

WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION

SUBJECT: COMPUTER SCIENCE (COMS)

CLASS – XI

SEMESTER – II

FULL MARKS: 35

Unit 1	Data Structure	15 Marks	45 Hrs
	❑ Definition, types of data structure-linear and non-linear.		1
	❑ Abstract Data types.		1
	❑ Arrays: 1D, 2D and their applications.		7
	❑ Linked List: Single, circular and double link list.		10
	❑ Stack ❑ Stack operations (push and pop), implementation using array and list, application of Stack.		6
	❑ Queue ❑ Queue operation implementation using array and list, circular queue, de-queue, priority queue.		6
	❑ Recursion ❑ Definition. ❑ Advantages and limitations of recursion. ❑ Understanding what goes behind recursion (internal stack implementation), tail recursion.		4 Hours
Unit – 2	❑ Searching and Sorting ❑ Linear Search, Binary Search and their comparison. ❑ Bubble Sort and its implementation.		10
	Computer Networks	10 Marks	20 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
	❑ Network Connecting Devices ❑ Modem, Ethernet Card, RJ45, Repeater, Hub, Switch, Router, Gateway, Wifi card.		2 Hours

	<p>📌 Network Type and Topologies</p> <ul style="list-style-type: none"> ❑ Types of Network-LAN, MAN, WAN. ❑ Network Topologies- Bus, Star, Ring, Tree. 	3 Hours
	<p>📌 Network Protocols -HTTP, FTP, PPP, SMTP, TCP/IP, POP3, TELNET, HTTPS, VoIP.</p>	2 Hours
	<p>📌 Referential Model- OSI Model (Basic Concept, use of devices and protocols at different layers).</p>	1 Hour
	<p>📌 Introduction to Web Services: WWW, HTML, XML, IP Addresses, Domain names, URL, ISP, Website, Web browser, Web Server, Web Hosting.</p>	3 Hours
Unit – 3	<p>Ethics 10 Marks</p>	Total 15 Hrs
	<p>📌 Digital Footprints.</p>	1 Hr
	<p>📌 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).</p>	5 Hrs
	<p>📌 Cyber Crime: Definition, hacking, eavesdropping, phishing and fraud emails, ransomware, cyber trolls, cyber bullying.</p>	3
	<p>📌 Cyber safety: Safely browsing the web, identity protection, confidentiality.</p>	2
	<p>📌 Malware: Viruses, trojans, adware.</p>	1
	<p>📌 E-waste management: Proper disposal of used electronic gadgets.</p>	2
	<p>📌 Information Technology Act: (IT Act).</p>	1