

**AIR FORCE SCHOOL, BAMRAULI**  
**ANNUAL SPLIT-UP OF SYLLABUS**

CLASS - XII (NEW SYLLABUS)

SUB: COMPUTER SCIENCE (083)

ACADEMIC SESSION 2025-26

DISTRIBUTION OF MARKS

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

**MONTH- WISE DISTRIBUTION**

MONTH	CHAPTER / UNIT	TOPIC / SUB TOPICS	NO OF PERIODS	ACTIVITY
April	<b>Unit I</b> Chapter 1  Revision Tour I  Chapter 2 Revision Tour II	<ul style="list-style-type: none"> <li>Python Basics &amp; topics covered in Class XI.</li> <li>Basic Data types and their implementations  Tokens, Types of Data Types  Flow of Control  Sequence Data Types  String List, Tuple and Dictionary, topics covered in Class XI.</li> </ul>	23	Practice of basic outputs and errors based questions  Lab practice on programs using String List , Tuple and Dictionary

<b>May</b>	Chapter 3 Functions	<ul style="list-style-type: none"> <li>• Functions: types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters,</li> <li>• default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope)</li> </ul>	10	Creating Functions and by passing data type i.e. String List , Tuple and Dictionary
<b>June</b>	Chapter 4 Python Library	<ul style="list-style-type: none"> <li>• Python Library Creating Python Library Modules / Methods Importing Python Library Implementing Python Library and methods</li> </ul>	11	Creating and importing libraries to existing programs
<b>July</b>	Chapter 5 Data File Handling	<ul style="list-style-type: none"> <li>• Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths</li> <li>• Text file: opening a text file, text file open modes (r, r+, w, w+, a, a+), closing a text file, opening a file using with clause, writing/appending data to a text file using write() and writelines(), reading from a text file</li> <li>• using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file</li> <li>• Binary file: basic operations on a binary file: open using file open modes (rb, rb+, wb, wb+, ab, ab+), close a binary file, import pickle module, dump() and load() method, read, write/create, search, append and update operations in a binary file</li> <li>• CSV file: import csv module, open / close csv file, write into a csv file using csv.writerow() and read from a csv file using csv.reader()</li> </ul>	26	Python programs to open and close the file, read write and append to a file. Python program to implement text files and binary files. Projects can be assigned with data file handling.

<p><b>August</b></p>	<p>Chapter 6 Exception Handling</p> <p>Chapter 7 Data Structure</p>	<p>Exception Handling</p> <ul style="list-style-type: none"> <li>• Concept of Exception Handling</li> <li>• Implementation of exception handling</li> </ul> <p>Data Structure</p> <ul style="list-style-type: none"> <li>• Elementary data representation</li> <li>• Different types of data structure</li> <li>• Operations on data structure</li> <li>• Implementation of Stack</li> </ul> <p>Insertion Deletion Traversals</p>	<p>24</p>	<p>Python programs to implement Binary file. Python programs to implement Stack using lists</p>
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September	<p><b>Unit II:</b></p> <p>Chapter 8 Computer Networks I</p> <p>Chapter 9 Computer Networks II</p>	<p><b>Computer Networks I</b></p> <ul style="list-style-type: none"> <li>• Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET)</li> <li>• Data communication terminologies: concept of communication, components of data communication (sender, receiver, message, communication media, protocols), measuring capacity of communication media (bandwidth, data transfer rate), IP address, switching techniques (Circuit switching, Packet switching)</li> <li>• Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves)</li> </ul> <p>Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)</p> <p><b>Computer Networks II</b></p> <ul style="list-style-type: none"> <li>• Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree)</li> <li>• Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP, wireless/mobile communication protocol such as GSM, GPRS and WLL</li> <li>• Mobile telecommunication technologies: 1G, 2G, 3G, 4G and 5G Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting</li> </ul>	21	<p>Different Devices used in networking will be shown to the students.</p> <p>Network topologies implemented in the school will be described.</p>
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	<b>Unit III</b> Chapter 10 Relational Database	<b>Relational Database</b> <b>Database Management</b> <ul style="list-style-type: none"> <li>• Database concepts: introduction to database concepts and its need</li> <li>• Relational data model: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key)</li> </ul>		Hands on Database and various type of keys and commands
<b>October</b>	Chapter 11 Simple Queries in SQL  Chapter 12 Table Creation and DML Commands  Chapter 13 Grouping and Joins  Chapter 14 Interface Python with Sql	<ul style="list-style-type: none"> <li>• Select statements and its attributes</li> <li>• Structured Query Language: introduction, Data Definition Language and Data Manipulation Language, data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command, aggregate functions (max, min, avg, sum, count),</li> <li>• Group by, having clause, joins: cartesian product on two tables, equi-join and natural join</li> <li>• Interface of python with an SQL database: connecting SQL with Python, performing insert, update, delete queries using cursor, display data by using fetchone(), fetchall(), rowcount, creating database connectivity applications</li> </ul>	20	Mysql and hands on practicals on various queries on DDL and DML commands. Demonstrating the students to install a suitable connector for connecting databases with python.  Programs on connecting python with sql and executing the queries through python programs and printing the result with various fetch methods

<b>November</b>	Revision, Practice of Sample Papers Project Work, Pre Board I
<b>December</b>	Revision, Practice of Sample Papers Pre Board II
<b>January</b>	Revision, CBSE Board Practical Examination
<b>February</b>	CBSE Board Examinations

**GUIDELINES FOR PRACTICAL WORK**  
**COMPUTER SCIENCE (083) :CLASS - XII**  
**DISTRIBUTION OF MARKS**

<b>S. No.</b>	<b>Area</b>	<b>Marks (Total=30)</b>
<b>1</b>	<b>Lab Test: 1. Python program (60% logic + 20% documentation + 20% code quality)</b>	<b>7 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.