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FOR PUNJAB CLASS 12 PREPARATION

PSEB 12th Class Syllabus 2027 Computer Science

EXAM	YEAR	TYPE	SUBJECT
Punjab Class 12	2027	Syllabus	Computer Science

Syllabus - Computer Science
Session 2026-27
Class 12th

Unit-I

Chapter 1: Office Automation and Typing

- Word Processor: Introduction to MS Word
- Document Writing and Editing in MS Word: Adding new text, Deleting a part of the text, Copying a text, Moving text, Formatting text, Alignment, Line Spacing, Bullets and Numbering
- **Working with Fonts:** Change the Font, Change the Default Font Settings
- **Proofing:** Auto Correct, Spelling & Grammar; Find and Replace
- **Page Setup:** Margins, Orientation, Paper Size; Page Borders; Print Preview & Print
- **MS Excel** – Spread sheet Software; Formula Bar; Working with Formulas-Mathematical Operators for Formulas, Basic steps for creating a formula, Manual Formula
- **Working with Functions:** Steps for using a function, AutoSum, Commonly Used Functions – SUM, COUNT, MAX, MIN, AVERAGE, NOW, TODAY, CONCATENATE, UPPER, PROPER; Relational Operators for Conditional/Logical Functions, Conditional Functions-IF, SUMIF, COUNTIF
- Border and Shading, Custom Filter, Custom Sort, Freeze Panes
- Page Setup and Printing Options: Margins, Orientation, Size, Print Area, Breaks, Background, Print Titles
- **File Conversion**: How to convert an Excel file to a PDF
- **Typing Technique:** Touch Typing, Voice Typing
- Font Conversion Tool

Chapter 4: Computer Network

- Introduction to Network, Need of Networking
- **The OSI Layers:** Physical Layer, Data-Link Layer, Network Layer, Transport Layer, Session Layer, Presentation Layer, Application Layer

- **Network Devices:** Hub (Active Hub, Passive Hub, Intelligence hub), Switch, Routers- Functions of a Router, Repeater, Bridge- Types of Bridges, Gateway, Brouter
- **Communication Media:** Guided Media- Twisted Pair Cable (Unshielded Twisted Pair (UTP), Shielded Twisted Pair (STP), Advantages and Disadvantages of twisted pair cable), Coaxial Cable (Advantages and Disadvantages of Coaxial cable), Optical Fibre (Advantages and Disadvantages of optical fibre); Unguided Media- Infrared (Applications of Infrared Waves in Communications), NFC, Bluetooth, Wi-Fi, Radio Waves (Applications, Advantages and Disadvantages of Radio-waves), Micro waves (Applications, Advantages and Disadvantages of Microwave), Satellites (Advantages and Disadvantages of Satellite Microwave)
- **Communication Modes:** Categories of transmission Modes- Simplex Mode (Advantage and Disadvantages of Simplex mode), Half-Duplex Mode (Advantage and Disadvantages of Half-Duplex mode), Full Duplex Mode (Advantage and Disadvantages of Full-Duplex mode)
- **Network Sharing**: Printer Sharing
- **Protocol:** TCP/IP, FTP, PPP, SMTP, POP/IMAP, HTTP
- Network Component Addresses: MAC Address, IP Address

Unit-II

Chapter 2: Functions in Python

- Introduction to functions and their benefits, Types of Functions
- **Built-In Library Functions:** How to Use Built-in Functions in Python?, Commonly used Built-in Functions of Python – bin(), oct(), hex(), chr(), ord(), abs(), divmod(), max(), min(), pow(), sum(), round(), sorted(), reversed() functions.
- **User Defined Functions in Python**: How to define and use a User Defined Function (UDF) in Python, Parameters Vs Arguments
- **Python Modules:** How to Create and use a User Defined Module?, Using Built-in Modules of Python

Chapter 3: Built-In Collections of Python

- **Introduction to Python's Built-In Collections**: Sequences, Mappings & Sets
- **Working with Sequences**: Common Sequence Types – Strings, Indexing of Strings, Lists, Indexing of Lists, Tuples, Tuples Packing and Unpacking, and Indexing of Tuples. Traversing Sequences Using Loops – using for loops (using range() function & without range() function), using while loop. Operators for Sequences – Concatenation, Repetition, Membership, and Slicing Operators.
- **Working with Mappings**: Dictionary, Traversing a Dictionary, Mutability of Dictionary – Add, Update and Delete values of dictionary
- Working with Sets

Unit-III

Chapter 5: Current Trends in Information Technology

- Introduction to Information Technology, Definition of Information Technology
- **Applications of Information Technology**: Business, Classroom Education, Online Education, Finance, Health, Media, Transport, Telecommunication, Entertainment, Defence
- **Current Trends in Information Technology:** Mobile Internet, Wi-Fi Technology, Bluetooth technology, E-Commerce, M-Commerce Technology, GPS Technology, Android Technology, Virtual Reality, Nanotechnology, 5G Technologies, Internet of Things (IoT) Technology, Multimedia Technology, Cloud Computing: Cloud Printing, Cloud Storage (Advantages and Disadvantages)

Chapter 6: Artificial Intelligence and Expert System

- Introduction to AI, What is Artificial Intelligence?
- **Types of AI:** Type-1 (Narrow Artificial Intelligence (NAI), General Artificial Intelligence (GAI), Strong Artificial Intelligence (SAI)), Type-1I (Reactive Machines, Limited Memory Machine, Theory of Mind, Self-Awareness)

- **Importance of AI:** Game Playing, Voice Recognition, Understanding the Natural Language, Computer Vision& analysis
- **Applications of AI:** Intrusion Detection System, Gaming, Natural Language Processing, Machine Learning, Expert Systems, Vision Systems, Speech Recognition, Handwriting Recognition, Intelligent Robots
- Purpose or Goal of AI, Pros and Cons of Artificial Intelligence
- **Expert Systems**: Components of Expert System (User Interface, Inference Engine, Knowledge Base), Characteristics of Expert Systems, Limitations of Expert systems, Comparison between Human and Expert Systems
- **Robotics**: Generations of Robots, Applications of Robotics, Introduction of Languages used to develop AI (Python, R, Lisp, Prolog, Java)

Unit-IV

Chapter 7: Digitalization

- Introduction to Digitalization
- **E-Commerce**: Types of E-Commerce-Business to Business (B2B), Business to Customer (B2C), Customer to Customer (C2C), Customer to Business (C2B); Advantages of E-Commerce, Disadvantages of E-Commerce
- **Digital or Online Payment**: Online Payment Methods-Credit Card, Debit Card, E-Wallets, NetBanking / Banking Apps, Mobile Banking, BHIM App (Bharat Interface for Money); Benefits of Online Payment
- **E-Learning**: MOOCs (Massive Open Online Courses), SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds), SWAYAM PRABHA
- National Academy Depository (NAD)
- **Digital Locker**: How to use DigiLocker

Chapter 8: E-Governance (Part-2)

- Introduction, Concept of E-Governance
- **Working System of E-Governance:** G2G (Government to Government), G2C (Government to Citizen), G2B (Government to Business), G2E (Government to Employee), G2N (Government to NGOs)
- **Levels of E-Governance:** National Level, Domestic Level/State Level, International Level; Benefits & Drawbacks of E-Governance;

- What is Smart Governance?; Sarba Sewa/Sewa Kendra/Sanjh Kendra
- **Awareness of Aadhar**: What is an Aadhar, Features of Aadhar, Uses of Aadhar
- **Information System**: Components of Information System, Types of Information System-Transaction Processing System (TPS), Decision Support System (DSS), Executive Information System (EIS), Management Information System (MIS), Expert System

Practical Activities

12th Class (Computer Science)

1. After preparing the resume in MS Word as shown below, save the Word document with your name, print it and save your resume in PDF format:

Your Name
Mobile-: 91- Your Contact Number

youremailid@gmail.com

Objective:

To work with a group of people where I can utilize my acquired knowledge & skills for the betterment of organization and subsequently gain expertise in my area of work.

Education qualification

- 12th from PSEB Punjab in 2020 with **90.33%.**
- **10th** from PSEB Punjab in 2018 with **86.50%.**

Personal Qualities

- Always willing to learn new things
- Flexible to work with any team environment
- Never give up
- Team work ability
- Punctual and Disciplined
- Do things with Patience and perseverance

Personal Information

Father's Name	Your Father Name
Date of Birth:	DD-MM-YYYY
Gender:	Male/Female
Nationality:	Indian
Address	House No, Street No, Address Line1 Address Line 2 Pin Code: XXXXXX, District: AAAAAAA, Punjab

Hobbies

- Social restructuring through awareness and education
- Imparting knowledge to others
- Meditating.

Declaration

I hereby declare that all the above stated information is correct and true to the best of my knowledge and belief.

Date: DD-MM-YYYY

Place: Your City Name **Signature**

2. Prepare the Word document as shown below:

Sales Invoice

Invoice Number: INV0076 Submitted Date: 2020-05-04

To

Account Name:
E-mail: murli@abc.com
Phone Number: 7865389176
Point of Contact: David

Invoice Details

Invoice Date: 2020-05-04
PO Date: 2020-05-04
PO Number: 123
PO Amount: $450.00
Payment Terms: Net30

Invoice Items:

Product	Price	Quantity	Total Price
Camera	$200.00	1	$200.00
TV	$150.00	1	$150.00
Video Game	$100.00	1	$100.00

Invoice Summary

Subtotal: $450.00	Tax: $10.00	Freight Charges: 4.00	
		Total Invoice Amount:	$464.00

3. Prepare the result sheet in Excel as shown below. It generates the result using formulas and functions and displays the result data by formatting it with the help of Conditional Formatting:

S.No.	Name of the Student	Class	Pol Science	History	Comp Sci	Total	Percentage	Result
1	Mohinder Singh	12th	56	86	98	240	80.00	Pass
2	Rajpal Kaur	12th	23	56	95	151	50.33	Pass
3	Monika Devi	12th	63	56	63	182	60.67	Pass
4	Palwinder Kaur	12th	Absent	Absent	Absent	Absent	Absent	Absent
5	Ramesh Lal	12th	63	65	56	184	61.33	Pass
6	Yunus Khan	12th	98	85	90	273	91.00	Pass
7	Meera Devi	12th	13	33	30	0	0.00	Fail
8	Ram Kumar	12th	69	56	80	205	68.33	Pass
9	John	12th	Absent	Absent	Absent	Absent	Absent	Absent
10	Rakesh Kumar	12th	62	75	75	212	70.67	Pass

Total Number of Students	10
Total Absent Students	2
No of Students Passed	7
No of Students Failed	1
Max Marks	273
Min Marks	0

4. **Prepare Time Table of your class in Excel.**
5. **Convert the integer value 45 into its binary, octal and hexadecimal equivalents.**
6. **Find the Unicode value for the characters: A, m, 8, %**
7. **Find the quotient and remainder values for the following divisions: 56/6, 45/52**
8. **Find the minimum and maximum values from the list [45,56,17,4,85,78]**
9. **Write a program to calculate sum of the list [45,56,17,4,85,78] and then sort the list using python functions.**
10. **Define a user defined function in python to calculate the area of circle.**
11. **Write a program in Python to traverse a list using for loop.**
12. **Write a program in Python to traverse a string using while loop.**
13. **Write a program to perform concatenation of two or more lists in Python.**
14. **Write a program to perform slicing operation on a String.**
15. **Write a program to check if an item is available in the list or not.**
16. **Write a program in Python to add, update and delete items of a dictionary.**
17. **Download the syllabus and ebooks of your subjects from the official website of Punjab School Education Board (https://www.pseb.ac.in/).**
18. **Create your account on Digi locker and download your Aadhaar Card or 10th Class DMC.**
19. **Edit an image using any Image Editing Software and make necessary changes in it as per your requirement.**
20. **Compress the size of any image and save it in PDF format.**
21. **Create a movie by joining different photos with the help of any Video Editing Software. Also insert Titles, Transition Effects etc. in the movie.**
22. **Merge and Splits some audio/video files with the help of any Audio/Video Cutter/Joiner.**

Charts/Models

- **Prepare a chart/model showing the various types of functions in Python**
- **Prepare a chart/model showing the various types of Commonly used Built-In Collections in Python**
- **Prepare a chart/model showing the Indexing representation of Sequences in Python**
- **Prepare charts/models illustrating different Types of Communication Media**
- **Prepare charts/models showing Types of Communication Modes with suitable Examples**
- **Prepare charts/models showing Current Trends in Information Technology (IT)**
- **Prepare a chart/model showing the various Components of the Expert System**
- **Prepare a chart/model illustrating the Types of E-Governance**