

WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION

SUBJECT: MODERN COMPUTER APPLICATION (COMA)

CLASS – XI

SEMESTER – II

FULL MARKS: 35

Unit 1	Data Structure	10 Marks	30 Hrs
	• Definition, types of data structure-linear and non-linear.		2 Hours
	• Arrays: 1D, 2D and their applications.		3 Hours
	Linked List: Basic concepts of Single, circular and double link list.		6 Hours
	• Stack → Stack operations (push and pop), applications of Stack.		4 Hours
	• Queue → Queue operations, applications of queue, basic concepts of circular queue and priority queue.		4 Hours
	• Recursion • Definition. • Advantages and limitations of recursion.		4 Hours
	• Searching and Sorting • Linear Search, Binary Search, and their comparison. • Bubble Sort and its Implementation.		7 Hours
Unit 2	Computer Networks	15 Marks	35 Hrs
	>Introduction to Networking >>Analogue and digital Communication >>Mode of Communication- Simplex, half duplex and full duplex >>Network Architecture- Client server, Peer to Peer >>Serial and Parallel Communication >>Measuring Capacity of Communication Media (bandwidth, channel capacity, baud) >>Synchronous and asynchronous Transmission Mode >>Baseband and Broadband network.		6 Hours
	>Transmission Media >>Wired Communication Media (Twisted Pair, Co-axial cable, Fiber Optic). >>Wireless Communication Media (Radio wave, Microwave, Infrared, Satellite).		3 Hours
	>Network Connecting Devices >>Modem, Ethernet Card, RJ45, Repeater, Hub, Switch, Router, Gateway, Wifi card.		2 Hours
	>Network Type and Topologies >>Types of Network-LAN, MAN, WAN. >>Network Topologies- Bus, Star, Ring, Tree.		3 Hours

	> Network Protocols -HTTP, FTP, PPP, SMTP, TCP/IP, POP3, TELNET, HTTPS, VoIP.	2 Hours
	> Referential Model- OSI Model (Basic Concept, use of devices and protocols at different layers).	1 Hours
	> Introduction to Web Services: WWW, HTML, XML, IP Addresses, Domain names, URL, ISP, Website, Web browser, Web Server, Web Hosting.	3 Hours
	> HTML Basic Tags and Document structure, HTML Tags, Head Tags, Title Tags, Introduction to HTML and Web design, how to create simple Web page, how to format text, Create Table, Adding Web link and Images, Forms, adding styles and classes to web pages, Borders and Background, Adding Video and Graphics.	15 hours
Unit 3	Ethics 10 Marks	15 Hrs
	• Digital Footprints.	1 Hour
	• Data Protection: Intellectual property rights (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open-source software and licensing (Creative Commons, GPL and Apache).	5 Hours
	• Cyber Crime: Definition, hacking, eavesdropping, phishing and fraud emails, ransomware, cyber trolls, cyber bullying.	3 Hours
	• Cyber safety: Safely browsing the web, identity protection, confidentiality.	2 Hours
	• Malware: Viruses, trojans, adware.	1 Hour
	• E-waste management: Proper disposal of used electronic gadgets.	2 Hours
	• Information Technology Act: (IT Act).	1 Hour