

**CLASS XII INFORMATION PRACTICES (PYTHON and MySQL)
[AS PER CBSE SYLLABUS]**

UNIT	UNIT NAME	MARKS
1	Data Handling using Pandas and Data Visualization	25
2	Unit 2: Database Query using SQL	25
3	Unit 3: Introduction to Computer Networks	10
4	Unit 4: Societal Impacts	10

➔ **Revision of Class XI Python Programming and MySQL (Database)**

Unit 1: Data Handling using Pandas and Data Visualization

➤ **Introduction to Python libraries- Pandas, Matplotlib.**

- Data structures in Pandas - Series and Data Frames.
- Series: Creation of Series from – ndarray, dictionary, scalar value; mathematical operations; Head and Tail functions; Selection, Indexing and Slicing.
- Data Frames: creation - from dictionary of Series, list of dictionaries, Text/CSV files; display; iteration; Operations on rows and columns: add, select, delete, rename; Head and Tail functions; Indexing using Labels, Boolean Indexing;
- Importing/Exporting Data between CSV files and Data Frames.

➤ **Data Visualization**

- Purpose of plotting; drawing and saving following types of plots using Matplotlib – line plot,
- bar graph, histogram
- Customizing plots: adding label, title, and legend in plots.

Unit 2: Database Query using SQL

➤ **Revision of XI class MySQL**

- Math functions: POWER (), ROUND (), MOD ().
- Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM ().
- Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY (), DAYNAME ().
- Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT (*).
- Querying and manipulating data using Group by, Having, Order by.

Unit 3: Introduction to Computer Networks

- Introduction to networks, Types of network: LAN, MAN, WAN.
- Network Devices: modem, hub, switch, repeater, router, gateway
- Network Topologies: Star, Bus, Tree, Mesh.
- Introduction to Internet, URL, WWW, and its applications- Web, email, Chat, VoIP.
- Website: Introduction, difference between a website and webpage, static vs dynamic web page, web server and hosting of a website.
- Web Browsers: Introduction, commonly used browsers, browser settings, add-ons and plug-ins, cookies.

Unit 4: Societal Impacts

- Digital footprint, net and communication etiquettes, data protection, intellectual property rights (IPR), plagiarism, licensing and copyright, free and open source software (FOSS), cybercrime and cyber laws, hacking, phishing, cyber bullying, overview of Indian IT Act.
- E-waste: hazards and management.
- Awareness about health concerns related to the usage of technology.

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