

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
وَقُلْ رَبِّ زِدْنِي عِلْمًا



EDUCATION WITH HAMZA

SUBJECT:

Computer

CLASS:

9th

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Education with Hamza

وَقُلْ رَبِّ زِدْنِي عِلْمًا

DEDICATED TO

تمام تعریفیں رب لاشریک کے لئے جس نے مجھ ناپیز کو پیدا کیا۔ اور لاکھوں کروڑوں درود اس ذات پر جس نے ہماری بخشش کے لئے رورو کر دیا مانگی۔ ان نوٹس کو امت محمدیہ کی آسانی کے لئے بنایا گیا ہے۔ ان کا ثواب رب موسیٰ و ہارون نبی آخر زماں علیہ السلام کی جملہ آل و اولاد اور امت کو عطا کرے آمین۔

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Short Question Answer

Computer System

1: What is a Computer? Briefly describe the working of Computer processing System and Describe the Abacus.

Ans. A Computer is an electronic machines that processes data and converts it into information. Computer is an advanced electronic device that takes raw data as input from the user and process.

Function of Computer:

It has the ability to store, retrieve and process data. It processes data and at very high speed according to the instructions given to it and produces accurates result.

Computer program:

Computer program is a set of instructions given to the computer solve particular problems.

ABACUS:

Abacus was a first counting device made by Chinese near about 5000 years ago. It consisted of a wooden frame having parallel rods.

2: What do you know about Pascaline? And why is Charles Babbage called father of Computer?

Ans. Blaise Pascal, a French mathematicians, invented a calculating machine called Pascaline in 1642. Pascaline used rotating wheels. Each wheel had ten parts having digits from 0 to 9.

Infact Babbage's machine gave birth to the research in the field of computers. The modern Computers are largely based on the principle developed by Charles Babbage.

3: Describe difference engine and analytical engine.

Ans. Difference Engine: In 1822, Charles Babbage invented a machine called "Difference Engine". Difference Engine was intended to be steam powered and fully automatic.

Analytical Engine: Babbage worked for many years on differences Engines but he could not complete it. Later, he came up with idea of Analytical Engine.

4: Write down some characteristics of first generation of Computers. and write down some characteristics of Second generation of Computers.

- First generation computer used vacuum tubes.
- Speed was slow and memory was very Small.
- First generation Computers were very expensive and unreliable. Example: IBM 604, Mark-1.
- Transistor were used instead of vacuum tubes.
- Computer became more reliable & cheaper.

- Transistors were used reduced the Size of Computer. Example: IBM 7030, 7090.

5: Describe Mark 1 by Howard Aiken and write down some characteristics of third generation of computer.

Ans. It was invented by Howard Aiken in 1944. Mark-I could add three numbers having eight digits in one second.

- Third generation Computer used IC chips.
- IC Chips improved the speed and memory of Computer.
- Computer consumed less electricity, became Smaller, cheaper.

6: Write down some characteristics of fourth generation of Computers and fifth generation of Computer.

- Fourth generation computer used microprocessor.
- Microprocessor was developed which resulted in the development of microcomputer.
- Fourth generation of computer are very fast. Example: Core 2 Duo.
- Fifth generation computers are based on Artificial - Intelligence.
- AI will minimize the need to write programs.
- These computers will allows user to give commands in very natural language. Example: Robots and expert systems.

7: What is a system? and what do you mean by Ports?

Ans. A system is a collection of interacting or interrelated pieces that follow a set of rules to form a coherent whole.

Port: A Port is a virtual place where network connections begin and Stop.

8: What is Expansion slot? and Expansion card?

Ans. Expansion Slot: An expansion Card also known as a circuit board is inserted into an expansion slot on the motherboard to add Capabilities. Example: AGP, PCI.

Expansion Card: An expansion Card, often called an add-on card, is used to enhance an already-existing feature. Example: GPU and Network Cord.

9: Define Bus Architecture.

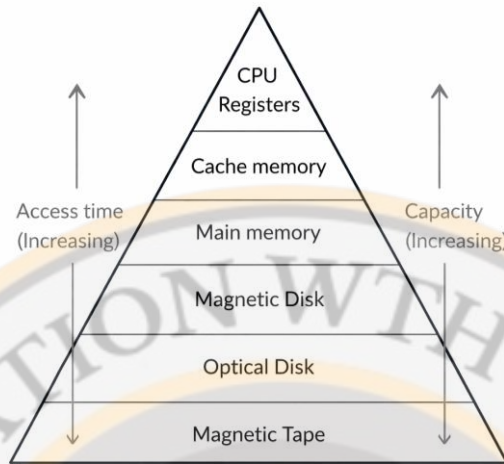
Ans. The bus design strikes an effective balance between point-to-point topologies which are overly decentralized.

Types of Buses:

- **Data Bus:** It carries the actual data being transmitted.
- **Address Bus:** It specifies the location in memory or I/O device where data should be read from or written.
- **Control Bus:** It carries control signals that manage the data transfer process.

10: what do you know about Register? and what is Computer memory hierarchy?

Ans. Register are small memory units inside the microprocessor used to temporarily store some information during the execution of a program. To increase data transmission, modern computers use a memory hierarchy. Data is stored at various levels of memory, ranging from fast but small cache memory to larger and slower RAM.



11: Describe memory unit.

Ans. The memory unit represents the quantity of data that can be stored in the storage unit. This storage capacity is stated in bytes.

- **Bit (Binary digit):** A binary digit is logical 0 and 1 representing a passive or an active state of a component in an electric circuit.
- **Nibble:** A group of 4 bits is called nibble.
- **Byte:** A group of 8 bits is called bytes - A byte is the smallest unit, which can represent the data item or a character.
- **Word:** A computer word, like a byte, is a group of fixed number of bits processed as a unit.

12: Describe magnetic memory or hard disk? and what is optical memory.

Ans. Hard disk is an example of secondary storage disk, which is used to store digital data permanently. A hard disk is a magnetic storage device used to store computer data.

Optical Memory: Optical storage refers to any sort of storage in which data is written and read using lasers.

13: Describe RAM, ROM and BIOS program.

- **RAM:** RAM is the primary storage device and the data and instructions are stored temporarily in it.
- **ROM:** Rom stands for read only memory. It is a non-volatile memory. Data stored in Rom are not lost when we shutdown the Computer.
- **BIOS programs:** BIOS programs test the Computer's Components when it is turned on.

14: What do you know about cache memory? Also describe its level. and what is software.

Ans. Cache is a very small amount of extremely fast memory inside the microprocessor of on the motherboard.

Types of Cache memories: There are three types of cache memories which are level 1, Level 2 and level 3.

Software: Software is a collection of programs and data that instructs a computer how to do specific tasks.

Types of Software:

- * Application Software.
- * System Software.

15: Describe System Software.

The Software used to control, monitor, or facilitate the use of the computer is called System Software.

Types of System Software:

- Operating System.
- Device drivers.
- Utility programs.
- Language processors.

16: what is application Software? And what is operating System.

Ans. Application Software: The Application Software is an created to perform a specific tasks for user.

Types of application Software:

- Productivity Software.
- Business Software.
- Education Software.
- Entertainment Software.

Operating System (OS): An Operating System is a set of programs running on a computer system and providing an environment in which other programs can be executed. Examples: MS Window, DOS, UNIX etc.

Functions of an operating System:

- Manages hardware resources.
- Load and executes programs.
- It Controls the operation of input/output and storage devices.

17: Describe the basic functions of Device Drivers. Differentiate between Compiler and Assembler.

Ans. Device Drivers: A device drivers is a system Software that Controls the operation of a Computer device.

Compiler and Assembler: These tools are essential for converting high level programming language (like C++, Java, or Python) into machine code.

18: What are the Linkers and Loaders? and what is programming language?

Ans. Linkers & Loaders: Linkers and Loaders are programs that help with the execution of programs.

Programming language: A programming language is a structured and Systematic method of Communicating instructions of a Computer.

19: what is the difference between High level Language and Low level language?

Ans. High Level-language: are English-oriented languages and they are Commonly used for writing Computer programs.

Low-Level-language: is machine oriented language. To understand Low-level-language detailed knowledge of internal working of Computer is required.

20. What is the difference between Primary and Secondary Memory? And how many types of control statement are available?

Primary Memory	Secondary Memory
Connected directly to the processor.	Not directly connected to the processor.
Expensive	Cheap
Small Capacity	Large capacity
Fast access	Slow access
Example: Rom & RAM.	Example: Floppy disk.

Types of Control Statements:

- Sequential Control Statements.
- Selection Control Statements.
- Repetition Control Statements.

21: What do you know about Sequential Control Statements and Selection Control statements?

Ans. Sequential: It means, writing programs Statements in a logical sequence Each step in the sequence must logically progress to the next with-out producing and undesirable effects.

Selection Control Statement: The statements which help us to decide which statements should be executed next, on the basic of conditions, are called selection statement.

Two types of selection statement are:

- If-statement.
- If-else statement

22: What is repetition? and what is Protocol?

Ans. Repetition: Repetition Control Statements are used to repeat a number of Statements up to a specific number of times.

Protocol: A protocol is a set of rules that governs data communications. It represents an agreement between the Communicating devices.

23: Define Object-Oriented and what is data communication?

Ans. Programming languages(OOP): refers to a programming method that is based on objects such as students, vehicle, building etc.

Data Communication: Data Communication is the exchange of data between devices via some form of transmission medium such as wire cables etc.

24: Define Router and Gateway.

Ans. Router: A Router connects two or more packet-switched networks, often known as Sub-networks.

Gateway: A Gateway is a network node used in telecommunications to connect two networks that employ distinct transmission protocols.

24: What is client / server network?

Ans. Client server or dedicated server network refers to a computer network in which each machines acts as a server or client.

25: Describe Virtual Private Network (VPN) and what are the characteristic of Virtual Private Network (VPN)?

Ans. A Virtual Private Network is a method of Establishing a secure connection between a Computing device.

Characteristics:-

- It uses public networks such as internet to connect computers.
- Provide Secure remote access.
- Enables files sharing, video conferencing and similar network service.
- Provides cheap communication over long distance.

26: what is the difference between Presentation and Session Layer?

Ans. Presentation Layer: Presentation Layer takes the data provided by the application Layer and converts it into a standard format that the other layers can understand.

Session Layer: Session Layer performs functions that enable two applications to communicate across the network.

27: Name the three types of memory mentioned on the motherboard in the Von Neuman architecture? and Differentiate b/w volatile and non-volatile memory?

Ans. Central Processing Unit (CPU): CPU is the main electronic circuit responsible for executing the instructions of a computer program.

- **Register:** Register are high Speed storage areas in the CPU.
- **Arithmetic and Logic Unit (ALU):** The ALU allows arithmetical (add, subtract etc) and logical (AND, OR, NOT etc) operations to be carried out.
- **Volatile memory:** volatile memory is a temporary memory that requires power (electricity) to maintain the stored information.
- **Non-Volatile memory:** Non-Volatile memory is a permanent memory, that can retains the stored information even when powered off.

28: Your school is planning to purchase new printers for the computer lab. Give three advantages and disadvantages of impact and non-impact printers to help them make a decision.

Ans. The printing speed varies from 50 to 500 cps (character per Second). Their printing is very cheap but print quality is poor.

Impact Printers		Non-Impact (P).	
	Advantage	Disadvantage	
1	Cost-effective	Noise	high quality
2	Carbon Copies	Lower print quality	quite operation
3	Reliability	Limited media Compatibility	versability
			Cost Complexity Durability

Unit: 02 Computational thinking and Algorithms:

1:- How decision problem occurs?

Ans. A decision problems occurs when a given input requires a binary response, either Yes or No. Responses may take various forms, such as true or false.

2: What do you mean by search problem?

Ans. In science and engineering, many problems are solved using the search. In such types of problems, we have a set of objects among which we search for the solutions.

- **Initial State:** represents the node from where we need to start search.
- **Operations:** represents the moves that transition from one node to another.
- **Goal:** defines the target of end conditions.

3: Define Counting Problem? and Give example of an counting problems with solution.

Ans. These problems work on the principle that if an event/decision has a number of choices and another decision/event has B number of choices.

Example: One event is numbers of shirts and another event is number of pants you own then how many pairs of shirts and pants you can make for it.

Solution: Total possible casual dresses = (number of Shirts) x (number of pants). The counting problems are normally seen as an easy task that can immediately be done.

4: Discuss Input, Processing Output (I-P-O) model with diagram.

Input	→	Process	→	Output
IPO model				

Input: Anything that can be given to System is called input Parallelogram Symbol is used to enter data with the help of IPO model.

Processing: Operations that are performed to the system such as arithmetic operations.

Output: After giving and processing the data turns into the information which is called output.

4: what is Flowchart? Which requirements must determine by the developer while creating a flowchart?

Ans. Flowchart is a diagrammatic representation of an algorithm. describes what operations are required to solve a given problem.

- Start of the flowchart.
- Input to the Flowchart.
- Type of processing required.
- Decision to be taken.
- Output of the operation
- End of the flowchart.

5: How to create flowchart while using Microsoft Visio? and How algorithm thinking works?

- Start microsoft visio.
- Click on the Category of flowchart.
- Double-click the Basic flowchart.
- For each step, you wish to design in the process drag a relevant flowchart symbol and place in onto your drawing.

Algorithm thinking is about problem solving. Computers do nothing by magic, algorithms thinking is a way of getting to a solution.

6: find the largest of three unequal numbers.






Input	Process	Output
Three numbers	find the largest among three numbers	Display largest num.

Now we write Algorithm of the process:

- Step 1: Let three numbers be A=10, B=20 and C=30.
- Step 2: Check if A is the largest?
- Step 2.1: Check if A>B and A>C then A is the largest.
- Step 3: If A is largest then stop the process, otherwise proceed to next step.
- Step 4: Check if B is largest?
- Step 4.1: Check if B>A and B>C then B is the largest.
- Step 5: If B is the largest then stop the process, otherwise proceed to next step.
- Step 6: C is largest.

7: Draw the Symbols of flowcharts with descriptions.

Ans. Flow chart symbols:

Symbol	Name	Description
→	Flow line	This Symbol shows the flow of data, information or process in the flowchart
	Terminal	An Oval shape Symbol that represents the start and end of flowchart.
	Process	A Rectangle shape Symbol is used to represents the process or action taken or shows all the calculations.
	Decision	A diamond represents the decision symbol used for comparison or a decision.
	Input/Output	A parallelogram represents either input or output operations regardless of input or output methods.
	Connector	A small circle represents a connector symbol.

8. Why Software designers prefers to use IPO charts? and Differentiate between Computational thinking and Logical thinking.

Ans. To visually represents the IPO model. We use IPO charts that represents the Inputs, Process and output in tabular form.

Computational thinking: Using Computations to solve problems requires the ability to think in a certain way, which is often referred to as Computational thinking.

Logical thinking: Logical thinking refers to analyzing a particular situation or problems using reason and accordingly reaching up to one or more decisions that are Sensible.

9: write four properties of Computational thinking. Why do we need to think Computationally.

Ans. Properties:

1: Decomposition

- 2: Abstraction
- 3: Pattern Recognition
- 4: Algorithm design.

Computational thinking encourages not only to reflect clearly on a problem they're Solving but also to define a repeatable Solution for it.

10: What are the methods used to design a Solution? and which Computational thinking techniques breaks down the problems into smaller parts .

Ans. Once you have completely understood the problem, the next stage is to design a solution. In Solution design, you define how a software will meet the requirements and objectives of a problems. There are 2 methods that are used to design a Solution.

- Flow-Charts.
- Concepts maps

Decomposition: Breaking down the larger problems into smaller manageable ones and working by them one one.

11: Draw IPO chart and algorithm for the following.

2: find the expression of a given number: exponent or power of a number means how many times to use the numbers in a multiplications. In other words, it is the product of a number that is multiplied as many times as the exponent.

Input	Process	Output
The expression e^4 , enter the value e i.e e=2	$P=2^4$ $S=2 \times 2 \times 2 \times 2 = 16$	Finally result is $P=16$.

- 1: Start with expression.
- 2: Enter the value of e to calculate exponent on power.
- 3: Value of $P=16$.
- 4: The finally result is 16-
- b) Print odd numbers from 1 to 99. Such as 1 3 5...99.

Input	Process	Output
Set a variable number to 1	Herate from 1 to 100. Check it the number is odd	Odd numbers from 1 to 100 1 3 5...99.

c) Print the following sequence of number in desending order.

27, 24, 21, 18, 15,12, 9, 6, 3, 0, -3, -6

Input	Process	Output
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Set a variable I to 27	start from 27 and decrement by 3 until reaching -6	Descending Under from 27 to - 6-
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d) find the sum of even numbers up to 100-

Input	Process	Output
Set sum to 0	If sum % 2=0. the number is even. Add the number to the sum or $s = n(n+1)$	Display the Sum $S_n = 50(50+1)$ $= 2550.$

e) Print a multiplication table of a given number.

Input	Process	Output
Enter value of N to 1	Iterate from 1 to 10, Multiply each number by N and print the result	Print the Product.

Unit 03 : Programming Fundamentals

Q1:- What is world wide web (www)?

Ans. The world wide web (www) often known as the web, www.or W3, is a collection of public Website pages that people may access via the internet from the local computers other devices.

Q2:- Differentiate b w Website and webpages and define web application.

Ans. A web page is a single web document with unique URL.

Each web page of a given website provides explicit links most of the time in the form of clickable portions of text that allows the user to move from one page d the website to another.

Web Application: A Computer program which offers a service or executes tasks via a browser and internet connection is called web Application.

Q3:- Differentiate b/w static website and Dynamic website-

Ans. A Static website is one that delivers online pages exactly as they were stored, with no real-time contant updates.

Dynamic: website develops information in real-time generally through the uses data-bases and Scripting languages to enables interaction and personalized experiences.

Q4: Describe Front-End development & Back-End development?

Ans. Front: A Front end is a website that interface which is graphically nowadays and termed as Graphical User Interface (GUI).

Back:- A person who writes codes about such services that are provided by the website is called a Back-End developer.

Q5 What is HTML and How tags are useful in HTML?

Ans. HTML stands for Hyper text Markup Language. It is the standard markup language for creating webpages. HTML is a mix of Hypertext and markup language. "Tags " inform web browsers about web pages such as where the display to display graphics and how the text is structured.

Q6 What do you know about DOM?

Ans. The "Document Object Model Dom is a Standard which provides mutual interpretation where grammar of a language can be associated and can coexist on various operating system,

7. How tags is used for Line break? What are the bullets and Numbering?

To Split a Sentence into multiples lines a
 tag is used. If this tag is not used between 2 Sentences and even you write Second line HTML does not recognize this style. HTML treats bullets and numbering form of an unordered and Ordered list in the . Bullets can be of types circle, Square or disc.

8: Differentiate b/w Internal CSS and External CSS. and what is JavaScript?

Ans. Internal CSS styles are defined in the head section of an HTML document and apply to the entire document, allowing for consistent styling across various elements. Java Script is an exciting language primarily used in development of web pages and Scripts.

Q9:- What are operators in Java? and describe the use of Conditional statement in Java.

Ans. In Java, operators are Symbols that are used to Perform certain operations. Operators creates Simple tasks like as addition and multiplication, despite the fact that their implementation is quite complex.

Applying an "if" statement before one or more lines of codes on the basis of some condition is met makes a typical selection Scenario. Some example of conditional operations are ==, >, <, >=, <=, !=.

Q10 what is Interactive Statement? and what are the nested Loops?

Ans. Interactive Statements like "For Loop" is used to get similar kind of tasks done. Rather than writing the same lines of codes multiples times. A Nested Loop is a inner loops that exists with in the body of another loop.

Q11: - What is an Array? Describe Visual and Studio IDE.

Ans. An array is a data type which Can hold a number of homogeneous set of elements. Such he do not need to define multiple variables of the same types like num1, num2..., num25. An integrated development environment (IDE) is a helpful tool for creating Computer programs. Visual studio is one Such tool.

Q12: What are the element of array and what is an the primary Purpose of HTML?

Ans. Each item of an array is referred as an element, and it may be assessed by its integer index.

The primary purpose of HTML (Hypertext Markup language) is to Structure and format connect for display on the Internet.

Q3: what is 'href' refers to and how to use it and Enlist the optional parameters to open a webpages.

Ans. The href property specifies the URL of the linked page without the href attribute, the tag does not function as a hyperlink.

Optional parameters appear at the end of the parameter list, following any necessary parameters.

- URL Concatenation.
- URL argument for IDE.
- URL parameter for IDE
- URL parameter to start duplicates for workspaces.

Q14 : List out of the frequent tags used in text of a webpages and what are they used for?

Ans. Tags in HTML:- HTML Tags, Head tag, Title Tag, Body Tag, Tags for Headings, Tag for line break, Tag the text.

Paragraph Tag: The HTML tags for and whereas the "Paragraph Tag" is the HTML element that contains the on-page text.

Heading Tag: In this example, the HTML tag and whereas the HTML elements "Heading Tags" represents the on-page heading.

Bold Tag: The HTML tags are used here, whereas the HTML elements "Bold Tag" represents the on-page content. This tag will make any text between the starting and ending tag bold.

Underline Tag: HTML are represented by and whereas the "Underline Tag" is the HTML elements that contains the on-page text.

Unit 04: Data and Analysis

1: What is computer system and define data science?

Ans. A Computer System is a fundamental and important part of modern life. It has revolutionized the way we work, communicate, learn and entertain ourselves.

Data Science is the branch of knowledge in which computer programming along with mathematics skills and statistics is used to extract meaningful information from collection of data.

2: what do you mean by data and what is data set?

Ans. Data: Data is a collection of information or facts that we gather about something. It can be represented by numbers, measurements, descriptions, sounds or pictures.

Dataset: Dataset is a structured or processed collection of data usually associated with the unique body of work.

3: what is data mining. Describe the uses of natural language processing (NLP)? And what is stock market?

Ans. Data Mining: Is a subset of data science which primarily focuses on discovering patterns.

NLP: It is the study of interactions between human languages and computers. The common uses of NLP are chatbots, language translators etc.

Stock Market: Is a platform where buyers and sellers come together to trade shares of publicly listed companies.

4: Define E-commerce and DBMS?

Ans. E-Commerce: Short for electronic commerce, refers to the buying and selling of goods and services over the internet.

DBMS: (Database Management System) In the interface between the database and the end-user, providing a platform to create, modify and retrieve data.

5. What is survey? And differentiate b/w discrete and continuous data?

Ans. Survey: It is the method of collecting information from individuals. The basic purpose of a survey is to collect data to describe different characteristics.

Discrete Data: Consists of distinct values. It is countable and finite, which means it can only accept certain numerical values.

Continuous Data: Refers to measurements that can have any value within a certain range.

6. Distinguish between primary data collection and secondary data collection?

Ans. Primary Data: It involves the collections of original data directly from the data source or via direct interaction with the respondent.

Secondary Data: It involves data collection using existing data collected by someone else for some purpose.

7. what is investigator and enumerator? And describe data visulation?

Ans. Investigator: An investigator is a person who conducts the statistical enquiry.

Enumerators: While to collect information for analysis, an investigator needs the help of some people.

Data Visualization: Is graphical representation of data to get meaningful insight, trends and patterns from data.

8: What are the three Vs of bigdata?

Ans. Velocity: Refers to the speed of data; velocity is the fast rate at which data is received.

Volume: Refers to the amount of data; Big Data deals with huge volumes of low-density.

Variety: Refers to the various formats and types of data that are available.

9: Describe the history of big data in short? And describe any two benefits of big data?

Ans. The term Big Data emerged in the early 2000s as a term to describe exponential growth of data. Around 2005, people began to realize just how much data users generated through data.

Predictive Maintenance: A maintenance strategy that uses the analysis of existing data to predict when equipment, machinery or product is likely to fail.

Fraud and Compliance: Big Data analytics can identify and detect unusual suspicious patterns and anomalies.

10: Make list of challenges occurred from big data. And define the term data integration.

Ans. Big Data Challenges:

- Data Quality
- Data Security and Privacy
- Rapid Growth of Data
- Big Data Tools Selection
- Data Integration.

Data Integration: The process of merging data from several sources to create a cohesive picture, which is typically stored in a single database.

11. Compare machine learning and deep learning in the context of format and informal education?

Ans. Machine Learning: A branch of Artificial Intelligence and Computer Science which emphasizes the use of data and algorithms to imitate human learning by the computers.

Deep Learning: The subset of machine learning, with emphasis on the simulation.

12: what is meant by source of data. Give three sources of data?

Ans. Data can be divided into two categories: primary data, secondary data.

Sources of Data:

Sensor Networks: With the growth of Internet of Things (IOT) devices, sensor networks have emerged as a major source of data.

Social Media: Networks such as Twitter, Facebook, Instagram, and LinkedIn collect massive amounts of data.

Web Scraping: The process of obtaining data from websites using automated tools or scripts.

Unit 05: Application of Computer Science

1: What is artificial intelligence? And what do you know about machine learning?

Ans. Artificial Intelligence (AI): A branch of Computer Science to make computer-controlled machines that can intelligently perform human-like tasks.

Machine Learning: A field within Artificial Intelligence that teaches computers to learn from data inputs and experiences.

2: What are the five stages of machine learning process?

Ans. Stages of Machine Learning:

Collection of training data.

Creating algorithm.

Learning process.

Creating training models.

Predicting results.

3: Describe any two disadvantages of AI algorithm? And mention any three usages/benefits of AI system?

Ans. Disadvantages of AI:

- AI based Automation can lead to job losses in areas such as automobile manufacturing and business.
- Errors in AI algorithms in healthcare systems can output inaccurate information.

Benefits of AI Systems:

- Provide better security against cyber attacks.
- Enables new innovations in developing intelligent computer software.
- Use of AI-based assistants such as Siri and Alexa. suggest products by Monitoring our browsing habits.

4: What are the most popular AI tools? Make list and what is chatgpt?

Ans. Popular AI Tools:

- Chat GPT
- Lovo.ai
- Virtual Assistants.
- Grammarly

ChatGPT: Chat GPT Stands for Chat Generative Pre-trained transformer developed by open AI, Open AI is an American Artificial Intelligence Research Laboratory.

5:-What do you know about virtual assistant? Describe the term "Lovo ai?"

Ans. Virtual Assistants is an interactive AI based application Program that can understand natural language. Popular Virtual Assistant are Apple's Siri, Amazon Alexa,

Lovo AI: Lovo AI is a tool based on AI algorithm that converts. text to speech.

6:- How Speech Recognition work? and what is Computer Vision?

Ans. It is used for various purposes. These includes dictating text into a Compiler instead of typing it to save time.

Computer vision is a field of AI that enables Computers System to obtains meaning-ful information from digital Images videos.

7: what do you mean by Natural Language Processing (NLP)? and what are the application of NLP in areas of our daily life?

Ans. NLP: Natural language Processing is based on AI. It is about giving Computers the ability to understand Spoken and written words just like we do.

The following of some areas of application of NLP in our daily life:-

- Language Translation (Google translation).
- Email filtering and spam detection,
- Voice recognition
- Web Search
- Chatbots
- Personal Assistants (Siri, Alexa) Google assistants).

8:- Describe some application areas of expert System? and write any 2 steps of expert System?

Ans. The following of some application areas of expert System.

- Diagnosis in hospitals such as cancer detection.
- Loan analysis and fraud detection in finance industry.
- Cyber Security.

Development of expert System includes the following steps: -

- The experts system applies the rules and reasoning to extract Knowledge from the knowledge database.
- Finally, the expert system will provides

9: What is Robots? and How AI based software is useful in healthcare sector?

Ans. A Robots is a mechanical or Virtual artificial agent typically designed by humans to performs tastes automatically, with varying degrees of autonomy.

AI based Software for Health Care:-

- Improves medical image analysis.
- offers clinical decision Support.
- Promotes drug discovery.
- Enables personalized medicine.

- Enables remote patient monitoring.

10: what is the role of AI in education? and Describe AI in agriculture?

Ans. AI based system in education have many benefits for students, teachers and school/university administration. It enhances Student's learning and helps teachers to carry out their tasks.

AI Agriculture: refers to using AI based modern techniques to help farmers produce high quality crops and increase production by using land more efficiently.

11: How AI is helpful in our daily life? and Describe the uses of AI in business?

Ans. AI improves our daily life by providing personal assistants, enabling smart home devices, making online Recommendations, personalizing social media etc.

AI is used in business in the areas e-commerce, marketing and business management.

12: what is ChatBot? and what are some Key security measures taken by leading cloud providers to protect data in cloud Computing?

Ans. A ChatBot is a Computer program that combines AI with natural language to provide instant answers to website visitor's questions through text or voice interactions.

To safeguard data in the cloud, leading cloud providers use important security features such as data encryption.

13: what is Cloud Computing? and Define Hybrid cloud.

Ans. Cloud Computing refers to delivery of computing services over the internet by cloud computing vendors.

Hybrid Cloud:- is a combination of Public private cloud. This Computing models uses technology that allows data and applications to be shared between them.

14: Differentiate between Public and Private Cloud?

Ans. Public Cloud: In this Cloud Computing model, resources are owned and operated by a cloud services provider instead of being installed in-house on local devices.

Private Cloud:- In this Cloud Computing model resources are owned by and used inside a single organization.

Unit 06: Impacts of Computing.

1: Differentiate between Software and Hardware? Describes some points which can guide the precautioning measurement of the use of digital platforms.

Ans. Hardware:- refers to the physical Components of a computer system, such as the CPU, RAM hard drives like the keyboard and monitor.

Software:- consists of the programs and applications that run on the hardware, including operating systems word processor and games.

- Think before you share online. Ask yourself if what you're posting is okay for everyone to see. Be careful about sharing personal information.
- Stop location sharing on Social media. You don't always need to tell people where you are.
- Use a safe network Connection. Avoid using public wi-Fi for sites with passwords.

2: Describe some points which can guide the precautionary measures of the uses of software. and what is Digital Platform?

Ans. Have stick rules for how you get, use, and update software, like apps for phones.

- Always use legal software and make sure you have enough permission for all the Computers using it. Check regularly if your bussiness is getting fit, don't force it. Ask for help.

Digital Platforms- is an online framework that enables uses to interact, share information and conduct information.

3: Describe the importance of Privacy Acts? and what are the important Privacy Acts?

Ans. Privacy Laws are Critical for Safeguarding individual's personal information against illegal access, use or discloure.

Here is the List of privacy Acts:-

- The 1980 Rivacy Protection Act.
- the 1984 cable communications Policy Acts.
- The 1987 Computer Secariby Act.
- The 1988 video Privacy protection Act
- The Computer Misuse Act 1990
- The 1998 Data Protection Act.

4: Describe the Ethics of data?

Ans. Data Ethics refers to the concepts and norms that govern the proper gathering, use and management of data.

key Components of data ethics are:-

- **Privacy:** Protecting Personal information and giving individuals controls over how their data is used.
- **Transparency:-** Being upfront about data collection techniques, aims, and how data will be used.
- **Security:-** Enforcing strong safeguards to protect data from unauthorized access and breaches.

4: what do you know about Copyright? and what are the trades secret?

Ans. Copyright is a légal notion that grants artists exclusive rights to their unique works, including literary, artistic and musical works.

Trades Secrets are like a business Special secrets. They're private things like methods, formulas, or strategies that given a business as edge owner other.

5: How has Computing influenced Social interactions? what are the negative Social implications of Computing?

Ans. Computing has greatly influenced social connections by allowing for rapid communication via social media, messaging apps and video conferencing.

The negative societal effects of Computing include employment displacement owing to automation, digital addiction and privacy problems.

6: what is Patent? and Describe the trades mark Sign use ?

Ans. A Patent is a legal privilege granted to inventors by a government authority that gives them exclusive ownership.

The **trade mark** Symbol (TM) indicates that a certain word phrase, symbol, or logo is being claimed as a trade mark or service mark.

7: Illustrate the responsible use of Computer hardware by an individual and what does appropriate software use entail?

Ans. Individuals who utilize Computers hardware responsibly should update and maintain the equipment's on a regular basis to ensure optimal performance and longevity.

Appropriate software use entails installing and using software lawfully, with all applications boughts from trusted sources to avoid viruses.

8: How do you stay safe while Conducting data searches online?

Ans. To keep safe while searching for info online, utilize trustworthy search engines and websites, and avoid clicking on questionable links or advertisements.

9: Extract and enlist some key aspects of responsible social networking.

Ans. Protecting personal information by altering privacy settings, being attentive of posted content to avoid oversharing, and respecting the privacy.

10: Interpret the dangers associated with the spread of fake news online. and Examine the Computing influence on personal privacy.

Ans. The rise of fake news online offers various risks, including a loss of public faith in media and institutions.

Computing has a huge impact on personal privacy since it collects and stores large amounts of personal data.

Unit 07: "Entrepreneurship"

Q1: How do social media platforms impact digital entrepreneurship? and How does e-commerce effects entrepreneurship?

Ans. Social media platforms are critical for digital entrepreneurship because they give low cost marketing channels, enables click engagement. E-commerce's has changed entrepreneurship by allowing business to offer their products services online to a world wide Customer base.

Q2: what is digital Age? and what are some crucial digital tools for modern entrepreneurs?

Ans. The Digital Age often known as Information Age, was defined by the increasing use of Computers the internet and digital technologies Modern entrepreneur rely on e-commerce platforms Social media management, project management software, and digital marketing tools.

Q3:- How might digital payment System aid entrepreneur? and what challenges to digital entrepreneur face?

Ans. Digital payments platforms like PayPal and stripe help entrepreneur by offering secure, efficient, and convenient transaction ways. Digital entrepreneurs face challenges such as intense Competition, cyber security threats, and the need to continuously adapt to rapidly Changing technologies.

Q4: How has the gig economy influenced entrepreneurship? In what ways can digital analytics improve business strategies for entrepreneurs?

Ans. The gig economy has influenced entrepreneurship by offering flexible work opportunities and enabling freelancers and independent contractors to monetize their skills. Digital analytics can improve business strategies by providing insights into customer behaviour, market trends.

Q5:- Which skills are encompassed in the 4C's of 21st century learning?

Ans. The 4Cs of 21st-century learning encompass the following skills:

- **Critical Thinking:-** Analyzing information logically to solve problems and make decisions.
- **Creativity.-** Generating innovative idea and thinking outside the box.
- **Collaboration:-** Working effectively with others in diverse through teams to achieve Common goals.
- **Communication:-** Clearly and effectively expressing ideas through various mediums and understanding others.

Q6:- Why is Collaboration Essential in the 21st Century? and what are the Sustainable Developments goals?

Ans. Collaboration is crucial in the twenty-first Century because it brings together varied viewpoints and skills resulting in more imaginative and effective Solutions. The Sustainable Development Goals (SDGs) are the series of 17 world wide objectives developed by the United Nations in 2015 to solve pressing economic, social, and environmental issue by 2030.