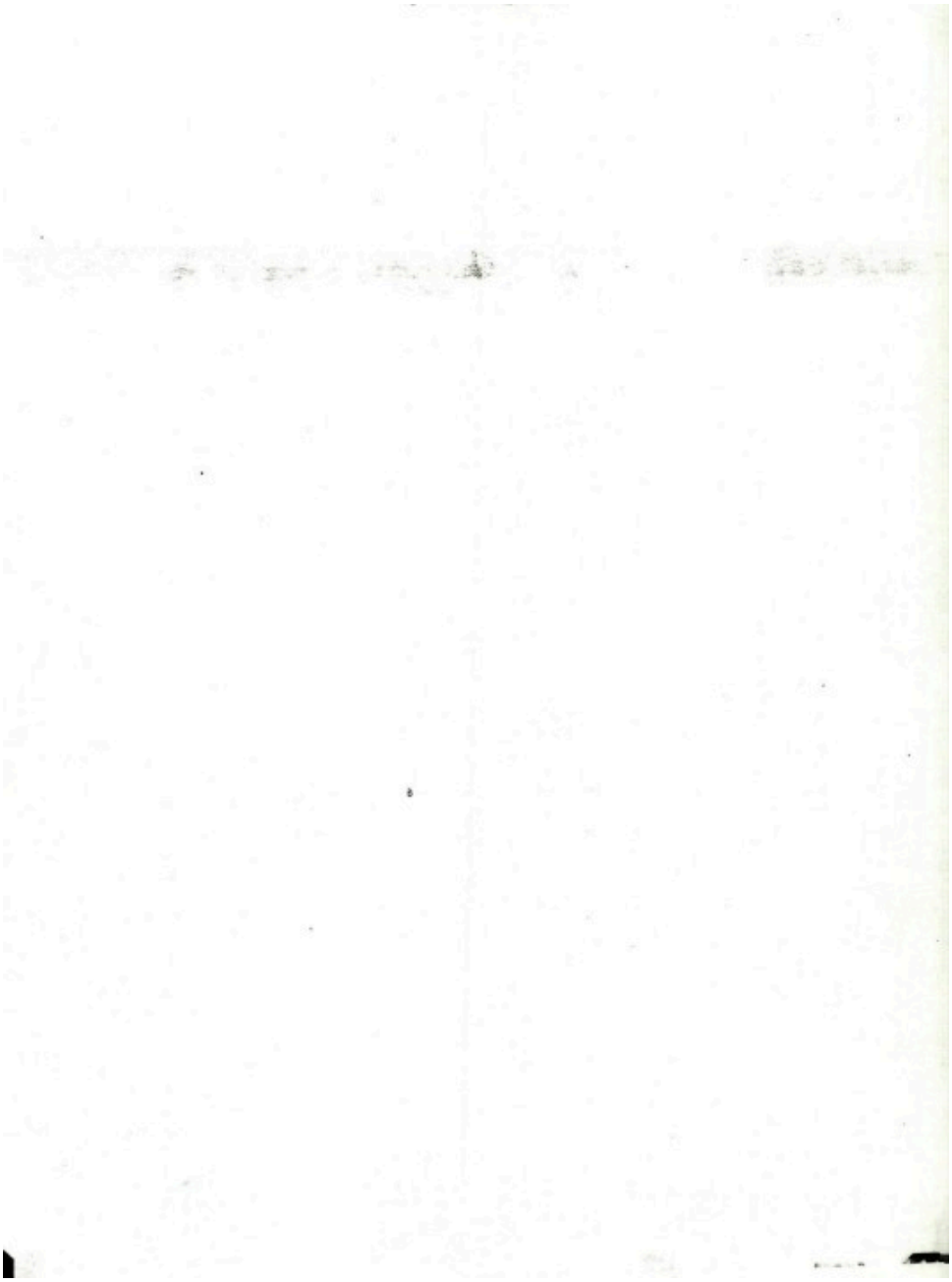




Use for rough work

Q. No. 2 Part (i)

Purposes:~

Two purposes of Data Science are:-

- Data science is used to extract meaningful insights from complex data sets.
- Data Science is used to assist in decision-making.

Q. No. 2 Part (ii) System Software manages communication between hardware components in following ways:-

- It allocates CPU time to each component so each of them accesses the CPU in/according to time.
- It provides device drivers to hardware components so they providing connectivity.

Q. No. 2 Part (iii)

Signed:- Singned Binary integers can be represented by both positive or negative sign. For their calculation, if last bit is 0 then number is positive and we use simple binary operation for it. If number is negative, ends with it, we use 2's Compliment.

Unsigned:- Unsigned numbers do not have any sign and only have magnitude. Unsigned numbers are represented by positive sign.

Q. No. 2 Part (iv) Different audiences should be considered while sharing information because:-

- If your shared information offends a group of audience it may cause global divide.
- They should be considered so that anyone's tradition, custom, beliefs are not disrespected and are respected.

Q. No. 2 Part (v) IoT:-

Internet of things is a network of server that connects multiple devices and facilitate man-to-machine and machine-to-man interaction. It collects information through a variety of sensors and stores them in a cloud storage and processes them. It is used in many modern day devices such as smart phones, watches.

Q. No. 2 Part (vi) **Scope:~**

Data Science is an inter-disciplinary field of mathematics, and statistics. It has scope in the business sector as it allows them to visualize the market trends and make decisions. It is also useful in transportation as it helps in route optimization, that reduces cost and delievery time.

Q. No. 2 Part (vii) **Condition:~**

Two necessory conditions for binary search are:-

- The array in which the Binary search is to be performed must be sorted.
- The time for the search must become half.

Q. No. 2 Part (viii) **Importance:~**

Abstraction is important in program development because:-

•>It hides the unnecessary details, so we can focus on the important ones.

•>It reduces complexity, makes it easier and reduces time.

Q. No. 2 Part (ix) **Types:~**

Two types of digital data visualization are:-

•>Histogram:-

shows distribution of single value

•>Line Chart:-

represents trends over time.

Q. No. 2 Part (x) **Application :~**

Two applications of Ai in our daily life are:-

- Ai is used in machines and household equipments. for e.g now we can ON or off our Air conditioner through voice command.
- Small robots that are used to clean the house are also due to advancements of Ai.
- Ai is used to make Ai Agents such as Chatbot, Siri.

Q. No. 2 Part (xi) **Importance :~**

Information Security is important because:-

- So that no one access or know our passwords
- So that our private data remains safe from malicious attackers.

Q. No. 3 (Page 1) If an organization is using ~~data~~ data visualization to work on very large data sets. It will be helpful in following ways.

Reveal Hidden Patterns:~

Data visualization helps in Revealing the Hidden pattern and the Identify them by representing the large complex data on charts such as Bar chart or line chart. It makes the data easier to understand.

Identify Trends:~

Data visualization helps to identify trends among the large data set. It clearly represents the trends over-time through a line chart, that shows when the value fluctuates or whether the it is increasing or decreasing.

Represent Variables:~

Data visualization is really helpful in identifying and representing the variable values clearly and easily that are present in the data sets. It uses Scatterplot for the representation of variables.

Q. No. 3 (Page 2)

Comparison of Values:-

Data Visualization helps in efficient and easy comparisom of constant and variable values present in the data sets. It uses box plots for this purpose.

Reduces Complexity:-

Data visualization simplies the large data sets and reduces complexity by extracting meaningful insights and trends. That make data easier to understand and decision making.

Q. No. 4 (Page 1)

Software Methods:~

Five Software methods to protect our devices from ~~malicious~~ unauthorized access are:-

Anti-virus Softwares:~

Installing Anti-virus Softwares can help to protect our devices from viruses as it repeatedly scans for any virus or in the devices and removes it if found.

Updating OS:~

Updating our OS and Softwares is another way of protecting devices as updates often addresses those areas that are weak in security and fixes them.

Firewall:~

Using Firewall is another method, as it controlls the traffic going in or out of the device, only allowing approved traffic it provides another layer of protection.

Password Protection:~

By Using Unique

Q. No. 4 (Page 2) and strong password for every account we can protect our devices. We should also enable Two factor Authentication (2FA) where available.

Websites and Links:-

We should always install softwares or applications from trusted or officials websites. We should also be really careful with the link that we click on.

Q. No. 5 (Page 1)

Iot :~

Internet of things is a network of servers that connects multiple devices and facilitates man-to-machine and machine-to-man interactions. It consists of components such as sensors, connectivity and data processing. Their roles in Iot are:-

Sensor:~

Sensors are used in IoT to collect information from various sources. This information can be collected from variety of sensors. Some common sensors are:-

- Temperature Sensors
- Pressure Sensor.

Sensors may be simple and can also be complex like surviliance camera paired with an alarm, that activites if any malicious activity occurs. Sensors may be a stand alone device or multiple sesors such as mobile phones.

Connectivity :~

The data collected by the sensor needs to be transferred to cloud by some mean, Connectivity is used to transfer the data from Sensor to Cloud storage.

Q. No. 5 (Page 2) Wide Area Networks, Wi-fi and Blue tooth etc are used ~~are used~~ for connectivity.

Data Processing :~

Data processing has the role to process the data stored in the cloud. It is responsible for receiving raw data and processing it and making it available for execution. It uses machine learning algorithms and statistical analysis for this purpose.

Q. No. 6 (Page 1)

Digital Communication

Digital communication refers to connectivity, interaction or communication that we access through our devices and digital platforms. Digital communication has made communication really easier as people from all around the world can communicate and connect to each other through the digital tools and platforms.

Tools:~

4 tools to communicate our ideas to our audiences are:-

Youtube:~

Youtube is a social media platform and digital tool that is really helpful in communicating ideas. It allows the people to create short videos and long video, as well as live streaming that is really helpful in communicating ideas.

Instagarm:~

Instagaram is a digital tool that helps people connect, and allow them to chat and share content. The content in Istagram

Q. No. 6 (Page 2) is shared through reels where people may express their life styles and views on any topic. Thus communicating ideas to different audiences.

Facebook:~

Facebook is another digital tool allowing people to communicate ideas through short videos and chatting with people. This allows them to communicate their views and ideas to different audiences.

Twitter / X:~

Twitter is another digital tool that allows everyone freedom to express their views on any topic or share memes through tweets. It is usually used by government organizations and officials.