is BIOS?
			How does it work?
			BIOS settings
		CMOS	What is CMOS?
			Basic Function
		Firmware	Core Function
		Laptop Motherboard	Laptop Motherboard & Power Supply
7	SMPS		

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FUNDAMENTALS OF WINDOWS

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	WINDOWS EDITIONS		
		Introduction to Operating System	What is OS & Why we need OS?
			What are the different types of OS?
			What is windows OS?
			What is the difference between windows OS & others?
			What are the advantages & disadvantages of windows OS?
		Workstation & Server	Windows Workstation Vs Server
			Versions and Editions of Windows client and server

		Components of Kernel	Micro Kernel
			HAL
			Executive Services
		Executive process	1. Function of executive services
			2. Object Types
			3. Cache Controller
			4. Configuration Manager
			5. I/O Manager & it's Components
			6. Local procedure call

			7. Memory manager
			8. Process Structure
			9. PnP Manager
			10. Security Reference Monitor
			11. Graphic Device Drivers
			12. Device Drivers
3	BOOTING PROCESS		
		BIOS Initialization	POST - Power On Self Test
			MBR- Master Boot record
		OS Loader	Windows Boot Manager- bootmgr.exe
			Windows Boot Loader- winload.exe
			BCD - Boot configuration Database
		OS Initialization	ntoskrnl.exe and hal.dll
			System registry and BOOT_START Drivers

		configuration	
			How does it boot when there is multiple OS
		Hibernate State	Hibernating (booting flow) winresume.exe and hiberfil.sys
		Difference in Booting process	Windows 7 Vs Windows XP booting process
		Safe Boot options	What is safe boot option?
			Various safe boot option (Demo to boot from various boot options)
4	FILE SYSTEM		
		What is File System	Disk , Partition and Volume
			Files and Directories- File Attribute and Operations
		Windows file system	FAT
			NTFS
			GPT and ReFS

			Multithreading, Hyperthreading.
			How windows create process?
			Components of Windows process - Threads and Handles
			Why divide an application into multiple threads?
			Why do processes terminate/exit?
		Process scheduling	Windows Scheduling principles
			Scheduling criteria
			Thread priorities
			Process states
8	MEMORY MANAGEMENT		
		Memory Terms	Virtual Memory
			Kernel Memory
			Cached Memory

			Free Memory
			Available Memory
			Commit Memory
		Paging and Virtual Address space	What is Paging; Page-in and Page-out
			Types of Paging
			Page Table
			Paged pool and Non-paged pool
			Virtual Address space for 32 bit windows
			Virtual Address space for 64 bit windows
			Address Windowing extensions
		Working Set	Working set - Private and Shared
			Working set dynamics and Management
			Page Fault mechanisms

			Hard and Soft page fault
		Physical memory	Physical Memory Limits for 32 and 64 bits

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FUNDAMENTALS OF LINUX

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	Operating Systems - Recall	What is the operating system ?	Recall the topics on why operating system is required ?
			What if there is no operating system ?
2	Introduction to Open source	Software classification and Licensing	Freeware
			Commercial
			Open Source
		Open Source	Idea behind the open source projects ?
			First open source project
			Different open source licenses (ASL, GPL, MIT ,etc.,)
3	Introduction to Linux	History of Linux	Development of Unix

			BIOS settings used for boot
			Identification of Bootstrap code and loading
		Bootstrap Loader	Where it is located (MBR)
			Details available in MBR
		Boot Loader	What is the boot loader ?
			GRUB and LILO
			menu.lst information
			Where the boot loader will be stored ?
			How boot loader identifies the operating system location (Kernel) ?
		Kernel	Where is the kernel stored ?
			What is the use of initrd image ?
			Hardware setup
			Mounting the root file system
		Init	The first process of linux
			Starting user services
			Mounting file systems based on fstab
			Creating login session (mingetty)
		Runlevels	What is a runlevel ?
			Start scripts and kill scripts

			Different runlevels available
			Changing the default runlevel
		Login	How the login terminals are started
			Default authentication of users
			Starting of shell
6	Shell	Basics of shell	What is a shell ?
			Features of a shell
			Various different type of shells (BASH, C Shell, T Shell , etc.,)
		Environmental Variables	What is the use of environmental variables ?
			Important environmental variables (PATH, PWD, SHELL)
			How to change the value of environmental variables ?
			Profile scripts
		Shell Commands	File system Browsing
			File & Directory Management
			Process Management

			User Management
7	Process Management	Process	What is a process in linux ?
			Components of a process
			Types of processes
		Process scheduling	What is process scheduling and why it is required ?
			How the scheduling happens in linux ?
		Functions of scheduler	Utilization of CPU
			Throughput
			Turnaround, Wait and Response time
			Fairness
		Methods / Types of scheduling	Normal
			FIFO
			Round Robin
			SJF
			Priority Based

		Inter Process Communication	Why inter process communication, examples ?
			File Based
			Signals / Traps
			Socket
			Message Queue
			Pipe
			Semaphore
			Shared Memory
8	File System	Linux Directory structure	What are the various directories in linux ?
			Different type of files (Hidden file, archive file, flat file, links etc .,)
		Basics of File System	How files are stored in disk ?
			How does operating system understand the hard disk tracks and Sectors?
			Various different type of file systems available (EXT, CDFS, UFS)
		Disk partitioning	What is partitioning ?

			Can we use a hard disk without partitioning ?
			What happens when we partition a hard disk ?
		Formatting the partition	What is mean by formatting ?
			Types of formatting (Hard and Soft)
			Formatting a drive using EXT4 file system
		EXT4 Filesystem	How the ext4 maintains the information about the partition ?
			Structure of an ext4 file system
		Blocks	What are the blocks ?
			Default size of the block and can it be changed ?
		Block Groups	How are block groups formed ?
			Size of the block group and how it is derived
			Boot Blocks
			Super Block
			Group Descriptor
			Datablock Bitmap
			inode Bitmap
			inode Table

			Data Blocks
		Allocation and Deallocation	How a data block is allocated ?
			Use of extents in allocation ?
		Journaling	What is journaling ?
			How journaling happens in ext 4 ?
			Different type of journaling - journal, ordered, writeback
9	Device Management	Device Files	What are the device files ?
			Types of device files (Character / Block)
		Interrupt Management	What are interrupts ?
			Example for IRQs
10	Memory Management	Physical and virtual memory	What is the difference between physical and virtual memory ?
			Which memory is actually used by Processes ?
			What are pages ?

		Virtual Memory	How the pages are addressed ?
			Mapping between physical and virtual address
			Allocation and De-Allocation
			Use of swap memory
			Swap-In and Swap-Out using map table
			Advantages of virtual memory

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FUNDAMENTALS OF DATABASE

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	Introduction		
		What is database?	
		Why we need database?	1.Explain the general & business perspective use of database
		History of Database	1. Data Modeling 2. File systems 3. Hierarchical Databases 4. Network Databases 5. Relational Databases 6. Object Relational Databases
		Database Architecture	1. Two-tier Client / Server Architecture 2. Three-tier Client / Server Architecture
		Database concepts	1. File Based Approach 2. Disadvantages of file based approach 3. Database Approach
2	DBMS		

		What is DBMS?	
		Components of DBMS	Users, Database application, DBMS, Database
		Advantage in using DBMS	List down & Explain the advantages of DBMS
		Function of DBMS	List down the main ten functions of DBMS & Explain
		ACID properties	Atomicity Consistency Isolation Durability
3	**Terminologies**		
		Entity	
		Attribute	
		Domain	Define all the terminologies with an example
		Tuple	
		Degree	
		Cardinality	
		Relational Database	

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4	**RDBMS**		
		What is RDBMS	Difference between DBMS & RDBMS? What is table? What is field? What is row and column? What is NULL value?
		Entity Relationship Modeling	What is relation? What is mean by relationship? Relational types What is primary key & Foreign key? Different type of Keys Constraints Data Integrity
		EF codd rules	All rules
5	**Normalization**		
		What is normalization?	Drawback why normalization is required
		List of Normalization forms	1. UNF 2. 1NF 3. 2NF

			4. 3NF 5. BCNF
6	**SQL**		
		What is SQL?	SQL basics with joins, index and views
		Data types	
		DDL	Create, Alter, Rename, Truncate, Drop
		DML	Insert, Delete, Update, Select
		DCL	Grant, Revoke
		TCL	Commit, Rolback
7	**General RDBMS Architecture**		
		Database Layered Architecture	1. Application Layer 2. Logical Layer 3. Physical Layer
		Logical Modules of RDBMS	1. Query Processing 2. Transaction Management 3. Recovery Management 4. Storage Management
8	**Different DBMS**		

	Products		
		MSSQL	
		Ingress	
		Oracle	1. Features of Different Products
		MySQL	2. Basic terminologies to be known for
		NoSQL	DB administration

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FUNDAMENTALS OF NETWORK

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	Living in a Network Centric World		
		Examples of Today's Popular communication	1. What is communication 2. Components of communication 3. What is network 4. Elements of network 5. Explanation of elements of network
		Introduction to Networking	1. What Is Networking 2. The Advantages (Benefits) of Networking 3. The Disadvantages (Costs) of Networking
		Fundamental Network Characteristics	1. What is Protocols 2. Circuit Switching and Packet Switching Networks 3. Client/Server and Peer-to-Peer Networking

		Network Types	1. LAN 2. WAN 3. MAN 4. WLAN
		Network Topologies	1. Point-to-Point 2. Bus 3. Ring 4. Star 5. Mesh 6. Tree 7. Hybrid 9. Difference between each topologies 10 Advantages and Disadvantages over others and in each topologies
		Network Terminologies	1. The Internet, Intranets and Extranets 2. Performance Measurements: Speed, Bandwidth, Throughput and Latency 3. Simplex, Full-Duplex and Half-

			Duplex Operation 4. Quality of Service (QoS) 5. MAC address 6. Broadcast domain and collision domain
		Network devices	1. NIC 2. Hub 3. Repeater 4. Bridge 5. Switch 6. Router
2	**Addressing the Network – IPv4**		
		IP Addressing Structure	1.Introduction to IP Address 2.Explanation about octets 3.Explaining binary concepts 4.Binary to Decimal & Decimal to Binary conversions

			Classify and Define IPv4 Addresses	1.Name the three types of addresses in the network > Network Address > Broadband Address > Host Address 2.How to determine the network, broadcast and host addresses for a given address and prefix combination 3.Explanation about the three types of communication in the Network Layer > Unicast > Broadcast > Multicast 4.The historic method for assigning addresses and ranges > Class A > Class B > Class C > Class D > Class E

			5.Explanation about Private, Public and loopback address & its ranges

		Assigning Address	1.Explain the importance of using a structured process to assign IP addresses to hosts and the implications for choosing private vs. public addresses 2.Explain how end user devices can obtain addresses either statically through an administrator or dynamically through DHCP 3.Explain which types of addresses should be assigned to devices other than end user devices 4.Describe the process for requesting IPv4 public addresses, the role ISPs play in the process, and the role of the regional agencies that manage IP address registries 5.Identify different types of ISPs and their roles in providing Internet connectivity 6.Identify several changes made to	

			the IP protocol in IPv6 and describe the motivation for migrating from IPv4 to IPv6

| | | Determine the network portion of the host address and the role of the subnet mask | 1.Describe how the subnet mask is used to create and specify the network and host portions of an IP address
2.Use the subnet mask and ANDing process to extract the network address from the IP address
3.Use ANDing logic to determine an outcome
4.Observe the steps in the ANDing of an IPv4 host address and subnet mask
5.Using the subnet mask to determine network address |

		Calculating Addresses	1.Use the subnet mask to divide a network into smaller networks and describe the implications of dividing networks for network planners > How to borrow bits for subneting 2.Extract network addresses from host addresses using the subnet mask 3.Calculate the number of hosts in a network range given an address and subnet mask 4.How to calculate the network address, host addresses and broadcast address using a given subnet mask 5.Given a pool of addresses and masks, assign a host parameter with address, mask and gateway 6.Given a diagram of a multi-layered network, address range, number of hosts in each network and the ranges for each network, create a network	

			scheme that assigns addressing ranges to each network

		Testing the Network Layer	1.Describe the general purpose of the ping command, trace the steps of its operation in a network, and use the ping command to determine if the IP protocol is operational on a local host 2.Use ping to verify that a local host can communicate with a gateway across a local area network 3.Use ping to verify that a local host can communicate via a gateway to a device in remote network 4.Use tracert/traceroute to observe the path between two devices as they communicate and trace the steps of tracert/traceroute's operation 5.Describe the role of ICMP in the TCP/IP suite and its impact on the IP protocol 6. Difference between ping local address and ping loopback address
		Network Concepts	ARP, RARP

3	Communicating over the Network		
		Layers with TCP/IP and OSI Model	1. Application layer 2. Presentation Layer 3. Session Layer 4. Transport Layer 5. Network Layer 6. Datalink Layer 7. Physical Layer TCP/IP 1. Application Layer 2. Transport Layer 3. Internet 4. Network Interface(Link Layer)
		Application Layer	1. What does the Application Layer do ? 2. Functionalities and Responsibilities of this Layer 3. Protocols used in this layer 4. Application API's

		Presentation layer	1. Role of Presentation Layer 2. Services provided by the Presentation Layer 3. Protocols used in this layer
		Session layer	1. What a Session layer will do? 2. Functionalities and Responsibilities of this layer 3. How the connections or sessions are being tracked
		Transport layer	1. What and Why the Transport Layer 2. Services provided by Transport Layer 3. Protocols used in this Layer 4. Elements of Transport Protocol
		Network layer	1. What and why is Network Layer 2. Functionalities and Responsibilities of Network Layer 3. Protocols used in Network Layer 4. Devices used in Network Layer

		Data link layer	1. What is Data link Layer 2. Data link Layer Functionalities 3. Protocols Used in this layer 4. Data link Layer Devices
		Physical layer	1. What is Physical Layer 2. Functionalities of Physical Layer 3. What is a Transmission medium 4. Protocols used in this layer 5. Devices used in Physical Layer
		Encapsulation and De-Encapsulation	1.How Encapsulation happens? 1.1 Example for encapsulation 2.How De-Encapsulation happens? 2.1 Example for De-Encapsulation
		Peer-to-Peer Communication	1.How exactly peer-to-peer Communication happens? 2.How the data changed in each layers? 2.1 Data 2.2 Segments 2.3 Frames

| | | 2.4 Packets |
| | | 2.5 Bits |

4	**Application Layer Functionality and Protocols**		
		The Interface Between Human and Data Networks	
		Features, Operation, and Use of TCP/IP Application Layer Services	
		FTP - File Transfer Protocol	What is FTP? Advantages & Limitations IN FTP
		TFTP - Trivial File Transfer Protocol	What is TFTP? Comparison of FTP & TFTP

		HTTP and HTTPS	What is HTTP? Advantages in HTTP Comparison of HTTP & HTTPS
		Telnet and SSH	What is telnet? Port number used in Telnet Explanation About SSH?
		SNMP - Simple Network Management Protocol	What is SNMP protocol?
		SMTP - Simple Mail Transfer Protocol	What is SMTP Protocol? Advantages of SMTP Protocol
5	**OSI Transport Layer**		
		Transport Layer Role and Services	1. Explain the major role of transport layer in OSI model 2. Port Addressing 3. Port Numbers 4. What is TCP & UDP 5. TCP & UDP headers 6.What is the difference between

			TCP&UDP
			7. Three way handshake 8. Window Size
		Application and Operation of TCP Mechanisms	1. TCP Segment header fields 2. TCP Connection establishment & Termination
		UDP Protocol	1. Characteristics of UDP protocol & types of communication for which it is best suited 2. Process of UDP protocol to reassemble PDU's at the destination device
6	**OSI Network layer**		
		Network Layer Protocols and Internet Protocol	What is network layer? Function of network layer

		Fundamentals of Routes, Next Hop Addresses and Packet Forwarding	Concept of Routing ? What is host routing table and default routes?
7	**OSI Data Link Layer**		

		Sub layers of Data link Layer	1. Logical Link Control
			2. Media Access Control
			  2.1Multiple Access Protocol (CSMA/CD, CSMA/CA)
			  2.2 Physical Addressing

		Services of Data link Layer	1. MAC Addressing
			2. Error Detection and Correction
			  3.1 Backward Error Correction (BEC)
			  3.2 Forward Error Correction (FEC)
			
			3. Flow Control

		Protocols of Data link Layer	LAN protocols 1.Ethernet WAN protocols 1. PPP 2. HDLC 3. Frame relay
8	**OSI Physical Layer**		
		Physical Signaling Sub layer	
		Functions of Physical Layer	1. Definition of Hardware Specifications 2. Encoding and Signaling 3. Data Transmission and Reception 4. Topology and Physical Network Design
		Services in Physical Layer	1. Bit-by-Bit Delivery 2. Transmission Medium (Twisted pair, DSL, ADSL, Coaxial, Optical, Fiber, Wireless Communication) 3. Modulation

			4. Line Coding
9	**TCP/IP Suite**		
		TCP/IP Suite	1.TCP/IP Stack 2.TCP/IP Stack Vs. OSI Model
10	**WLAN**		
		Implementing WLAN	BSS,ESS
			Access point
			Wireless Troubleshooting

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FUNDAMENTALS OF NETWORK SERVICES

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	DHCP		
		Need for Dynamic Allocation	Issues in manual Allocation of IP's
		Technologies prior to DHCP	ARP
			RARP
			BOOTP
		DHCP Concept	What is DHCP and its purpose
			DHCP vs BOOTP
		DHCP Header	Major Fields in DHCP Header
		DHCP Client & Server	Difference b/t DHCP Client and Server
		Different Mechanism to Allocate IP address	Pros, Cons and scenarios for each allocation, IP Reservation, MAC

			Binding, IP Release
		Step by Step Process	Step by step process of DHCP with the information flow, DHCP Messages
2	Name resolution and DNS		
		DNS Concept	History of DNS, Technologies used in olden days
		DNS Hierarchy	DNS hierarchy, root hints, zones Resolution
		DNS Zones	Primary Zone, Secondary Zone, Stub Zone
		DNS Records	Most commonly used records
		Resolution Process	Order of Resolution
			DNS Caching

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			DNS Client side caching
		Types of Name Resolution	Iterative and Recursive Resolution
3	**Directory Service**		
		X.500 directory services	Introduction of X.500
		What & Why is LDAP?	
		Different Protocols used	LDAP, LDAPS and Ports
		LDAP Directory Structure	
		LDAP Operations	Bind, Add, Modify, Delete and Search
4	**Mail Services**		
		What is Email?	Concept of Email
		Different Components of Email System	MTA, MUA, MDA or LDA
		Different Protocols in Email System	SMTP, POP3, IMAP4 and MAPI
		How Email System Works	How email works within domain and outside the domain

5	Proxy Service		
		What & Why is Proxy?	Concept of proxy
		How it works?	
	Ping		
		How ping works	
		Ping results	
		ICMP types	
	Trace route		
		How trace root works	
		Trace root results	
	ARP		
		How ARP works	
		ARP results	
	Reverse ARP		
		How reverse arp works	
		reverse arp results	
		Types of Proxy	Forward and reverse Proxy
		Use of Proxy	

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FUNDAMENTALS OF CLOUD

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	Cloud Computing		
		Cloud Computing	1. What is Cloud? 2. Why Cloud?
		Architecture Differences	1. Traditional 2. Hosted Virtualization 3. Bare-metal Virtualization
		Layers of Cloud	1. Client 2. Application 3. Platform 4. Infrastructure 5. Server
		Elastic	Cloud Burst

		Computing	
2	**Types of Cloud**		
		Delivery Models	1. Public Cloud 2. Private Cloud 3. Hybrid Cloud 4. Community Cloud
		Service Models	1. SaaS 2. PaaS 3. IaaS
		Latest Models	DaaS
			WaaS
3	**Components of Cloud**		
		Cloud Components	1. Clustering Computing 2. Virtualization 3. Grid Computing 4. Management

			Layer
4	**Others**		
		Other Concepts	1. Advantages of Cloud Computing 2. Commercial Offerings
		Use Cases	

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FUNDAMENTALS OF SECURITY

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	Introduction		
		What is security?	Meaning
		Things to be secured	Organizational security
		Why we need security?	Where can information reside
		Way and means information can go out	Some terminologies
		Types of security	Physical,IT&Data
2	Threats and its impact		
		Threats to network security	Viruses Trojan vandal Attacks Interception Social engineering

		What is Malware?	Types of Malware
		What is computer virus?	
		What is Trojan horse?	
		What is worm?	
		What is logic bomb?	
		What is spyware/adware?	
		Zombies	
		What is hacking?	Types of Hackers
3	**Generic attack and its impacts**		
		Data modification	
		Active attacks	
		Passive attacks	
		DOS attacks	1. Techniques of DOS attacks, DDOS
		Spoofing	1. Types of spoofing
4	**Methods of defense**		

		Security Framework	
		Network security tools	
		Antivirus	Virus Detection methods
		Firewall	1. Firewall technologies 2. Types of firewall
		IDS	
		IPS	
		DLP	1. What is DLP? 2. Why we need DLP?
		VPN	

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FUNDAMENTALS OF STORAGE

S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED
1	Storage System Environment	Components of a Storage system environment	Host
			Connectivity
			Storage
2	Storage Types	Direct Attached Storage	What is DAS?
			DAS Software Architecture
		Types of DAS	Internal DAS
			External DAS
		Disk Drive Interfaces	IDE
			SATA
			SCSI
		Network Attached Storage	What is NAS?
			NAS Software Architecture
			File servers Vs NAS devices

		NAS File Sharing protocols	NFS
			CIFS
		Components of SAN	Node Ports
			Cabling
			Interconnect devices (SAN switches)
			Storage Arrays
		Fiber Channel	1. FC P2P
			2. FC Arbitrated Loop
			3. FC Switched Fabric
		Storage Area Network	1. What is SAN?
			2. SAN Software Architecture
			3. Logical Unit Number
			4. Zoning
		IP SAN	What is iSCSI
			Components of iSCSI
3	Data Protection	RAID	What is RAID?
		RAID Types	Software RAID
			Hardware RAID

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FUNDAMENTALS OF APPLICATION

S.NO	PRIMARY TOPICS	SUB TOPICS
1	Introduction to Application	
		What is application?
		Components of Application
		Life cycle of application
2	Types of Application	
		Compiled
		Interpreted
3	API	
		What is API?
		Application to Application API
4	Security	
		What is Application security?
		Attacks and counter measures
5	Application	

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	Architecture types	
		Thick client architecture
		Thin client architecture
		Rich internet application
		Tier