

1. Networking Concepts

ASSESS YOURSELF

1. a. (ii) b. (iii) c. (iii) d. (iv) e. (iii)
2. a. node b. modem c. hub d. bandwidth e. server
3. a. F b. T c. T d. T e. T
4. a. Gateway b. IP address c. MAN d. Ring topology
5. a. The NIC connects a computer to a network and allows it to communicate with other computers on the network.
- b. The difference between client-server and peer-to-peer network is as follows:

Client-server	Peer-to-peer
One computer is designated as the server and all the other computers connected into the network are called the clients.	All computers are equal and can share their resources to be used by others and are therefore known as peers.

- c. A router is used when multiple devices need to connect to the Internet using the same IP. It works on the network layer. In other words, it is used to connect and facilitate transfer of information between two or more networks.
- d. It is a satellite-based navigation system which is used to identify the geographical location of an object. It is made up of a network of 24 satellites placed into orbit by the U.S. Department of Defense.
- e. Modem is a device which is used to transmit data over a network. It is attached to computers that can convert digital signals to analog and convert analog signals to digital signals at the receiving end.

6. a.

LAN	MAN
LAN is a digital communication system that interconnects a larger number of computers and other peripheral devices within a radius of less than 1 km.	MAN consists of two or more local area networks or campus area networks together that usually spans several buildings in the same city or town.

b.

Microwaves	Radio waves
It refers to microwave radio transmission which is commonly used to send signals from the earth to the satellites and vice-versa.	These waves are commonly used for long distance communication or sending messages, information for communication for aircraft or naval communication.

7. a. Ring topology

b. (i) Internet

(ii) Campus Area Network (CAN)



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2. Networking Protocols

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- a. (iii) b. (ii) c. (iv) d. (iv) e. (ii)
- a. Network b. Communication c. Reliable d. Upload e. IMAP
- a. T b. F c. F d. T e. T
- a. Network protocol b. HTTP and HTTPS c. SMTP

d. IMAP e. TCP/IP



5.
 - a. A network protocol is a set of rules that controls how computers communicate over a network.
 - b. HTTP controls how web pages are transferred between a web browser and a website while HTTPS is a safer version of HTTP because it creates an encrypted connection between your browser and the web server.
 - c. They maintain order and control in data transfer because they give every device a common set of rules to follow.
 - d. HTTPS is used by websites that handle sensitive data such as passwords or payments because it creates an encrypted connection between your browser and the web server. This protects your information from being read or changed during transfer.
 - e. It works by connecting to the mail server, downloading your emails and saving them onto your device. After downloading, the server usually removes the emails.
6.
 - a. File transfer protocol.
 - b. TCP/IP.



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3. Cartoon Gags: From Concept to Creation

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1.

a. (ii)	b. (iii)	c. (iv)	d. (iii)	e. (i)
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2.

a. Technology	b. Humorous	c. Fiction	d. New	e. AI
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3.

a. F	b. T	c. F	d. T	e. T
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4.

a. Absurdity	b. Manga	c. Fantasy	d. Adobe Illustrator	e. Ellipse Tool (L)
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5.
 - a. Digital art is important because it is used in cartoons, movies, video games and advertisements. It allows artists to try different styles, fix mistakes easily and share their work quickly on social media and websites.
 - b. Following are the types of cartoon gags:
 - Captioned cartoons: These have a drawing with a funny caption (a short text) below or inside the picture.



- Pantomime cartoons: These are wordless cartoons that rely on facial expressions, body language and actions to deliver humour.

c. The different genres are as follows:

- Superhero: These comics tell stories about heroes with amazing powers who fight bad guys to protect the world. They often wear cool costumes and have secret identities. Examples: Batman, Spider-Man, X-Men.
- Manga: This is a Japanese comic style with many different types of stories, from action and adventure to romance and horror. It is usually read from right to left. Examples: Naruto, One Piece, Attack on Titan.
- Slice-of-life: These comics show everyday life and focus on realistic characters, emotions and relationships. They often tell heart-warming or funny stories. Examples: Yotsuba&, A Silent Voice.

d. Some main features of cartoon gags are as follows:

- Timing: Timing is the perfect moment when a joke or funny action happens. If the joke is too fast or too slow, it may not be as funny. Example: A character steps on a banana peel but doesn't slip until they realise it.
- Wordplay: Wordplay is when words are used in a funny way, like puns, rhymes or double meanings. Example: A bakery sign saying, "We knead more customers!" (knead = need).

- e. • Pen Tool: To draw a tail pointing towards the character's mouth.
- Ellipse Tool: To create eyes and facial features.
- Direct Selection Tool: To adjust details.

6. a. Social commentary.
b. Absurdity.



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4. Illustrating Comic Strips

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1. a. (i) b. (iii) c. (ii) d. (i) e. (iv)



2. a. Websites b. Comic strip c. Panels d. Pop Art
e. Rectangle
3. a. T b. F c. T d. F e. T
4. a. Digital illustration b. Adobe Illustrator
c. Superhero d. Pop art e. Type Tool (T)
5. a. Digital art is important because it offers convenience, flexibility, and efficiency. It allows easy corrections, smooth results, unlimited colours, and environmental benefits by reducing paper use and providing quick sharing options.
b. The main features of comic strip are panels, speech balloons, thought balloons, captions, characters, action lines and effects.
c. The genres of comic strip are as follows:
 - Superhero: Comics about heroes with special powers who fight bad guys and save the world. Example: Superman, Spider-Man.
 - Manga: Japanese comics with exciting stories and unique artwork. They can be about action, friendship, fantasy or adventure. Example: Naruto, Doraemon.

The other genres of comic strip are slice-of-life, humour, adventure, science fiction, fantasy and horror.
- d. The categories of comics in terms of audience are given below:
 - Children's comics: These comics have simple stories, bright pictures and often teach good lessons. They are fun and easy to read.
 - Young Adult (YA) comics: These comics are for teenagers and tell stories about friendships, school life and growing up. They often have relatable characters.

Other categories of comics are adult comics, web comics, indie/alternative comics.
- e. Pop art is a fun and colourful art style that became popular in the 1950s. It is known for using everyday objects and comic-style drawings to create exciting artwork. Comic strips borrowed ideas from pop art by using bright, bold colours and enhanced visual effects to make them more exciting.
6. a. Panels.
b. Thought balloons.



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5. Online Awareness, IT Act and Punishment

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- (ii)
 - (iii)
 - (ii)
 - (ii)
 - (ii)
- Create
 - Black-Hat
 - Digital Citizen
 - Section 67
 - Fake news
- T
 - T
 - F
 - T
 - T
- It is the responsible and ethical use of technology, the Internet and online platforms.
 - Following are the key features of the IT Act:
 - Legal validity to digital signatures
 - Defines offences like hacking, identity theft, cyber fraud, cyber terrorism
 - Misinformation is when someone shares false information without knowing it's wrong whereas Disinformation is much more fraudulent. It refers to deliberately created false information meant to mislead, provoke fear, anger or influence beliefs.
 - The core values of digital citizenship are as follows:
 - Respect
 - Responsibility
 - Hacking is when someone tries to access a computer, network or online account by bypassing security measures.
- Black-hat hacking.
 - Meena should verify the source of information.



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6. Dynamic Web Pages in HTML5

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- (ii)
 - (iii)
 - (ii)
 - (ii)
 - (ii)
- Mocha
 - prompt()
 - text/javascript
 - //
 - client
- F
 - T
 - T
 - F
 - T



6 DigiMind (Ver. 5.0)-VIII (Answer Key)



4. a. Comments b. document.write() c. parseInt() d. confirm()
5. a. JavaScript, often abbreviated as JS, is a client-side scripting language used for enhancing users' interaction with the web page by making web pages dynamic. Some of the important features of JavaScript are as follows:
- It is used in both client-side and server-side applications.
 - It is platform independent; hence, it runs on many operating systems.
- b. This file can be linked inside the <HEAD> and </HEAD> tags of the HTML document where you want to add this code. The SRC attribute of the <SCRIPT> tag allows to give path of the JavaScript file.
- c. A keyword is a reserved word that has a special meaning for the JavaScript interpreter. Some of the keywords of JavaScript are: var, switch, let, for, const, function, if, return, etc.
- d. JavaScript allows us to take input from the user with the help of the prompt() method. We can use the prompt() method in the following way:

```
var age = prompt("Enter your age: ");
```

6. a.

Client-side	Server-side
The meaning of client-side scripting language is that the code written in JavaScript is interpreted by the web browser on which the web page is running.	Server-side JavaScript refers to the use of JavaScript to write scripts that run on the server rather than in the browser.

b.

Internal JS	External JS
When JavaScript code is written within the HTML web page, it is called internal JavaScript.	JavaScript code can be written in a file and saved with the .js extension.
We use the <SCRIPT> and </SCRIPT> tags to place the JavaScript codes either in the <HEAD> or <BODY> tag of the HTML document.	This file can then be linked inside the <HEAD> and </HEAD> tags of the HTML document where you want to add this code. The SRC attribute of the <SCRIPT> tag allows to give path of the JavaScript file.

7. a. Jeenat should use const keyword.
b. Ankit should use alert() function.



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7. Iteration in Python

ASSESS YOURSELF

1. a. (iii) b. (iii) c. (ii) d. (i) e. (iii)
2. a. repeat b. one c. for d. continue e. Break
3. a. T b. T c. F d. T
4. a. Iterative statements
b. Control structure
c. Continue
d. start and step_size
5. a. The programming construct that affects the flow of execution in a program.
b. It is an in-built function in Python. This function generates a sequence of numbers. A sequence is a succession of values bound together by a single name.
c. The continue statement causes the program to skip the rest of the statement of the current block and move to the next iteration of the loop while break statement is used for exiting the program control out of the loop.
d. (i)

```
while(condition):  
    statement(s)  
    increment/decrement
```


(ii)

```
for <counter variable> in range(start, stop, step_size):  
    Statements
```


e. These statements are used to jump out of the loop iterations even if the condition has not become false. They alter the flow of control unconditionally. The jump statements defined in Python are break and continue.
6. a. 1
2
4
5
b. 2
4
6
8



- c. 10
- 8
- 6
- 4
- 2
- d. Factorial of 7 is 5040

- 7. a. Manvi should use the continue statement.
- b. Vansh can use the range () function.



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8. Functions, String and List in Python

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1. a. (ii) b. (ii) c. (ii) d. (ii) e. (i)
2. a. append b. function c. lower d. string e. length
3. a. T b. F c. T d. T e. F
4. a. Index number b. [] c. Parameters d. Comma (,) e. extend()
5. a. A function can be defined as a block of reusable code that performs a specific task. This concept is the central aspect on which the concept of procedural programming works. The components of Python function are name of the function, arguments, statements and return value.
- b. User-defined functions are created by the user according to the need of the program while print() and input() belong to the category of built-in functions. We also have other built-in functions like range(), type(), etc.
- c. An escape sequence is typically used to specify actions such as carriage returns and tab movements.
- d. The purpose of this statement is to return a value.
- e. (i) The upper() function converts all lowercase letters to uppercase.
(ii) The capitalize() function returns a string with the first character in capital.
6. a. Hello, World! b. 8 c. Python d. [1, 2, 3, 4] e. Hello
- f. 6



7.
 - a. Yash can use extend() function.
 - b. Mira can achieve this by using the capitalize() method.
 - c. Yes, it is possible by concatenation operator.



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9. More on Blender

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1.
 - a. (ii)
 - b. (iv)
 - c. (i)
 - d. (iv)
 - e. (ii)
2.
 - a. T
 - b. T
 - c. F
 - d. F
 - e. T
3.
 - a. Navigation
 - b. Three
 - c. Edit Mode
 - d. Horizontally, Vertically
 - e. Zoom
4.
 - a. Navigation Gizmo
 - b. Orbiting in Blender
 - c. 3D Viewport
 - d. Shader Editor
5.
 - a. Blender provides different modes like Object Mode, Edit Mode and Sculpt Mode.
 - b. By activating this tool, you can:
 - Move: Shift the object's position in the 3D space.
 - Rotate: Adjust the object's orientation.
 - Scale: Resize the object as needed.
 - c. The Scale Tool in Blender allows you to resize objects along different axes.
 - d. The Extrude Region tool lets you pull out a selected part of a shape to create new depth or extend it.
 - e. To use the Rotate tool in Blender, follow these steps:
 - Step 1: Click the Rotate tool from the toolbar.
 - Step 2: Select the object you want to rotate.
 - Step 3: Click and drag one of the coloured rotation circles (blue, green or red) to rotate the object along a specific axis. The blue circle rotates around the X-axis, the green circle rotates around the Y-axis and the red circle rotates around the Z-axis. Release the mouse button to confirm the new rotation.



6. a. Hriday should use the Vertex Paint mode in Blender.
- b. Vaishnavi should click the Z-axis circle.



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10. Artificial Intelligence and its Domains

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1. a. (ii) b. (i) c. (iv) d. (i) e. (iii)
2. a. F b. T c. F d. F e. T
3. a. Narrow AI b. Data analysis c. Images
d. Elementary e. Exploring space
4. a. Narrow AI b. Computer Vision c. Data
d. General AI
5. a. AI has some other advantages over human intelligence. They are process automation, quick decision making, accuracy, quicker data analysis, take decision rationally and ability to complete dangerous tasks.
- b. The starting point of every application is data and it is the foundation of Artificial Intelligence. Data is all around us, be it a google search, a passport scan or an online shopping history, all of this contains data that is collected, analysed and monetised.
- c. Machine learning enables a computer to understand the context of visual data by using algorithmic models and Convolutional Neural Network (CNN) helps a machine learning model to process the image by breaking it down to pixels.
- d. AI has lots of benefits, but it is not void of mistakes or errors. The risks and limitations of AI are high cost of creation, making humans lazy, unemployment, no emotions and no out-of-the-box thinking.
6. a. Benefits: Faster decision-making, accurate diagnosis, quick data analysis, rational decisions, task automation, and handling risky tasks.
Challenges: High costs, unemployment, lack of emotions, no out-of-the-box thinking, and reliance on AI.



- b. Chatbot applications that interact with humans are available all the time which helps the customers resolve their queries, thus improving the customer's experience.



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11. Fields of Artificial Intelligence

ASSESS YOURSELF

- (ii)
 - (iii)
 - (iii)
 - (iii)
 - (iv)
- F
 - F
 - T
 - F
- Monitoring
 - Interactive
 - Smart Cities
 - Voice
 - Information
- Fyle
 - Banking and Financial sector
 - Alexa
 - SOCRATIC
 - Amazon
- AI in e-commerce helps in interactive and personalised buying experience. With the AI-enabled systems, companies can see their customer's preferences and can boost their sales by reliable and customised shopping experiences.
 - The benefits are:
 - Power saver: Smart Homes are great at saving power. Often it is found that people are lazy in turning off lights, which increases the consumption of power. These types of homes allow their users to turn off the lights and electronic gadgets even when they are off to bed.
 - Increased energy efficiency: Smart Home technology makes it possible to make the home energy-efficient. The control of heating and cooling of the home with a programmable thermostat learns the user's preferences and then suggests the best energy efficient settings throughout the day. Even the lights could be programmed to automatically switch to an evening mode as the sun sets or automatically turn off when no one is at home.



- Protect the home and its belongings: The home is protected from intruders with AI systems. Once they are configured, the door/window and motion sensors notify the owner when someone tries to break in their home. There are wireless doorbells and intelligent locks that provide an additional level of security to live with mental peace.
- Interactive Home: The AI enabled appliances are controlled through voice or smart phones. Some appliances even support gestures by sensing the motion like hand gestures or tap recognition like a knock.

c. Some of the challenges are:

- Financial challenges due to lack of proper funds
- Growing population
- Digital security issues
- Lack of high speed Internet facility and connectivity issues
- Lack of digital awareness among residents

d. A smart camera is more effective for home security because smart cameras are the most important devices. It is used to monitor the indoor and outdoor activities . It not only records the movements but also sends alerts for suspicious movements.

6. a. He is talking about Amazon Alexa.

b. Smart AC.



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