S.NO	PRIMARY TOPICS	SUB TOPICS	POINTS TO BE COVERED	DURATION (THEORY) HOURS / MIN
1	Introduction			
		Introduction to OS	What is OS & Why we need OS?	120
			What are the different types of OS?	
			What is windows OS?	
			What are the advantages & disadvantages of windows OS?	
		Workstation Server	What is windows workstation & windows server OS?	60
			List down the versions of Workstation & Server OS?	
			What are the Minimum requirements need to install windows workstation & server OS?	
			Features of Windows 7 & Server 2008 R2?	
2	Windows kernel			
		Architecture of Windows Kernel	Difference between windows 32 & 64 Bit architecture	60
			What is kernel?	
			Types of kernel	
			What is subsystem and types of subsystem?	
		Mode of Kernel	User mode	40
			Kernel mode	
		Components of Kernel	HAL	20
			Executive Services	
		Executive process	1. Function of executive services	120
			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			
		Pre boot sequence	POST, MBR, NTLDR	60
		Boot sequence	Initial boot loader phase (ntldr)	60
			Operating system selection (boot.ini , bootsect.dos)	
			Hardware detection (ntdetect.com)	
			Configuration selection (HW profile/ configuration recovery menu)	
		Kernel load	Loads ntoskrnl.exe, hal.dll, registry, selects the control set)	20
		Kernel Switches	Kernel Switches /3GB /PAE	20
		Kernel initialization	HW key is created, Clone the control set, Load and initialize drivers, services are created(smss.exe)	20
		Logon	Win32 subsystem (winlogon.exe, lsass.exe, screg.exe)	60
			Types of Logon (Normal logon, Domain logon)	
			How does each logon process works	
			During logon process how key is generated.	
			Types of security (NTLM and Kerberos)	
			Key files and registries that are getting used booting process	
		Remote booting & installation	How does it boot when there is multiple OS	20
		Hibernation	Hibernating (booting flow)	20

4	**File system**			
		What is File System	Creating Files and Directories	40
			Opening & Reading Directories	
			Symbolic Links & Hard Links	
		File	File attributes	
		Types of File system	Disk file system	30
			Optical disks	
			Flash file system	
			Tape file system	
			Database file system	
			Network file system	
			Shared disk file system	
			Special file system	
		Windows file system	FAT	10
			NTFS	
			File-System-Driver	
		FAT	Versions	60
			Disk Structure	
			FAT naming convention	
			Advantages and Disadvantages of FAT File System	
		NTFS	Versions	60
			Features	
			Disk Structure	
			Comparison between NTFS & FAT	
			Demo on Converting File system FAT to NTFS	
5	**Management Mechanisms**			
		Registry	What is registry & its uses?	80
			Structure (Key & values, Hives)	
			Editing	
			Locations (Demo)	
			Backup & Recovery	
			Policy	
		Services	What is Services.msc & it's Function	80
			List of services	
			Core services of windows and its functionalities	
			Service application	
			Service control program	
			Service control manager	
6	**Device Management**			
		Device Driver	What is device Drivers?	60
			Device controller	
			How to install, Update and Uninstall Drivers	
		Power Manager	6 states	
7	**Process Management**			
		Process & Threads	What is process	120
			Process states	
		Processing types	Multiprocessing,Multitasking, Multithreading, Hyperthreading.	

8	Memory Management			
		Virtual Address Space	Virtual address space & Physical storage	120
			Working set	
			Page state	
			Data execution prevention	
			Memory protection	
			Memory limits for windows	
			Virtual address space 64 bits	
		Paging	What is Paging	100
			Types of Paging	
			Thrashing	
			Terminologies	
			Fragmentation	
			Tuning swap size	
		Memory Pool	What is memory pool	20
			Types of Pool	
		Virtual Memory	What is Virtual memory	60
			Functions of Virtual Memory	
			Paged virtual memory	
			Segmented virtual memory	