



Use for rough work

Q. No. 2 Part (i)

(i)

**BINARY SYSTEM:-**

The binary number System In which data is represented by the form of Os and 1s. This is Called binary System.

- It has base 2.

→ It is used in Computer because machines only Undesstand data in the form of Os and 1s.

Q. No. 2 Part (ii) (ii)

## REAL-WORLD BUSSINESS PROBLEMS:-

These are actual issue faced by Companies Such as.

- Low Sales
- Customer dissatisfication.

## ROLE of DATA SCIENCE:-

- Analyze data to find Causes
- Suggests Solution to improve performance.

Q. No. 2 Part (iii) (iii)

## SEARCHING ALGORITHMS:

The algorithms are Used to find way, paths to Solve a problems is Called Searching Algorithms.

### for Example:-

1) Binary Search
2) linear Search

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Q. No. 2 Part (iv) (iv)

## FRONT-END TECHNOLOGIES:-

front-end development focuses on what user see on a website.

## TECHNOLOGIES:-

- **HTML:** Create structure (heading, paragraphs)
- **CSS:** Adds style (color, layout)
- **JavaScript:** Adds interactivity (button, animations)

Q. No. 2 Part (v) (v)

## SYSTEM SOFTWARE:-

→ A software which manage hardware and system resources.
→ It is also use to control the operation of the Computer.
→ It requires that System is working properly.

## FOR EXAMPLE:-

- Window
- android
- lenux

Q. No. 2 Part (vi) (vi)

## SCOPE of DATA SCIENCE :-

→ Data Science is the interdisciplinary field of Computer, mathematic and Statistics. It has very large Scope.

- **Healthcare:** Data Science is used to Predict health of patients according to their previous reports to disease.
- **Good Transportation:** It has also helped to choosing easy and fast routes for goods delivery.

Q. No. 2 Part (vii) (vii)

## ADVANTAGES of BINARY SEARCH :-

Binary Search is an efficient method used on store data.

### ADVANTAGES :-

- **Very fast:** Divides data into halves, reducing Search time.
- **Efficient for large datasets:** Much better than linear Search.

### CONDITION :-

Data must be stored.

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Q. No. 2 Part (viii) (viii)

## IMPORTANCE of ABSTRACTION IN PROGRAM DEVELOPMENT :-

→ Abstraction plays an important role in program development by hiding inrellevent information and focusing on more important information.

→ It is also important because of Safe the time of developes by showing only important informations.

Q. No. 2 Part (ix) (ix)

## TYPES of DATA VISULIZATION :-

Data Visuli-zation help present data in visual form for better Understanding There are the Some types of data Visulization is as follows:-

- **Bar chart:** Compares quantities
- **Pie chart** : Shows Proportions
- **Line graph** : shows trend over time.

**Benifits:-**

- Easy to Understand
- Help in desicion-making.

Q. No. 2 Part (x) (x)

## CHURN PREDICTION :-

→ Churn prediction means that how likely it is to lose Coustumes.

→ It helps to predict for the Customers who likely to stop buying products Service of your Company.

→ It make us able to Send offers to Users who are likely to stop buying Services.

Q. No. 2 Part (xi) (xi)

## IMPORTANCE OF INFORMATION SECURITY :-

The importance of Information Security is as follows:

→ Protects personal and bussiness data.

→ Prevent hacking, fraud and Identity theft.

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## ① TRANSLATOR :-

A translator is type of System Software that Converts a program written in a high-level languages into the machine language So that the Computer Can Understand and execute it.

**Importance :-**

- make programming easier.
- Allows humans to write Code in Simple languages.

## ② INTEGRATED DEVELOPMENT ENVIROMENT :-

An IDE is a Software application that provide all tools needed for programming in one place.

**Advantages :-**

- It Increases productivity.
- It helps detect errors quickly.
- It provide Usa-friendly interface.

## ③ CODE REPOSITORY :-

A Code repository is a storage location where developers save and manage their code.

**Example :-** Github.

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**Importance:-**
- It keeps Code Organized.
- It Allow team Work.
- It Prevent data loss.

④ **DEBUGGERS:-**

A Debuggers is a tool Used to find and fix error (bugs) in a program.

**Importance:-**
- Improve program quality.
- helps programmers Understand Code behavior.

⑤ **LANGUAGES EDITOR:-**

A language editor is tool Used to Write and edit programming Code.

**Example:-** Notepade++, VS Code.

**Importance:-**
- Makes Coding easier
- Reduce mistake and improve readability.

"Q. No. 4 (Page 1) LONG NO 2(b).

## TRACE TABLE :

• {3, 1, 4, 1, 5, 9, 2, 6}

By Using Abstraction and Data integration.

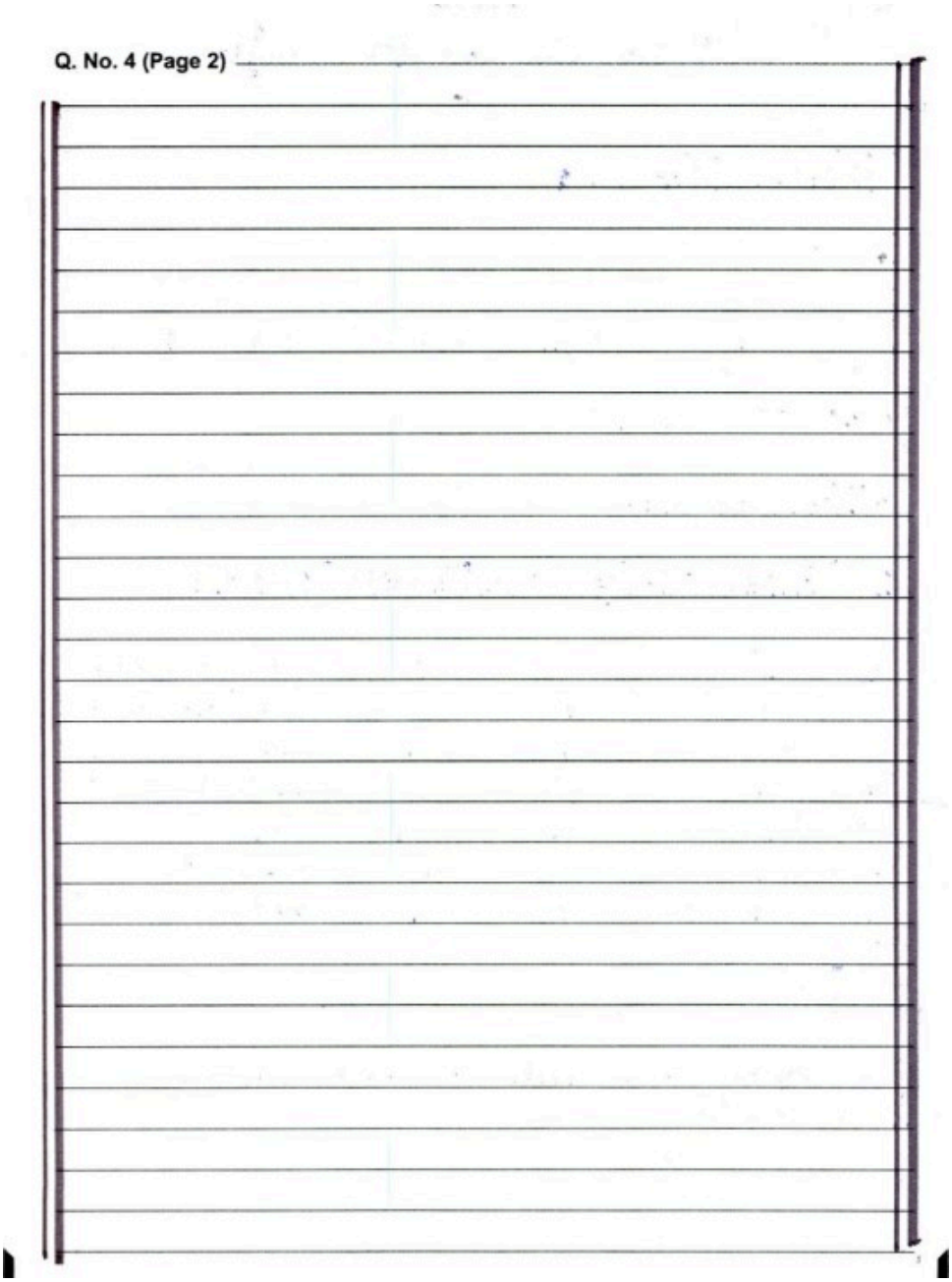
→ {3, 1, 4, 5, 9, 2, 6}

• Trace table :-

| # | Initial Value | final Value | Updated values. | Results |
|---|---|---|---|---|
| 1 | 3 | 3 | 3 | 3≯3 = (updated to 3 |
| 2 | 3 | 1 | 3 | 3≯1 = (updated to 3) |
| 3 | 3 | 4 | 4 | 3<4 (11 u to 4) |
| 4 | 4 | 5 | 5 | 4<5 (11 11 to 5) |
| 5 | 5 | 9 | 9 | 5<9 (11 11 to 9) |
| 6 | 9 | 2 | 9 | 9≯2 (u u to 9) |
| 7 | 9 | 6 | 9 | 9>6 (1111 to 9) |
| 8 | | | | |

So, the trace table show that 9 is the largest Vale

Q. No. 4 (Page 2)



Q. No. 5 (Page 1) LONG NO 03)

## INTERNET OF THINGS:

The Internet of thing is a System in which physical devices (like Smart watches, home appliances, and vehicles) are Connected to the Internet and Can Collect, share and act on data automatically.

IoT Works on through three main Component:

### 1. SENSORS (DATA COLLECTION):-

Sensor are devices that detect and Collect data from the Sorronding enviroment.

### ROLE of Sensors:

- Measure physical Condition Such as.
  - temperature.
  - light
  - Motion
  - Humidity.
- Convert real-world Signals into digital data i.e. A temperature Sensor in a Smart AC detect room temperature.

Sensor are the first step in IoT because without data Collection, the System Cannot function.

### 2. CONNECTIVITY (DATA TRANSMISSION):-

After data is Collected, it is Sent to other devices or Servors through Connectivity.

Q. No. 5 (Page 2)

**Role of Connectivity:-**

- Transfers data from sensor to cloud or Servess.
- Connect devices Usings:
  → WAi
  → Bluetooth
  → Mobile networle.
- Enable Communication b/w devices.

**Example:-** A Smart watch Sends your health data to a mobile app via Bluetooth

**3. DATA PROCESSING (Analysis & Action):-**

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

**Role of Data Processing:-**

- Analyze Collected data.
- Makes decision based on programmed
- May use Artificial Intellegence.
- Send Commands back to devices.

**Example:-**

- A Smart thermostat temperature automatically.

Q. No. 6 (Page 1) Long No 04)30 —.

# DIGITAL COMMUNICATION:-

Data Comm.

It allows people to Communicate quickly and easily over long distance using text, audio, and multimedia.

## Feature of Digital Communication:-

- Fast and instant Communication.
- Global reach (Connect people Worldwide)
- Supports multimedia (text, images, video)
- Easy storage and sharing of information.

## DIGITAL TOOLS TO COMMUNICATE IDEAS TO DIFFERENT AUDIENCES:-

Different audiances (student, professional, publics) require different Communication tools. Some important digital tools are.

### Email:-

Email is a formal digital Communication tool used to send messages over the Internet.

- Professional Communication.
- Sending document and reports.

Suitable for business, teachers.

Q. No. 6 (Page 2)

**Social Media Platform:-**

Social media allows user to share ideas, information and updates with large audiance.
Ex:- facebook, Instagrom.
- Public awareness
- Marketing and promotions

**Video Conferencing Tools:-**

These tools allow real-time face to face communication over the internet.
Example:- Zoom, google meet.
- online classes
- Bussiness meetings.

**Presentation Software:-**

Presentation tools help in vissally explaining ideas Slides.
Ex:- Power Point, Google Slides.
- Teaching
- Bussiness Presentations.