

**SPLIT-UP SYLLABUS**  
**SUB: COMPUTER SCIENCE (083)**  
**CLASS - XII (NEW SYLLABUS)**  
**(SESSION 2020 - 21)**  
**DISTRIBUTION OF MARKS**

UNIT	UNIT NAME	MARKS
1	Computational Thinking and Programming - 2	40
2	Computer Networks	10
3	Database Management	20
	<b>TOTAL</b>	<b>70</b>

**MONTH- WISE DISTRIBUTION**

Month	Topics to be covered	Th.	Pr.
April	<p><b>Unit I: Computational Thinking and Programming – 2</b></p> <ul style="list-style-type: none"> <li>Revision of the basics of Python covered in Class XI.</li> <li>Functions: scope, parameter passing, mutable/immutable properties of data objects, passing strings, lists, tuples, dictionaries to functions, default parameters, positional parameters, return values, functions using libraries: mathematical and string functions.</li> </ul>	15	9
May- June	<ul style="list-style-type: none"> <li>File handling: Need for a data file, Types of file: Text files, Binary files and CSV (Comma separated values) files.</li> <li>Text File: Basic operations on a text file: Open (filename – absolute or relative path, mode) / Close a text file, Reading and Manipulation of data from a text file, Appending data into a text file, standard input / output and error streams, relative and absolute paths.</li> </ul>	15	9
July	<ul style="list-style-type: none"> <li>Binary File: Basic operations on a binary file: Open (filename – absolute or relative path, mode) / Close a binary file, Pickle Module – methods load and dump; Read, Write/Create, Search, Append and Update operations in a binary file.</li> <li>CSV File: Import csv module, functions – Open / Close a csv file, Read from a csv file and Write into a csv file using csv.reader ( ) and csv.writerow( ).</li> <li>Using Python libraries: create and import Python libraries.</li> </ul>	15	9
Aug	<ul style="list-style-type: none"> <li>Data-structures: Lists as covered in Class XI, Stacks – Push, Pop using a list.</li> </ul>	5	3
Sept	<p><b>Unit II: Computer Networks</b></p> <ul style="list-style-type: none"> <li>Evolution of Networking: ARPANET, Internet, Interspace Different ways of sending data across the network with reference to switching techniques (Circuit and Packet switching).</li> <li>Data Communication terminologies: Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, Kbps, Mbps, Gbps, Tbps).</li> <li>Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link.</li> <li>Network devices: Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, WiFi card.</li> <li>Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN.</li> <li>Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, HTTP, SMTP, POP3, Remote Login (Telnet) and Internet, Wireless / Mobile Communication</li> </ul>	5	

	<p>protocol such as GSM, GPRS and WLL.</p> <ul style="list-style-type: none"> <li>• Mobile Telecommunication Technologies: 1G, 2G, 3G, 4G and 5G; Mobile processors;</li> <li>• Electronic mail protocols such as SMTP, POP3, Protocols for Chat and Video Conferencing: VoIP, Wireless technologies such as Wi-Fi and WiMax</li> </ul>		
	<b>HALF YEARLY EXAMINATION</b>		
<b>October</b>	<ul style="list-style-type: none"> <li>• Network Security Concepts: Threats and prevention from Viruses, Worms, Trojan horse, Spams Use of Cookies, Protection using Firewall, https;</li> <li>• India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking.</li> <li>• Introduction To Web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Website, Web browser, Web Servers; Web Hosting</li> </ul>	5	
<b>November</b>	<p><b>Unit III: Database Management</b></p> <ul style="list-style-type: none"> <li>• Database Concepts: Introduction to database concepts and its need.</li> <li>• Relational data model: Concept of domain, relation, tuple, attribute, degree, cardinality, key, primary key, candidate key, alternate key and foreign key;</li> <li>• Structured Query Language:</li> <li>• General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language;</li> <li>• Data Types: number / decimal, character / varchar / varchar2, date;</li> <li>• SQL commands: SELECT,</li> <li>• DISTINCT, FROM, WHERE, IN, BETWEEN, LIKE, NULL / IS NULL, ORDER BY, GROUP BY, HAVING;</li> <li>• SQL functions: SUM ( ), AVG ( ), COUNT ( ), MAX ( ) and MIN ( );</li> <li>• Joins: equi-join and natural join</li> <li>• Interface of Python with an SQL database <ul style="list-style-type: none"> <li>○ Connecting SQL with Python</li> <li>○ Creating Database connectivity Applications</li> <li>○ Performing Insert, Update, Delete queries</li> <li>○ Display data by using fetchone(), fetchall(), rowcount</li> </ul> </li> </ul> <p><b>Revision, Project Work Submission</b></p>	20	10
<b>Dec-Jan</b>	<ul style="list-style-type: none"> <li>• Project work/<b>Pre-Board Examination</b></li> </ul>		
<b>Feb</b>	<ul style="list-style-type: none"> <li>• <b>Revision &amp; AISSCE Practical Examination</b></li> </ul>		

**GUIDELINES FOR PRACTICAL WORK**  
**COMPUTER SCIENCE (065) :CLASS - XII**  
**DISTRIBUTION OF MARKS**

<b>S. No.</b>	<b>Area</b>	<b>Marks (Total=30)</b>
<b>1</b>	<b>Lab Test:</b> <b>1. Python program (60% logic + 20% documentation + 20% code quality)</b> <b>2. Small Python program that sends a SQL query to a database and displays the result. A stub program can be provided.</b>	<b>7</b> <b>5</b>
<b>2</b>	<b>Report file: Minimum 20 Python programs. Out of this at least 4 programs should send SQL commands to a database and retrieve the result</b>	<b>7</b>
<b>3</b>	<b>Project (that uses the concepts that have been learnt in Class 11 and 12)</b>	<b>8</b>
<b>4</b>	<b>Viva voce</b>	<b>3</b>

\*Refer CBSE Curriculum for detailed guidelines for Project work.