

KENDRIYA VIDYALAYA SANGATHAN: BHUBANESWAR REGION

Split up syllabus (Theory& Practical)**Class: XII****Subject: Computer Science****Max Marks: 70****2022-23**

Unit	Unit Name	Marks (Theory)
I	Computational Thinking and Programming - 2	40
II	Computer Networks	10
III	Database Management	20
	Total	70
S no	Area	Marks(Practical)
1	Lab Test: 1. Python program (60% logic + 20% documentation + 20% code quality) 2. Small Python program that sends a SQL query to a database and displays the result. A stub program can be provided.	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
	Total	30

Approximate No. of working days from July – Nov 2022.*The following calculation may differ in a day or two as the case of school may be*

Month	No. of working days after removing Sundays, 2 nd Saturday, holiday	Possible theory periods	Possible practical periods
April 2022	22	22	14
May-June 2022	12	12	06
July 2022	26	26	16
Aug 2022	22	22	14
Sep 2022	20	20	10
Oct 2022	18	18	8
Nov 2022	22	22	10
Dec 2022	18	18	6
Jan 2023	21	21	11
Feb 2023	21	0	00

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Class: XII

Subject: Computer Science (083)

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Month	Portion to be covered	Theory	Practical	No. of working days available
April 2022	Unit I - Programming and Computation Thinking - 2 Revision of Python topics covered in Class XI. <ul style="list-style-type: none"> • 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) 	22	14	22
May 2022- June 2023	Data File Handling: Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths <ul style="list-style-type: none"> • 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 	12	6	12
July 2022	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 <ul style="list-style-type: none"> • CSV file: import csv module, open / close csv file, write into a csv file using csv.writer() and read from a csv file using csv.reader() • Data Structure: Stack, operations on stack (push & pop), implementation of stack using list. 	26	16	26
August 2022	Unit II: Computer Networks <ul style="list-style-type: none"> • 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) • 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) • 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 • Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting. 	22	14	22

September 2022	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	20	10	20
October 2022	• Structured Query Language: 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	18	8	18
November 2022	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	22	10	22
December 2022	Revision Work, Pre Board – I	Project Development / Practical file submission etc.		
January 2023 & February 2023	Remedial classes, Pre Board – II Practical Examination Board Exams			