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Sector – 3 Dhurwa Ranchi-4

Class VIII IT Syllabus(2020-2021)

Prescribed Books:

➢ **IT Framework 8 Avartan**

Months	No. of Working Days	Unit / Chapters	Sub Topics	Exam / Tests Portion
April		Networking Concepts	❖ Computer Network ❖ Types of Network ❖ Network Components ❖ Network architecture ❖ Network Security	
		Log on to Access	❖ Types of Database ❖ Elements of a DBMS ❖ Components of MS Access 2013 ❖ Starting Access 2013	
May		Log on to Access	❖ Creating a Database ❖ Vies of a Database ❖ Rules for Naming Fields ❖ Data Types in Access ❖ Adding Tables in Design View and Datasheet View ❖ Primary Key ❖ Sorting a Table ❖ Filtering Data ❖ Searching i a Database ❖ Closing Access 2013	
June		Queries Forms and Reports in Access	❖ Setting a Relationship between Tables ❖ Query ❖ Forms ❖ Reports	**PT I Portion** Networking Concepts + Log on to Access
July		Lists and Tables in HTML 5	❖ Lists ❖ Properties of Lists ❖ Nested List **Revision for PT I**	**Half Yearly Exam Portion** **PT I Portion** + Queries Forms and Reports in Access + Lists and Tables

Month		Topic	Subtopics	Exam Portion
			in HTML 5	
August		Lists and Tables in HTML 5	❖ Description List ❖ Tables	
		Images, Links and Frames	❖ Inserting Images ❖ Linking Web Pages **Revision for Half Yearly Exam**	
September		Images, Links and Frames	❖ CSS and Links ❖ Inserting Audio and Video ❖ Frames and IFrames	
October		Learning Photoshop CS6	❖ Starting Adobe Photoshop CS6 ❖ Component of Photoshop CS6 Window ❖ Panels ❖ Using a Tool ❖ Creating a New File ❖ Saving a File ❖ Closing a File ❖ Selection Tools ❖ Move Tool, Crop Tool and Slice Tool ❖ Common Painting Tools	**PT II Portion** Images, Links and Frames + Learning Photoshop CS6
		More on Photoshop	❖ More on Painting Tools ❖ Retouching Tools ❖ Type Tool ❖ Drawing Tools ❖ Layers **Revision for PT II**	
November		More on Visual Basic 2015	❖ More controls on VB ❖ Control Statements ❖ Using Controls Statements in a Form ❖ Looping	
December		Trading Tools of the Internet	❖ Cloud Computing ❖ Google Office Suite: Drive, Docs, Slides and Sheets	**PT III Portion** More on Photoshop + More on Visual Basic 2015
		Internet Safety	❖ Data Privacy ❖ Responsible Online Behaviour ❖ Online Banking Safety Mesures	
January		**Revision for PT III & Final / Annual Term**		**Final / Annual Term Portion** Learning Photoshop CS6 + More on Photoshop + More on Visual Basic 2015 + Trading Tools of the Internet + Internet Safety + Whole Syllabus

Class IX Computer Applications Syllabus(2020-2021)

Prescribed Books:

➢ **A Textbook of Computer Applications for Class 9 By Sumita Arora Dhanpat Rai & Co.**

Months	No. of Working Days	Unit / Chapters	Sub Topics	Exam / Tests Portion

April		Basics of Information Technology I	❖ **Computer Systems**
			  o Characteristics of a computer
			  o Components of a computer system – CPU. Memory, Storage devices and I/O devices
			❖ **Memory**: Primary (RAM and ROM) and Secondary memory
			❖ **Storage Devices**: Hard Disk, CD ROM, DVD, Pen/Flash Drive, memory stick	

May		Basics of Information Technology II	❖ **I/O Devices**: keyboard, mouse, monitor, printer, scanner, web camera ❖ Types of software: System software(Operating system, device driver), application software including mobile applications	

June		Basics of Information Technology III	❖ **Computer Networking**
			  o Types of networks: PAN, LAN, MAN, WAN
			  o Wired/ Wireless communication, Wi-Fi, Bluetooth, Cloud computers(Private/ Public)
			❖ Multimedia: Images, audio, video, animation
				PT I Portion
				
				Basics of Information Technology(April + May + June Sub Topics)

July		Cyber Safety	❖ Safely browsing the web and using social networks: identity protection proper usage of passwords privacy, confidentiality of information, cyber staking, reporting cybercrimes	**Half Yearly Exam Portion** **PT I Portion** + Cyber Safety (July Sub Topics)

			❖ Safely accessing websites: viruses and malware **Revision for PT I**	

August		Office Tools I	❖ **Word Processor**
			    o Introduction to a word processor: Create and save a document
			    o Edit and format text: text style(B,I, U), font type, font size, text colour, alignment of text. Format paragraphs with line and / or paragraph spacing. Add headers and footers, numbering pages, grammar and spell check utilities, subscript and superscript, insert symbols, use print preview and print a document
			Revision for Half Yearly Exam	

September		Office Tools II	❖ **Word Processor**
			    o Insert pictures, changes the page setting, add bullets and numbering borders and shading and insert tables – insert/delete rows and columns merge and split cells
			    o Use auto format, track changes, review comments, use of drawing tools, shapes and mathematical symbols	

October		Office Tools III	❖ **Presentation Tool**
			    o Understanding the concept of slide shows
			    o Basic elements of a slide
			    o Different types of slide layout
			    o Create and save a presentation
			    o Different slide view – Normal view, slide sorter view and handouts view
			    o Edit and format a slide: add title, subtitles, text background and watermark, header and footers and slide numbers
			    o Insert pictures from files, create animation, add sound effects and rehearse timings
			Revision for PT II
				PT II Portion
				
				Office Tools I + Office Tools II Word Processor

November		Office Tools IV	❖ **Spreadsheets**
			    o Concepts of a worksheet and a workbook, create and save a worksheet
			    o Working with a spreadsheet: enter numbers, text, date/time, series using auto file, edit and format a worksheet including changing the colour, size, font, alignment of text, insert and delete cells, rows and columns, enter a formula using the operators(+,-,*,/)	

			refer to cells and print a worksheet
			o Use simple statistical function: SUM(),
			  AVERAGE(), MAX(), MIN(),IF() (Without
			  compound statements), embed charts of various
			  types, line, pie, scatter, bar and area in a worksheet.	

December		Python	❖ Introduction to Python ❖ A simple Hello World program ❖ Running a Python program ❖ The notion of data types and variables: integer, float, string ❖ Arithmetic operation: +, -,*,/ ❖ Computer Applications Projects Work	**PT III Portion** Office Tools III Presentation Tools
January		**Revision for PT3 & Final / Annual Term**		**Final / Annual Term Portion** Office Tools IV Spreadsheets + Python + subscript and superscript + slide layout + Operating system + Whole Syllabus

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Class X Computer Applications Syllabus(2020-2021)

Prescribed Books:

➤ **A Textbook of Computer Applications for Class 10 By Sumita Arora Dhanpat Rai & Co.**

Months	No. of Working Days	Unit / Chapters	Sub Topics	Exam / Tests Portion

April		Networking I	❖ Internet
			   o World Wide Web, Web Servers, Web Clients, Web Sites, Web Pages, Web Browsers, Blogs News Groups, HTML, Web Address, E mail Address
			❖ Downloading and Uploading files from a Remote Site
			❖ Internet Protocols
			   o TCP/IP, SMTP, POP3, HTTP, HTTPS
			❖ Remote Login and File Transfer Protocols
			   o SSH, SFTP, FTP, SCP,TELNET,SMTP, TCP/IP	

May		Networking II	❖ Services Available on the Internet
			   o Information Retrieval
			   o Locating Sites using Search Engines
			   o Finding People on the Net
			❖ Web Services
			   o Chat , E-mail, Video Conferencing, E-Learning
			   o E-Banking, E-Shopping, E-Reservation, E-Governance, E-Groups, Social Networking
			❖ Mobile technologies
			   o SMS, MMS, 3G, 4G	

June		HTML I	❖ Introduction to web page designing using HTML ❖ Create and save an HTML document ❖ Access a web page using a web browser	**PT I Portion** Networking I + Networking II

Month		Topic	Content	Exam Portion

July		HTML II	Unit 2 HTML
			 ❖ HTML Tags
			  o HTML, HEAD, TITLE
			  o BODY(Attribute text, background, bgcolor, link, vlink, alink)
			  o BR(Break), HR(Horizontal Rule)
			  o Inserting Comments
			  o H1…H6(Heading)
			  o P(Paragraph)
			  o B(Bold),I(Italics),U(Underline)
			  o UL(Unordered List), OL(Ordered List)
			  o LI(List Item), Description Lists : DL DT and DD
			  o Attributes of OL (start, type), UL (type)
				Half Yearly Exam Portion
				
				 PT I Portion + HTML I + HTML II

August		HTML III	❖ Font tags (attributes: face, size, color) ❖ Insert images: img (attributes: src, width, height, alt)), sup(super script), sub(subscript)	
September		HTML IV	❖ HTML Forms: Textbox, Radio buttons, Checkbox, Password, List, Combo box ❖ Embed audio and video in a HTML page ❖ Create a table using the tags: table, tr, th, td, rowspan, colspan ❖ Links; Significance of linking; anchor element(attribute: href, mailto), targets	
October		HTML V	❖ Cascading style sheets: color, background-color, border-style, margin height, width, outline, font(family, style, size), align, float	**PT II Portion** HTML I + HTML II + HTML III + HTML IV + HTML V
		Cyber Ethics	❖ Netiquettes ❖ Software licenses and the open source software movement ❖ Intellectual property rights, plagiarism and digital property rights ❖ Freedom of information and the digital divide ❖ E-commerce: Privacy, fraud, secure data transmission	
November		Python	❖ Revision of Python Basics ❖ Conditionals: if, If-else statements ❖ Loops: for, while(e.g. sum of first 10 natural numbers) ❖ Practice simple programs ❖ Computer Applications Projects Works	
December		**Revision for Board Exam**		**Pre Board / Mock I / II Portion** Whole Syllabus

Class XI Computer Science Syllabus(2020-2021)

Prescribed Books:

➢ **Computer Science with Python Textbook for Class 11 By Sumita Arora Dhanpat Rai & Co.**

Months	No. of Working Days	Unit / Chapters	Sub Topics	Exam / Tests Portion
July		Computer Systems and Organisation (CSO)	❖ Basic computer organisation: description of a computer system and mobile system, CPU, memory, hard disk, I/O, battery, power. ❖ Types of software: application, OS, utility, libraries. ❖ Language of Bits: bit, byte, MB, GB, TB, and PB. ❖ Boolean logic: OR, AND, NAND, NOR, XOR, NOT, truth tables, De Morgan's laws ❖ Information representation: numbers in base 2, 8, 16, unsigned integers, binary addition ❖ Strings: ASCII, UTF8, UTF32, ISCII (Indian script code) ❖ Execution of a program: basic flow of compilation – program > binary > execution ❖ Interpreters (process one line at a time), difference between a compiler and an interpreter ❖ Running a program: Notion of an operating system, how an operating system runs a program, idea of loading, operating system as a resource manager. ❖ Concept of cloud computers, cloud storage (public/private), and brief introduction to parallel computing	
August		Programming and Computational Thinking (PCT-1) I	❖ Familiarization with the basics of Python programming: a simple "hello world" program, process of writing a program, running it, and print statements; simple data-types: integer, float, string ❖ Introduce the notion of a variable, and methods to manipulate it (concept of L-value and R-value even if not taught explicitly)	

Month		Topic	Content	
			❖ Knowledge of data types and operators: accepting input from the console, assignment statement, expressions, operators and their precedence. ❖ Conditional statements: if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort 3 numbers, and divisibility. ❖ Notion of iterative computation and control flow: for, while, flowcharts, decision trees and pseudo code; write a lot of programs: interest calculation, primarily testing, and factorials.	
September		Programming and Computational Thinking (PCT-1) II	❖ Idea of debugging: errors and exceptions; debugging: pdb, break points. ❖ Lists, tuples and dictionary: finding the maximum, minimum, mean; linear search on list/tuple of numbers, and counting the frequency of elements in a list using a dictionary. Introduce the notion of accessing elements in a collection using numbers and names. ❖ Sorting algorithm: bubble and insertion sort; count the number of operations while sorting. ❖ Strings: compare, concat, substring; notion of states and transitions using state transition diagrams.	**Half Yearly Exam Portion** Computer Systems and Organisation (CSO) + Programming and Computational Thinking (PCT-1) I
October		Data Management (DM-1) I	❖ Relational databases: idea of a database and the need for it, relations, keys, primary key, foreign key; use SQL commands to create a table, keys, foreign keys; insert/delete an entry, delete a table.	
November		Data Management (DM-1) II	❖ SQL commands: select, project, and join; indexes, and a lot of in-class practice. ❖ Basics of NoSQL databases - Mongo DB.	
December		Society, Law and Ethics (SLE-1) - Cyber safety	❖ Cyber safety: safely browsing the web, identity protection, confidentiality, social networks, cyber trolls and bullying ❖ Appropriate usage of social networks: spread of rumours, and common social networking sites (Twitter, LinkedIn, and Facebook) and specific usage rules. ❖ Safely accessing web sites: adware, malware, viruses, Trojans ❖ Safely communicating data: secure connections, eavesdropping, phishing and identity verification.	
January			**Revision for PT3 & Final / Annual Term**	**Final / Annual Term Portion** Whole Syllabus

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Class XII Computer Science Syllabus(2020-2021)

Prescribed Books:

> **Computer Science with Python Textbook for Class 12 By Sumita Arora Dhanpat Rai & Co.**

Months	No. of Working Days	Unit / Chapters	Sub Topics	Exam / Tests Portion
April		Computer Networks (CN) I	❖ Structure of a network: Types of networks: local area and wide area (web and internet), new technologies such as cloud and IoT, public vs. private cloud, wired and wireless networks; concept of a client and server. ❖ Network devices such as a NIC, switch, hub, router, and access point. ❖ Network stack: amplitude and frequency modulation, collision in wireless networks, error checking, and the notion of a MAC address, main idea of routing. IP addresses: (v4 and v6), routing table, router, DNS, and web URLs, TCP: basic idea of retransmission, and rate modulation when there is congestion (analogy to a road network), Protocols: 2G, 3G, 4G, Wi-Fi. What makes a protocol have a higher bandwidth?	
May		Computer Networks (CN) II	❖ Basic network tools: traceroute, ping, ipconfig, nslookup, whois, speed-test. ❖ Application layer: HTTP (basic idea), working of email, secure communication: encryption and certificates (HTTPS), network applications: remote desktop, remote login, HTTP, FTP, SCP, SSH, POP/IMAP, SMTP, VoIP, NFC.	
June		Programming and Computational Thinking (PCT-2)	❖ Revision of the basics of Python ❖ Functions: scope, parameter passing, mutable/immutable properties of data objects, pass arrays to functions, return values, functions	

Month		Unit	Topics	Exam Portion
		I	using libraries: mathematical, and string functions. ❖ File handling: open and close a file, read, write, and append to a file, standard input, output, and error streams, relative and absolute paths. ❖ Using Python libraries: create and import Python libraries	
July		Programming and Computational Thinking (PCT-2) II	❖ Recursion: simple algorithms with recursion: factorial, Fibonacci numbers; recursion on arrays: binary search ❖ Idea of efficiency: performance defined as inversely proportional to the wall clock time, count the number of operations a piece of code is performing, and measure the time taken by a program. Example: take two different programs for the same problem, and understand how the efficient one takes less time.	**Half Yearly Exam Portion** Computer Networks (CN) I + Computer Networks (CN) II + Programming and Computational Thinking (PCT-2) I
August		Programming and Computational Thinking (PCT-2) III	❖ Data visualization using Pyplot: line chart, pie chart, and bar chart. ❖ Data-structures: lists, stacks, queues.	
September		Society, Law and Ethics (SLE-2)	❖ Intellectual property rights, plagiarism, digital rights management, and licensing (Creative Commons, GPL and Apache), open source, open data, privacy. ❖ Privacy laws, fraud; cyber-crime- phishing, illegal downloads, child pornography, scams; cyber forensics, IT Act, 2000. ❖ Technology and society: understanding of societal issues and cultural changes induced by technology. ❖ E-waste management: proper disposal of used electronic gadgets. ❖ Identity theft, unique ids, and biometrics. ❖ Gender and disability issues while teaching and using computers.	
October		Data Management (DM-2) I	❖ Write a minimal Django based web application that parses a GET and POST request, and writes the fields to a file - flat file and CSV file.	
November		Data Management (DM-2) II	❖ Interface Python with an SQL database ❖ SQL commands: aggregation functions – having, group by, order by.	
December		**Revision for Board Exam**		**Pre Board / Mock I / II Portion** Whole Syllabus