SUBJECT: Basic Computer Hardware & Security Theory

CLASS XI

SEMESTER I

THEORY

FULL MARKS – 20

(MCQ Type Question)

UNIT	Topic	No of periods assigned	Marks
1	Safety	10	5
2	Introduction to Computer Hardware	22	10
3	Operating Systems and Device Drivers	13	5
	Total	**45**	**20**

DETAIL SYLLABUS

Unit	Topic / Sub Topic	No of periods assigned
1	**Safety** Introduction to Safety Basics • Importance of safety in handling computer hardware • Specification and application of basic hand tools Component Handling and Longevity • Proper handling techniques to ensure component longevity • Avoiding electrostatic discharge (ESD) • Use of antistatic pads and anti-static wrist wraps Protection from External Threats • Protecting a PC from lightning strikes • Steps to safeguard against power outages and surges • Use of surge protectors and uninterruptible power supplies (UPS) Practical Safety Demonstration • Hands-on demonstration of safety practices • Proper grounding and ESD precautions • Safely assembling and disassembling computer components	10
2	**Introduction to Computer Hardware** Overview of Computer Components • CPU, RAM, motherboard, and their functions • Secondary storage devices: HDDs, SSDs, optical drives • Input and output devices: keyboard, mouse, monitor, printer Computer Architecture and System Configurations • Basics of computer architecture • Understanding system configurations • Compatibility of hardware components Computer Assembly and Troubleshooting	22

	• Step-by-step guide to assembling a computer • Techniques for diagnosing and troubleshooting hardware issues • Common hardware problems and solutions	
3	**Operating Systems and Device Drivers** Introduction to Operating Systems • Overview of Windows and Linux. • Role of operating systems in managing hardware Device Drivers and Hardware Communication • Understanding device drivers and their significance • Installation and configuration of device drivers	13
	Total	**45**

SEMESTER II

THEORY

FULL MARKS – 30

(SAQ AND LAQ Type Question)

UNIT	Topic	No of periods assigned	Marks
4	Networking Concepts	20	15
5	Computer Security Fundamentals	15	5
6	Network Security Basics	28	10
	Total	**63**	**30**

DETAIL SYLLABUS

Unit	Topic / Sub Topic	No of periods assigned
4	**Networking Concepts** Introduction to Computer Networks • Advantages of networking • Network topologies: star, ring, bus, tree, mesh, hybrid Types of Networks • LAN, MAN, WAN definitions and differences • Networking components: routers, switches, hubs, modems, etc. Network Technologies • Internet, Ethernet, Wi-Fi, Bluetooth, Mobile Networking • Wired and wireless networking • Introduction to network protocols: TCP/IP, HTTP, HTTPS Intranet, Internet, and Beyond • Difference between Intranet and Internet • Extranet and various generations of mobile networks (3G, 4G, 5G)	20
5	**Computer Security Fundamentals** Importance of Computer Security • Understanding the significance of computer security	15

	• Impact of cyber threats on individuals and organizations Malware Overview • Different types of malware: viruses, worms, trojans • Methods of malware propagation Authentication and Access Control • Basics of authentication mechanisms • Implementing access control measures • Introduction to security principles and best practices	
6	**Network Security Basics** Introduction to Network Security • Key concepts in network security • Threats and vulnerabilities in networked environments Wi-Fi Security • Secure Wi-Fi setup and password management • Risks associated with public Wi-Fi networks Email Security and Safe Online Transactions • Recognizing suspicious emails and attachments • Secure online payment methods Cyber security Best Practices • Importance of regular software updates • Data backup and recovery basics • Tips for safer online behavior Introduction to Cyber Laws and Regulations • Overview of cyber laws and regulations • Legal aspects of cyber security	28
	Total	**63**