SPLIT-UP SYLLABUS

SUB: COMPUTER SCIENCE (083)

CLASS - XII (NEW SYLLABUS)

(Session 2021-22)

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	Topics to be covered	Th.	Pr.
April	**Unit I: Computational Thinking and Programming – 2** • Revision of Python topics covered in Class XI. • Functions: types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope)	30	20
May-June	• Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths • 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 using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file	20	10
July	• 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 • 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( ) • Python libraries: creating python libraries	30	25
Aug	• Recursion: simple programs with recursion: sum of first n natural numbers, factorial, fibonacci series • Idea of efficiency: number of comparisons in Best, Worst and Average case for linear search • Data Structure: Stack, operations on stack (push & pop), implementation of stack using list. Introduction to queue, operations on queue (enqueue, dequeue, is empty, peek, is full), implementation of queue using list.	25	25
Sept	**Unit II: Computer Networks** • Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET) • 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)	25	20

	• Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves) • Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)		
October	**HALF YEARLY EXAMINATION**		
	• Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree) • Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP, wireless/mobile communication protocol such as GSM, GPRS and WLL • 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	15	05
November	**Unit III: Database Management** • Database concepts: introduction to database concepts and its need • Relational data model: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key) • 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), group by, having clause, joins: cartesian product on two tables, equi-join and natural join • • 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 **Revision, Project Work Submission**	15	05
Dec-Jan	• **Pre-Board Examination**		
Feb	• **Revision & AISSCE Practical Examination**		

GUIDELINES FOR PRACTICAL WORK

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

*Refer CBSE Curriculum for detailed guidelines for Project work.