


Jar
Comp. S

Use for rough work

Q. No. 2 Part (i)

Binary System

Binary system is a numbering system which contains two values (0 & 1). It have the power 2. It's base is also 2.

E.g.

0100010.

Purpose

It is used for the purpose of the Communication. Computer uses binary system to communicate in between themselves. The data that is transferred from computer to computer is in the form of Binary Digits (0, 1).

Q. No. 2 Part (ii) Real world business problems

There are actual issues defined by companies.

- Low sales.
- Customer Dissatisfaction.

Role of data science

- Analyze the data to find the causes.
- Suggest solutions to improve performance.

Q. No. 2 Part (iii) Searching Algorithm

Searching Algorithm is a type of algorithm that is used in search engines for the purpose of searching information and articles etc.

E.g. Bing.

i) Linear Search.

Linear serch sequently check each element in a list until the missing element is found.

Q. No. 2 Part (iv) **Front - End Technologies**

Front - end development focuses on what users see on the websites when they open it.

i) HTML: Creates structure.
ii) CSS: Add the style & colour.
iii) Java Script: Add interactivity (Buttons, animations).

These technologies works together to create user friendly environment.

Q. No. 2 Part (v) **System Software**

System software controls the hardware resources of the computer.

- It is neeessary to run a computer.
- It provides platform to application Software. to run.

E.g.

Operating system like **windows, Android, IOS** etc.

Q. No. 2 Part (vi) Data Science

Scope of Data Science.

i) Sports. Data Science is used in sports to predict which team will win. based on its current performance.

ii) Healthcare. Data Science is used in healthcare department to analyze the blood pressure, Sugar and diseases etc.

iii) Business. Data science is used in business to predict which company or shares are increasing or decreasing.

Q. No. 2 Part (vii) Binary Search

Binary Search is efficient used on sorted data.

Advantages

i) Very fast. Divide's down ~~it~~ into ~~halves~~ halves to reduce time consumption.

ii) Efficient for large data set. It is much better than the linear search.

Condition Data must be sorted.

Q. No. 2 Part (viii)

Abstraction

Abstraction refers to the removing of the unnecessary details from the data.

Importance

- It reduces the program complexity.
- It makes code easier to understand and maintain.
- Helps developers focus on logic instead of the details.

E.g. using function without involving their internet code.

Q. No. 2 Part (ix)

Data Visualization

Two types of the Data visualization are written below.

i) Timeporal Visualization. Timeporal visualization deals with data which changes with the passage of the time.

E.g. Line graph.

ii). Categorical Visualization. Categorical visualization deals with the data that falls into distinct categories shows representation of the whole.

E.g. Pie chart.

Q. No. 2 Part (x) AI applications for.

i) AI agents. AI helps to develop AI agents like alexa, siri and google assistant etc. which helps in our daily life like in academics.

ii) Automation. AI helps us in performing tasks automatically without human effort. like the manufacturing of products and cars.

Q. No. 2 Part (xi) Information Security for.

Information security is important for us on the internet due to the various points that are mentionned below.

i) Protects personal & business data.

ii). Prevents hacking, fraud & Identity theft.

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Q. No. 3 (Page 1)

Long Q. Basic role of the following.

a). Translator.

A translator is a type of system software that converts a program written in a high level language into machine language so that the computer can understand & execute it.

Importance.

- Makes programming easier.
- Allows humans to write code in simple language.

b) IDE.

An IDE is a software application that provides all tools needed for programing in one place.

Advantages.

→ It increases productivity.
→ It helps detects error quickly.
→ It provides user friendly interface.

c). Code Repository.

A code repository is a storage location where developers save & manage their code. **E.g.** GitHub.

Q. No. 3 (Page 2)

Importance.

—> It keeps code organized
—> It allows teamwork.
—> It prevents data loss.

d). Debuggers.

A debugger is a tool used to find and fix errors (bugs) in a program.

Importance

—> Improves program quality.
—> Helps programmers understand code behaviour.

e). Languages Editor.

A language editor is a tool used to write and edit programming code.

E.g. Notepad++, VS Code.

Importance.

—> Makes coding easier.
—> Reduces mistakes and improves readability.

Q. No. 4 (Page 1)

Long 2. Software methods.

The five software methods to protect devices are.

(1) Anti-Virus Software.

Anti-virus software is used to detect, prevent & remove viruses & malware from a device. It scans files, programs & downloads to find harmful content and removes it.

Eg. It protects your computer from infected USBs & downloaded files.

(2) Firewall.

Firewall acts as the security barrier between your device & the internet. It monitors the incoming & outgoing network traffic and blocks unauthorized messages.

Importance.

Prevents hackers & malicious programs from entering your system.

(3) Regular Software updates.

Software updates fix security weaknesses in programs. Hackers often exploit outdated software, so keep it updated improves the protection.

Q. No. 4 (Page 2)

Ex Updating windows & mobile phones regularly solves security vulnerabilities.

(4) **Strog password & Authentication.**

Strog password & unique passwords helps protect accounts & devices from unauthorized accessed. By using 2FA two factor authentication provides an extra layer of security

Ex A password + OTP (~~ot~~ one time code)

(5) **Encryption.**

Encryption converts data into a secure coded form that cannot be easily understood by unauthorized users. All the authorized users with a key can access the original data.

Importance.

It protects sensitive information like passwords, messages and financial data.

Q. No. 5 (Page 1)

IOT (Internet of Things).

IOT stands for Internet of things.
IOT provides remote access. It is a system in which physical devices (watches, Home appliances & vehicles) are connected to the internet & can collect, share and act on data automatically.
IOT works through three main components.

(1) Sensors. (Data collection).

Sensors are devices that detect & collect data from the surrounding environment

Role.

(1) Measure physical conditions such as
Temperature
Light
Motion.

(2) Convert real world signals into digital data.

i.e. A temperature sensor in a smart AC detects room temperature.

Sensors are the first step in IOT biz without data collection the system doesn't works.

Q. No. 5 (Page 2)

(2) Connectivity

After data is collected, it is sent to other devices or servers through conductivity.

Role

(1) Transfers data from sensors to clouds or servers.
(2) Connect devices using wifi, Bluetooth & Mobile Networks.
(3) Enables communication between devices.

E.g A smart watch sends your health data to a mobile app via Bluetooth.

Connectivity ensures that the data reaches the right place for processing.

(3) Data Processing.

Once data is received, it is processed to generate useful results.

Role.

—> Analyzes collected data.
—> Makes decision based on programmed logic.
—> May use Artificial Intelligence.
—> Sends commands back to devices.

E.g

A smart thermostat adjst temperature automatically.

Q. No. 6 (Page 1)

Long 4.

Digital Communication.

It is a process of sharing information ideas or messages using the digital devices such as smart phone & computer. It allows people to communicate quickly and easily over long distances using text, audio, video and the multimedia.

Features

1. Fast and instant communication.
2. Global reach.
3. Supports multimedia
4. Easy storage & sharing of information.

Digital tools to communicate Ideas.

Different audiences (students, professionals, public) require different communication tools. Some Important tools are.

1. Email.

Email is a formal digital communication tool used to send messages over the internet

Uses.

→ Professional communication.
→ Sending documents & reports.

Suitable.

Businesses, Teaches & organizations.

Q. No. 6 (Page 2)

Advantages.

→ Reliable & secure.

→ Can attach files.

② Presentation Software.

Presentation tools help in visually explaining ideas using slides.

Eg. Powerpoint, google slides.

Uses.

→ Teaching

→ Buisness purpose.

Suitable for. Students & professionals

Advantages.

→ Easy to understand

→ Supports images, charts & animations.

③ Video Conferencing tools.

These tools allow real-time face-to-face communication over internet.

E.g Zoom, google meet

Uses.

→ Online classes.

→ Buisness projects / meetings

Suitable for. students teachers.

④ Social Media platforms.

Social media allows users to share ideas, information & updates with a large audience.

E.g Facebook instagram

Suitable for. General public & large audience.

Uses. ① Public awareness ② Marketing & promotion

Advantage ① Fast communication ② Wide reach.