

# **Answer key**



Part A: Employability Skills

## **Communication Skills-III**

Video Session Page 20

Do it yourself.

LAb Assignment 'n Activity Page 24

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Video Session Page 26

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## Lab Assignment 'n Activity Page 30

- 1. Clear, Concise and Correct
- 2. Oral, Written
- 3. True
- 4. a. Subject: Tara, Object: the umbrella
  - b. Subject: Manisha, Object: a new car
- 5. a. **Direct Object:** a new toy, **Indirect Object:** Mansi
  - b. Direct Object: a book, Indirect Object: the patient

## **Unsolved Exercise**



### **Section A** (Objective Type Questions)

- 2. ii 3. iii A. 1. i
- 4. iii 5. iv

1. assertive

2. paragraph

3. Visual

- 4. closed, open-ended
- 5. possessive

1. False C.

- 2. True
- 3. False
- 4. False
- 5. True



## Section B (Subjective Type Questions)

- **A.** 1. Four types of sentences are:
  - **Declarative:** We own a parrot.
  - Imperative: Wash your dirty clothes.
  - Interrogative: Have you read this book?
  - Exclamatory: Your dog is so big!
  - 2. Assertive people express their opinions confidently while respecting others, making communication clear and productive. Their self-confidence helps in maintaining open and respectful dialogue.
  - 3. Formal Greetings: Used when you do not know the person or in professional settings (e.g., Good Morning, Sir.)
    - **Informal Greetings:** Used when you are familiar with the person, such as friends or family (e.g., Hey, how's it going?)
  - 4. 3Ps of public speaking are:
    - **Prepare:** Think about the topic, plan your points, and organize your ideas.
    - **Practice:** Rehearse your speech, ideally in front of others for feedback.
    - **Perform:** Deliver your speech clearly and confidently, focusing on your content and audience engagement.
  - 5. Three factors that affect communication are:
    - Educational Qualification
    - Emotions and feelings
    - Working environment
- **B.** 1. **Closed Questions:** Questions that can be answered with 'Yes' or 'No' are called closed questions. This is because response options are limited or closed. For example, when we ask, "Are you hungry?", the answer can be 'Yes' or 'No'.

**Open Questions:** These questions require more elaborate answers. For example, when we ask, "What do you want to eat?", the answer could be: "I want to eat a mango." These are called open questions because their answer options are neither limited nor closed.

- 2. A paragraph is composed of three parts:
  - **Topic sentence:** The paragraph's first phrase, which establishes the primary concept.

- **Development and assistance:** Sentences that expand on the fundamental topic.
- Conclusion: The paragraph's final sentence.

To help you write a simple paragraph, here are a few tips:

- Select a primary point for the paragraph.
- Make a topic sentence.



- Explain the central idea
- Give examples
- 3. This statement emphasizes the importance of setting boundaries in communication. Learning to say 'No' assertively means being honest about your needs or limits without feeling guilty or offending others.
- 4. Passive Communication involves:
  - Being submissive and not expressing your opinion so as to avoid conflict.
  - · Staying quiet despite being criticised.
  - · Being apologetic even when not at fault.

There are various disadvantages of being passive:

- Projects lack of confidence and self-esteem.
- · Causes frustration and anxiety in the long run.

<b>Part of Speech</b>	Purpose	Example	Sentence
Noun	name of person, place, or	mouse,	The <b>mouse</b> ran up the <b>tree</b> .
	thing	Paris	I am going to <b>Paris</b> .
Verb	action/doing words	crying,	The baby was <b>crying</b> .
		ran	The dog <b>ran</b> after the cat.
Adjective	describes a noun	caring,	The <b>caring</b> sister rocked the
		big	baby's cradle.
			I have a <b>big</b> house.
Adverb	describes the verb,	loudly,	He was snoring <b>loudly</b> .
	adjective, or another adverb	quickly	My cat drinks milk <b>quickly</b> .
Pronoun	replaces the noun	she, he,	<b>He</b> is quite clever.
		it, you	<b>You</b> should not cry.

### C. Competency-based/Application-based questions:

Kanchan exhibits a Passive-Aggressive Communication style. She shows outward compliance (appearing sweet), but internally resents others and expresses frustration through indirect means like muttering and lying, which reflects passive-aggressive behaviour.



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# 2. Self-Management Skills-III

## Video Session Page 48

Do it yourself.

### Lab Assignment 'n Activity

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1. True

2. False

3. False

4. True

5. True



Do it yourself.

### Unsolved Exercise



## Section A (Objective Type Questions)

- **A.** 1. i 2. iv 3. iii 4. ii 5. iii
- **B.** 1. Hygiene 2. Time-bound 3. Listening 4. Belief
  - 5. External Motivation
- **C.** 1. True 2. False 3. True 4. True 5. False

## Section B (Subjective Type Questions)

- **A.** 1. SMART goals are specific, measurable, attainable, relevant, and time-bound objectives. They help in setting clear, realistic goals with a plan to achieve them.
  - 2. **TELL:** Share information on events or activities you are aware of like a local fun fair.

**ENGAGE:** Do not hesitate to share useful information.

- 3. Four qualities of self-motivated people are:
  - Energized
  - Focused
  - Understand what is important
  - Want to fulfill their dreams
- 4. **Opinions:** Judgments formed about something or someone, which may not be based on actual facts.

**Values:** Principles or standards that guide a person's actions and decisions, reflecting what is important in their life.

5. **Interests:** Activities that you enjoy doing in your spare time, e.g., playing games.

Abilities: Skills or talents that you are naturally good at, e.g., solving equations.

**B.** 1. The process of working together in a group is teamwork. Everyone in the team plays an important role. Each individual in the team is called a team member. Each team member needs to understand his/her role in the team.

The advantages of teamwork are:

- There is no individual pressure to succeed because everyone has a role to play in the team.
- You feel good when the team succeeds and this helps to build your confidence.
- · Work gets done faster.
- Self-exploration means to know one's calibre by analysing intellectual and spiritual capacities.
   It helps you to choose your profession for life by developing a clear understanding of self-interests and needs.

Two approaches that may help people to self-explore are:

**Self-reflection/Inquiry:** Self-reflection/Inquiry can be defined as a process of introspection where people discover themselves by going through past experiences and observing patterns of their own behaviour.

**Feedback:** The suggestive input given by peers, family and mentors on our action is called feedback. It helps us identify our hidden talents and strengths.

3. **Grooming:** Maintaining a neat and clean appearance.

#### Example:

- To prevent dandruff, keep your hair clean
- Apply oil or lotion to your skin to keep it soft.

Stay Clean (Wash): Regular washing to maintain cleanliness.

#### Example:

- · Wash your hands frequently
- Take a bath daily

**Keep Healthy:** Engaging in activities to maintain overall health.

#### Example:

- To maintain hygiene, avoid eating unsanitary foods
- Keep your feet dry and change your socks daily.



4. Use the CONECT model to improve your networking skills. The six steps of the CONECT model are as follows:



- 5. Following are some of the tips to work in a team:
  - Engage all team members in conversations, ideas, etc.
  - Discuss often
  - · Ask about the problems/difficulties
  - · Help as much as you can
  - Brainstorm to solve problems quickly
- C. Competency-based/Application-based questions:

This is called Self-Exploration.



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## 3. ICT Skills-III

### Lab Assignment 'n Activity

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- 1. Text formatting means changing the appearance of text. Different parts of the text may appear in different styles and sizes. You can bold, underline, or highlight the text to make it visually appealing.
- 2. Standard Toolbar

### LAB Assignment 'N Activity

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- 1. The Insert menu can be used to add an image from a file.
- 2. In a header, you can add the title and date, while in a footer, you can add the page number.





## Section A (Objective Type Questions)

- **A.** 1. ii 2. iii 3. iv
- **1.** II 2. III 3. IV
  - Print Preview
  - 4. F7
- **C.** 1. True

- 4. i 5. ii 6. i
- replace
   Compare Documents
- 5. Ctrl+B
- 2. True 3. False
- 4. False
- 5. True

## Section B (Subjective Type Questions)

- **A.** 1. Tracking Changes in a LibreOffice document means keeping records of the changes made to the document.
  - 2. ICT means enabling users to store, access and manipulate data in digital format. It refers to the use of technology to handle information and communication through digital devices.
  - 3. A word processor is a software application that helps you create documents by entering, modifying (editing text), arranging (formatting), and printing text.
  - 4. Print Preview allows the user to see how the document will look after printing. It helps in checking the layout and design of the document before printing.
  - 5. The Standard Toolbar contains commands for creating new files, saving files, printing files, and inserting tables. The Formatting Toolbar contains commands for changing text styles, font size, paragraph alignment, and more.
- **B.** 1. Spell check and grammar tools in a word processor help identify and correct spelling and grammatical errors in the document. The incorrect words are highlighted, and suggestions for corrections are provided. This improves the quality and professionalism of the text. The shortcut key for using these tools is F7 or Shift+F7.
  - 2. The Menu Bar is at the top of a document window. When you click on any menu option, a submenu with commands will open.

Different menus in LibreOffice Writer are as follows:

- **File:** Contains commands like New, Open, Save, and Print which apply to the entire document.
- **Edit:** Contains document editing tools like Cut, Copy, Paste, Find & Replace, etc.
- **Format:** Contains commands to change the appearance of text.
- Table: Contains commands to insert or delete tables in your document and format them.
- 3. To start tracking changes in a document, click on Edit → Track Changes → Record. Once this option is selected, all changes made to the document will be recorded and displayed in a different color.



There are many options in this Track Changes submenu. You can use the Next and Previous options to move from one change to another. When a change is selected, use the Approve and Deny options to approve or reject the change. If you accept, the changes in the document will be permanent, and if you reject any change, the original text will be restored.

If you think all the changes are okay, use the Accept All command to accept all the changes in one go. If you do not want to accept any change and want to restore the original text, use the Deny All option.

### C. Competency-based/Application-based questions:

Shruti can use the Find and Replace feature to replace the word 'Junk' with 'Unhealthy' in all 15 places.



Do it yourself.

## 4. Entrepreneurial Skills-III

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LAB Assignment 'n Activity

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Do it yourself.

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Do it yourself.

### LAB Assignment 'N Activity

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- 1. A business idea is a solution that entrepreneurs think about to serve their customers. The idea determines what business an entrepreneur pursues to make a profit.
- 2. Critical thinking means understanding the situation or problem by asking questions like why, what, when, how, and investigating the situation or the reason for the problem.

## LAB Assignment 'n Activity Page 8

Do it yourself.



## Section A (Objective Type Questions)

- **A.** 1. iii 2. i 3. ii 4. iv 5. iv
- **B.** 1. Services 2. amount 3. Perseverance
  - 4. feedback 5. Scale-up
- **C.** 1. False 2. False 3. True 4. True 5. False

## Section B (Subjective Type Questions)

- **A.** 1. Entrepreneurs face several challenges while starting a business, such as finding the right business idea, validating its market potential, sourcing capital, purchasing the required equipment at the right cost, and setting competitive prices.
  - 2. Entrepreneurship is the process of developing a business plan, starting and running a business with innovation, meeting customer needs, and generating profits. It requires creativity, problem-solving, and the ability to meet market demands in unique ways.
  - 3. Yes, understanding competitors in the market is essential. Entrepreneurs must analyze their competitors' products, prices, customer interactions, and market positions. This helps in identifying gaps and opportunities for improvement in their own business.
  - 4. Entrepreneurs must focus on improving the quality of their products or services, scaling up the business by attracting more customers, and offering alternatives to enhance customer satisfaction. They should always aim to stand out from competitors and continue adding value to their business.
  - 5. Estimating the amount of material required is crucial in business planning because it helps the entrepreneur determine the cost of manufacturing a product or providing a service. It ensures that the business has sufficient resources to meet demand and avoids overestimating or underestimating the costs involved.
- **B.** 1. The four types of customer needs are:
  - Fulfilled Needs: Needs that customers understand and are met by available services or products.
  - ii. **Partially Fulfilled Needs:** Needs that are addressed by products or services, but customers remain dissatisfied.
  - iii. **Unfulfilled and Known Needs:** Needs that customers are aware of but are not yet met in the market.
  - iv. **Unknown Needs:** Needs that customers do not yet realize they have but are addressed through innovation



- 2. Some ways most entrepreneurs use to solve problems are:
  - **Creativity:** Creativity means to come up with ideas that others have not thought of before. An entrepreneur has to believe that he can think of new ideas to solve a problem.
  - **Innovation:** Innovation means coming up with new ideas and finding ways to implement them. The difference between creativity and innovation is that creativity involves only thinking about new ideas, but innovation is also about finding ways to turn those ideas into reality.
  - **Critical Thinking:** Critical thinking means understanding the situation or problem by asking questions like why, what, when, how, and investigating the situation or the reason for the problem.
- 3. **Trading Business:** Trading companies do not manufacture goods or products. They only facilitate the process of getting the finished product to brought from the production unit to the purchaser or customer. For example, your local pharmacy or chemist shop sells various medicines manufactured by different companies.

**Manufacturing Business:** A manufacturing company is involved in developing the raw materials into finished products to meet the needs of its customers. In this type of business, you can sell the finished product directly to your customers. For example, Bata makes shoes; it has several factories where shoes are made. This is an example of a manufacturing company.

- 4. i. Learning and Adaptability
  - ii. Perseverance and Determination
- 5. Successful entrepreneurs possess values such as:
  - i. Confidence:

Entrepreneurs must believe in their ideas and abilities to make decisions and take action. For example, an entrepreneur starting a new product line must be confident in the market's potential for success.

#### ii. Independence:

Entrepreneurs take ownership of their decisions and actions. They are not afraid to work alone when required. For instance, an entrepreneur who starts their business venture without depending on others for guidance.

#### iii. Open-mindedness:

Entrepreneurs must be open to feedback, new ideas, and innovation. For example, an entrepreneur who listens to customer feedback and adjusts their products accordingly to meet market demand.

## C. Competency-based/Application-based questions:

Do it yourself.



Do it yourself.

## **Green Skills-III**



Video Session Page 93

Do it yourself.

### LAB Assignment 'n Activity

- 1. Diu
- 2. i. National Action Plan on Climate Change (NAPCC)
  - ii. Green India Mission (GIM)
- 3. i. Agriculture
  - ii. Transport
  - iii. Water Management
- 4. i. Conserve water by turning off the faucet when not in use.
  - ii. Use wastewater treatment to prevent pollution of water sources.
- 5. True



Do it yourself.

## LAB Assignment 'n Activity

Do it yourself.

## Unsolved Exercise 🕐



### **Section A** (Objective Type Questions)

- 1. ii 2. i 3. ii 4. iii 5. iii A.
- ODF Plus 2. renewable 3. Agriculture, Water Management
  - 5. climate change 4. stakeholder
- C. 1. False 2. True 3. False 4. True 5. True

## Section B (Subjective Type Questions)

- **A.** 1. The Liter of Light project uses a plastic bottle filled with water and bleach to create an ecofriendly, low-cost lighting system. It aims to provide affordable lighting to underprivileged households and reduce the need for artificial lighting.
  - 2. The National Action Plan on Climate Change (NAPCC) is an action plan that incorporates various missions or strategies aimed at achieving long-term growth. A policy that has a set action date and a budget plan becomes a mission. The NAPCC has eight main missions that include many areas of the environment.
  - 3. Science and technology contribute to sustainable development by providing innovative solutions to environmental problems. They help improve resource efficiency, reduce pollution, and develop eco-friendly technologies. For example, renewable energy technologies like solar and wind energy are contributing to sustainable development.
  - 4. The eight main missions of NAPCC are:
    - i. National Mission on Strategic Knowledge on Climate Change
    - ii. National Mission on Sustainable Agriculture
    - iii. National Mission for a Greener India
    - iv. National Water Mission
    - v. National Mission on Sustainable Habitats
    - vi. National Mission for Enhanced Energy Efficiency
    - vii. National Solar Mission
    - viii. National Mission for Sustaining Himalayan Ecosystem
- **B.** 1. A stakeholder is defined as somebody who has an interest or concern in something (company, policy, or activity). A green economy has many stakeholders since, it impacts everyone and requires the assistance of many individuals.

Some of them are:

**Government:** Governments and municipal bodies create and implement laws, policies, strategies, standards, programs, agreements with other countries, and activities to promote sustainable development.

**Non-Governmental Organisations:** Many individual social workers and Non-Governmental Organisations (NGOs) assist the government and community in adopting Green Economic measures.

**Companies:** The success of the green economy is dependent on active participation from both the public and private sectors. Companies must adhere to good business operations while also protecting the environment.

- 2. The central government's 'Vocal for Local' initiative aims to:
  - Support local, organic and natural farming (growing crops without the use hazardous fertilisers and pesticides).
  - If possible, grow your own vegetables.
  - Eat in-season food rather than processed/packaged food.
- 3. On October 2, 2014, the Prime Minister of India launched the Swachh Bharat Mission to accelerate efforts to attain universal sanitation coverage and to focus attention on sanitation. Under the project, all villages, Gram Panchayats, Districts, States, and Union Territories in India pledged to be open defecation free (ODF) by October 2, 2019, the 150th birth anniversary of Mahatma Gandhi, by constructing over 100 million toilets in rural India.
- 4. Mitticool, the brainchild of Mansukhlal Raghavjibhai Prajapati, a modest clay craftsman in Rajkot, Gujarat, is a low-cost clay refrigerator that does not require electricity. Mitticool requires just basic cleaning every two or three days since it uses water's ability to remove heat through evaporation, the age-old idea of 'Surahi' or 'cooling through evaporation'. The top of the unit is filled with water, which slowly drips down the sides, evaporating off the porous clay surface and chilling the interior. This also serves as a water cooler with a tiny faucet tap. It also aids in the reduction of electrical expenditures, which greatly benefits many rural families.

### C. Competency-based/Application-based questions:

Sujata should file her complaint with the National Green Tribunal (NGT), which functions as a court in disputes involving environmental preservation, forest conservation, and other natural resource conservation.



Do it yourself.



# **Answer key**



Part B: SUBJECT SPECIFIC SKILLS

## **Basics of Networking**

Video Session Page 111-127

Do it yourself.

Lab Assignment 'n Activity
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Do it yourself.

Video Session Page 139

Do it yourself.

### 



### **Section A** (Objective Type Questions)

1. iii 2. ii 3. iv 4. ii 5. i 6. iii 7. iii

8. i 9. i 10. i 11. iii 12. iv 13. iv

14. a. i LAN

b. ii MAN

15. iv 16. iii 17. iv 18. i 19. i

**B.** 1. Information Technology Amendment Act of 2008

2. Firewall

3. Unguided Media

4. Bridge

5. Bus topology

C. 1. False 2. True 3. False

4. False 5. True

## Section B (Subjective Type Questions)

- **A.** 1. Three preventive measures that must be followed while surfing on the Internet are:
  - Never click on a questionable link on a website or send an email that you aren't convinced is legitimate.
  - Make sure your passwords are strong and updated on a regular basis.
  - Use up-to-date antivirus and firewall software, as well as safe browsing and password management strategies.

2.	Guided Media	Unguided Media
	Guided media refers to the physical medium	In unguided transmission, electromagnetic
	through which the signals are transmitted.	waves are transmitted without the need of
		any physical medium.
	It is also known as bounded or wired media.	It's also called wireless transmission.
	Its speed is very high.	The signal travels over empty space (air).
	It is used for reasonably shorter distances.	Signals can travel through sky
		propagation, ground propagation, or line-
		of-sight propagation.

#### 3. Advantages:

- The network will not be broken if a single device fails.
- Fault detection is a simple process.

#### **Disadvantages:**

- It is more expensive than other network topologies such as star, bus, and point-to-point.
- Installation is quite costly and tough.
- 4. **HTTPS:** HyperText Transfer Protocol Secure (HTTPS) is a standard protocol for securing communication between two computers, one using a browser and the other retrieving data from a web server.

**SMTP:** SMTP is a protocol for sending and distributing emails. SMTP is a secure and simple-to-use protocol. Messages are either delivered to the intended recipient or an error message is displayed explaining why this was not possible.

5.	Hacker	Cracker
	Hacking was a phrase used to describe	Cracking is a means of gaining
	people who engage in inoffensive technology	unauthorised access to a computer with
	experiments and educational activities.	the goal of causing harm.

6. Cracking

7. **Patent:** A patent is a term that refers to a unique product created by a single person.



**Copyright:** A written document is referred to as copyright. If copyrights are breached, legal action may be taken.

**Trademark:** A trademark is a name, a different symbol, or a gadget that identifies a product or service.

- 8. It allows voice to be transferred over a packet-switched network instead of a public switched telephone network. Phone calls can be made utilising a normal internet connection and VoIP software.
- **B.** 1. A topology describes how devices (or nodes) are connected.

Types of Topologies:

**Broadcast Topology:** All nodes in a broadcast topology share the same physical link. All nodes receive when one broadcasts. When more than one node transmits at the same time, there is a collision resolution mechanism in place to handle it. Examples of broadcast topology are bus and ring.

**Point-to-Point Topology:** Every pair of nodes in a point-to-point topology has its own dedicated link. Example of point-to-point topology are star and mesh.

2. A star topology for a LAN is one in which each node is connected to a central connection point, such as a hub or switch. A star requires more cable than, say, a bus, but the benefit is that if one cable fails, only one node is affected. Each device in the network is connected to a hub, which is a central device. If one device wishes to send information to another, it must first send the information to the hub, which then sends the information to the specified device.

#### **Advantages:**

- It is extremely dependable; if one cable or device breaks, the others will continue to function.
- · Fault detection is simple.

#### **Disadvantages:**

- More cable is required than with a linear bus.
- · If the hub fails, the entire system fails.

#### 3. Features of Packet Switching:

- Each packet has a "header" that provides information needed to route it from source to destination.
- Packets take shortest path as possible to travel across the network.
- It allows packets from many sources to share a single line, allowing for more efficient use of the communication medium.
- Packets are delayed or deleted if the network gets overcrowded ("dropped").

Yes, because packet switching allows efficient use of bandwidth and is the core technology behind the Internet and most LANs.



4.	MAC Address	IP Address
	It is a hexadecimal address of six bytes.	This address can be either eight or six
		bytes long.
	A device's MAC address is provided by the	The IP address of a device is provided by
	manufacturer of the NIC card.	an ISO (Internet Service Provider).
	A MAC address is mostly used to verify a	The logical address of a computer is
	device's/physical computer's address.	defined by the IP address.
	When a machine is moved from one network	When a machine is moved from one
	to another, its MAC address remains the	network to another, its IP address gets
	same.	changed.

5. Domain names are the names given to these web addresses. A domain name usually has the following parts: protocol, subdomain, brand domain, and top-level domain. For examples, cbse.nic.in, indianrailway.gov. in, amazon.com, etc.

### Competency-based/Application-based questions:

- 1. i. LAN
  - ii. Repeater
- 2. Satellite Type Microwave Transmission
- 3. Twisted Pair Cable
- 4. i. Fibre Optic Cable
  - ii. WAN
- 5. i. Fibre Optic Cable
  - ii. MAN



Do it yourself.

# Website building using HTML and CSS

Video Session Page 164-190

Do it yourself.

Lab Assignment 'n Activity
Page 164-206

Do it yourself.



## Section A (Objective Type Questions)

- **A.** 1. ii
  - 3. iv
  - 7. iii
  - 11. i
  - 15. i
  - 19. i
  - 20. i. Statement 1 is True,
    - ii. Statement 2 is True.
  - 21. iii
  - 25. i
  - 29. ii
- **B.** 1. <link>
  - 5. secondary server
  - 9. hosts
- **C.** 1. False
  - 5. True
  - 9. True

- 2. <img style="border:3px dotted green;" src="img1.jpg">
- 4. iii
- 5. i
- 6. ii

14. ii

- 8. iv
- 9. iii
- 10. i

- 12. ii 16. i
- 13. i
  - \_ .
- 17. i
- 18. iii

- 22 iii
- 23. ii
- 24. iv

- 26. iv
- 27. iii
- 28. i

- 30. iv
  - 2. src
- 3. h1
- 4. mailto:

- 6. style
- 7. selector
- 8. Domain Name System (DNS)

- 10. Refresh
- 2. True
- 3. False
- 4. False

- 6. True
- 7. True
- 8. False

10. True

## Section B (Subjective Type Questions)

- **A.** 1. Building Web pages and Web applications starts with HTML and CSS because HTML provides the structure of the page, while CSS controls the layout and appearance of the page. HTML defines the content and structure, whereas CSS is used for styling the pages with colours, fonts, and spacing, ensuring they are visually attractive and user-friendly.
  - 2. A selector identifies the HTML element that needs to be styled. One or more declarations are separated by semicolons in the declaration block.

### Example:

```
p {
text-align: left; color: blue;
}
```

3. The steps of publishing your website are as follows:

Page to be published

Complete Website

Select a single page

Choose a page and its subpages

Publish all of your files

Only publish HTML files

Only publish files that have changed

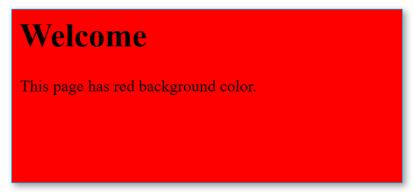
- 4. i. <video>
  - ii.
- 5. The definition list is also known as a description list. The description list is created by using the <DL> tag in conjunction with <DD> and <DT> tags. The <DL> tag defines the entire description list. The <DT> tag defines the description term, and the <DD> tag defines the description term's definition.

6.	Inline Style	Internal Style	External Style
	Style rules are applied	Style rules are written	Style rules are written in a
	directly within the HTML	inside <style> tag in</th><th>separate .css file and linked to</th></tr><tr><th></th><th>element.</th><th>the <head> section.</th><th>the HTML document.</th></tr><tr><th></th><th>Example: <p</th><th>Example: <style> p</th><th>Example: <link</th></tr><tr><th></th><th>style="color:red;"></th><th>{color:red;} </</th><th>rel="stylesheet"</th></tr><tr><th></th><th></th><th>style></th><th>href="style.css"></th></tr></tbody></table></style>	

- 7. The font-variant property denotes whether a text should be displayed in a small-caps font or not.
- 8. Comments are used to explain the code and may come in use if you need to edit the source code later. Browsers do not read comments. A CSS comment begins with /\* and finishes with \*/.
- 9. A hexadecimal colour representation is a six-digit number. The first two numbers denote a red value, the next two a green value, and the last two denote a blue value. A hash sign # precedes each hexadecimal code.

```
</head>
<body>
<h1>Welcome</h1>
This page has red background color.
</body>
</html>
```

#### Output:



- **B.** 1. HTML and CSS are both essential technologies for building Web pages but they serve different purposes.
  - **HTML (HyperText Markup Language)** is used to structure content on the web. It provides the basic skeleton of a webpage. Using HTML, we define elements like headings, paragraphs, images, tables, and forms. HTML pages are simple text files with special "tags" that a web browser interprets and displays on the computer screen.
  - CSS (Cascading Style Sheets) is used to control the style, layout, and appearance of
    multiple web pages all at once. CSS controls the formatting, colour, font, size, positioning,
    spacing and many other presentation aspects of HTML elements. CSS separates the
    content from the presentation and gives a better look to the webpages.
  - 2. Physical tags are used in HTML to give the text a physical appearance. Physical tags that are commonly used in HTML are listed below.

Tag	Description
<b></b>	Specifies <b>bold</b> text
<big></big>	Specifies big text
<i>&gt;</i>	Specifies <i>italic</i> text
<small></small>	Specifies small text
<tt></tt>	Specifies teletype text

3. **Universal Selector:** The asterisk '\*' represents the universal selector. All elements are selected when the \* selector is used. The \* selector can also be used to select all elements that are contained within another element.

**Example:** Selects all elements, and sets their background colour to maroon:

```
* {
background-color: maroon;
}
```

**Descendant Selectors:** The descendant selector identifies all items that are descendants of a given element. Assume you want to apply a style rule to a specific element only when it is included within another element. The style rule will only apply to the <b> element when it is inside the tag, as seen in the following example:

```
ul b {
color: blue;
```

- 4. i. A root server is a server whose zone includes the entire DNS tree. In most cases, a root server does not keep any domain information itself but delegates its authority to other servers.
  - ii. A primary server is a server that keeps a file containing information about the zone for which it has the authority. It is responsible for creating, updating, and maintaining the zone file.
- 5. The Domain Name System (DNS) is a distributed database that maps domain names to IP addresses. It enables computers to communicate, send emails, and display web pages.
  - DNS services include Host Aliasing, Mail Server Aliasing, and Load Distribution.
  - When a user types a domain name like www.cbse.nic.in in a browser, the DNS converts it into the respective IP address. This allows the browser to access the correct website server.
  - DNS plays a crucial role in ensuring that users reach the right websites, efficiently and quickly.
- 6. **Internal Linking:** An HTML internal link connects two pages on the same website. This link might be either absolute or relative. The hash sign (#) follows the name of an HTML internal link. To refer to a section of your page, which is referred to as an internal link to the same page, you must assign an id. When you click on an internal anchor link, your browser will automatically scroll to the specified part and display it.
  - External Linking: To connect two html webpages, an external link is utilised. External links are formed when you want to go to another page or URL by clicking on a link on a webpage. The anchor tag in html is used to create an external link.
- 7. Some of the common errors encountered during website publishing are:
  - Incorrect FTP address (host), username, or password.

• Wrong remote folder selected, causing files not to appear.



- FTP connection blocked by firewall settings.
- Very large image files causing timeout.
- Website may look outdated if browser cache is not refreshed after publishing.

0		
8.	Ordered List	Unordered List
	It is also called a numbered list.	It is also called a bulleted list.
	Created using <o1> tag.</o1>	Created using <ul> tag.</ul>
	Items are shown in a specific sequence	Items are shown with bullets like Disc,
	(1, 2, 3 or A, B, C, etc.).	Circle, or Square.
	Example use: Steps in an algorithm.	Example use: Shopping list.

Flat Name Spaces	Hierarchical Name Space
A name in a flat name space is just a	Each name in a hierarchical name space is made
string of characters with no structure.	up of numerous parts.
An address is assigned to a name in	The first section identifies the organization's
this space.	nature, the second part specifies the
	organization's name, the third part defines the
	organization's department, and so on.
The names were simple and easy to	The authority to allocate and regulate name
remember.	spaces in a hierarchical name space can be
	decentralised.
As it must be centrally regulated to	Each designated agent is given authority over
minimise ambiguity and duplication, a	the names in each division.
flat name space cannot be employed in	
a huge system like the internet.	

10. The steps of publishing your website are as follows:

**Page to be published:** You can choose which pages to publish in this area of the publish window.

**Complete Website:** Publishes all pages on the website (excluding those for which the 'Don't publish this page' option has been activated in the page properties).

**Select a single page:** Publish the selected page; pick the page to be published by clicking 'Select'. You can also choose a folder.

**Choose a page and its subpages:** Publish the chosen page, as well as all of its subpages (if any). The 'FILES' option determines which files will be made public.

**Publish all of your files:** The selected page(s) will have all of their files published.

**Only publish HTML files:** If you don't wish to upload any images or other components, use this option with the HTML document.

Only publish files that have changed: If you wish to publish the files that have changed since the previous time you published them, choose this option.

#### **Competency-based/Application-based questions:**

- 1. Shreya should use the <address> tag to display the address of the author on the HTML page.
- 2. Gargi may not have the font "Berlin Sans FB" installed on her system. The font-family property depends on the fonts installed on the system.
- 3. Gurpreet should use the tag to start an ordered list for the steps involved in baking a cake.
- 4. Himesh can use the tag along with (table row) and (table data) elements to display marks for different subjects in a structured way.
- 5. She can use the colspan attribute to make a cell span multiple columns.



Do it yourself.

## **Multimedia Design using GIMP**



Video Session Page 225-304

Do it yourself.

## Lab Assignment 'n Activity Page 241-298

Do it yourself.

### Unsolved Exercise



### **Section A** (Objective Type Questions)

1. iii

- 2. i
- 3. ii
- 4. i
- 5. iv

6. iii

- 7. i
- 8. iii
- 9. ii
- 10. iii

- 1. https://www.gimp.org/downloads/
- 2. View
- 3. Selection

4. Alt

- 5. Intelligent Scissors
- 6. Blur/Sharpen Tool

7. Eye

- 8. Image window
- 9. Drawing tool, Copying Content from other images 10. Drop shadow
  - 11. Patterns

12. Gradients

True
 True
 True
 False
 True
 False
 False
 False
 False

## Section B (Subjective Type Questions)

**A.** 1. Layers are transparent sheets piled on top of one another to create an image in GIMP. Each layer can contain different elements, allowing editing of one part without affecting others.

#### Significance:

- Layers give flexibility and control over image compositions.
- They allow stacking of different images or elements.

2.	Flipping an Image	Rotating an Image
	Creates a mirrored version horizontally	Changes the orientation of the image by a
	or vertically.	specified angle (like 90°, 180°).
	Done using Flip Tool.	Done using Rotate Tool.

3. GIMP stands for GNU Image Manipulation Program.

- 4. a. Scale Toolb. Flip Toolc. Pencil Toold. Dodge Toole. Smudge Toolf. Bucket Fill Tool
  - g. Eraser Tool
- 5. Features of GIMP are as follows:
  - Full suite of painting and drawing tools.
  - Supports various file formats such as GIF, JPEG, PNG, TIFF, BMP, etc.
- 6. Perform the following steps to use the Clone Tool:
  - Step 1: Open an image in GIMP.
  - Step 2: Click on the Clone Tool in the Toolbox.
  - Step 3: Select the brush size and hardness from Tool Options.
  - Step 4: While keeping the Ctrl key pressed, click on the portion of the image that needs to be duplicated.
  - Step 5: Click on the image where you want to create the duplicate.

When you drag the mouse pointer, you see a circular marquee on the original image and a small circle on the cloned image. Release the mouse button when clone completed.

7. Layer masks are a vital tool for modifying images. They enable us to manage transparency and other elements. GIMP's layer masks provide a sophisticated approach to modify particular areas of photos that are placed in layers within a GIMP document.

- In GIMP, channels are very similar to layers; except, each layer corresponds to a different level in the image's colour model (RGB, HSV or CMYK). Channels dialogues can be chosen in any combination, and are indicated as a gray shading, if currently active.
- 8. Fuzzy Select tool is used to detect the edges of the image automatically on the basis of colour codes and do the selection quickly.
- 9. Smudge tool is used to show the image as the wet paint on the image has been spread by a finger.
- 10. In the GIMP software, filters are pre-designed effects with customizable data that aid in image alteration and picture editing tasks. You can use filters on an image, geometric shapes, or text.
- 11. Fuzzy Select Tool
- 12. Crop Tool

13.	Rectangle Selection Tool	Ellipse Selection Tool
	Makes a rectangle-shaped area selection.	Selects an area with an elliptical shape (a circular
	Making a rectangular selection is as easy	shape). All you have to do is click and drag to
	as clicking and dragging. When you let	make an elliptical selection. When you let go of
	go of the mouse, the selection is made.	the mouse, the selection is made.

14. The selection's creation method, including whether it will be mixed with other choices, is determined by the mode. Replace, Add, Subtract, and Intersection are different modes of selection tools

**Replace:** It will cause existing selection is replaced by new selection.

**Add:** It will cause new selection to be added to existing selection.

15. Advantage:

**Detail-Oriented Selection:** The Free Lasso Tool allows users to manually draw around complex, irregular shapes with great precision.

#### Disadvantage:

Manual Effort and Steadiness: Using the Free Lasso Tool effectively can be time-consuming, especially for intricate selections.

- **B.** 1. To use selection tools on images, follow the steps given below:
  - Step 1: Open the image on which you want to apply selection tool.
  - Step 2: In the GIMP toolbox, click on the selection tool icon. The selection tool can also be chosen by clicking the desired Selection tools after choosing Tools from the program's menu. To pick the desired area, the tool of choice is dragged over the visible portion of the image.
  - Step 3: After the region has been chosen, a boundary (such as a rectangle, ellipse, marquee, etc.) is visible all the way around it.

If a user presses and holds down the Ctrl, Shift, and/or Alt keys, the behaviour of selection tools changes. These keys and/or key combinations are referred to as key modifiers since they could be connected to a mode.

- 2. To use paint tools on images, follow the steps given below:
  - Step 1: In the toolbox of GIMP, select the paint tool icon. The paint tool can also be selected by clicking the desired **Paint tool** after choosing **Tools** from the program's menu.
  - Step 2: From the GIMP menu, select **File** and then **New** to create a canvas. An image can also be painted over. To open an image from the computer drive, select **File** and then **Open**.

Drag the paint tool icon on the GIMP canvas while holding down the left mouse button. In order to make tool strokes like pencil, brush, eraser, etc., a tiny circle will appear above your mouse cursor on the GIMP canvas.

- Step 3: Click the colour box, which is situated immediately beneath the tool icons in GIMP's toolbox, to select the colour for your paint tool. By default, the colour is black, but you can alter it by selecting one of the square colour samples or by using the gradient sliders.
- Step 4: You can configure the pencil, brush, eraser, and other paint tool options. When the paint tool is selected, these choices are displayed on the lower part of the GIMP toolbox. To change the transparency of the painting brush, move the Opacity slider. For various paint tools, one can modify characteristics like size, aspect ratio, and angle.

The Paint Tools listed below are assistive painting tools. With the aid of these tools, the painter can create smooth transitions or add specific effects to the artwork.

- 3. a. **Color Balance:** By modifying the levels of cyan, magenta, and yellow as well as the ranges of red, green, and blue, it alters and maintains the colour balance of the current image.
  - b. **Color Temperature:** It can be used to fix the red cast in pictures shot in incandescent light with the camera set to daylight, or even the bluish cast in photos taken in gloomy conditions.
  - c. **Hue-Chroma:** Hue-Chroma can be adjusted, and light saturation can be used to increase the number of colour pixels in an image.
  - d. **Colorize Tool:** The active layer or selection becomes a greyscale image seen through coloured glass when using the Colorize tool.
  - e. Threshold: The image is converted to black and white using the threshold effect.
- 4. Layers are like transparent sheets stacked over one another that allow editing of different image elements independently. Each layer can have its own contents, and changes made to one layer do not affect others unless merged.



#### Steps to create a new layer:

- Step 1: Open an Image in GIMP.
- Step 2: In the Layers Dialog, click the **New Layer** button at the bottom.
- Step 3: In the **New Layer** dialog box, enter a name for the new layer.
- Step 4: Click the **OK** button to create the new layer.

A new layer will appear in the Layers Panel above the currently selected layer.

- 5. For adding a layer mask, open two images in GIMP one coloured photo and one black and white photo.
  - Step 1: In the Layers palette, the coloured image appears as the first layer and the black and white image appears as the second layer.
  - Step 2: Right-click on the coloured image layer and select **Add Layer Mask** from the popup menu.
  - Step 3: In the Add Layer Mask dialog box, select White (full opacity) and click Add.
  - Step 4: Select the **Brush Tool** and drag over the coloured background to reveal the black and white background from the lower layer.
  - Step 5: Use **Zoom In** to enlarge the image and carefully brush over the entire background.
  - Step 6: A coloured object over a black and white background will be visible after masking is complete.
- 6. Step 1: Open two images (background and foreground) in GIMP.
  - Step 2: Place both images in separate layers.
  - Step 3: Add a Layer Mask to the top image.

- Step 4: Select Brush Tool, set its colour to black.
- Step 5: Paint over areas you want to hide from the top image, making the background image visible.
- Step 6: Adjust edges smoothly by refining the mask.

_		
7.	Focus Blur	The area surrounding a focal point becomes blurry due to focus blur. The layer or selection's centre serves as the focus point by default. Drag the centre point to adjust this focus point.
	Gaussian Blur	It is a powerful blur tool that works quickly while enabling the user to adjust the size and intensity of the blurring. It takes into account the mean of all pixel values found within a specified region of interest in an image.
	Zoom Motion Blur	You can change the blur settings immediately on the canvas using this option, making it simpler to visually adjust the blur settings.
	Pixelize	Pixelates an image(appears blurry)

8. Flattening layers means merging all visible layers into a single layer. It is used before saving the final version of an image to simplify the structure and reduce file size.

#### **Steps to Flatten Layers:**

- Step 1: Click on the Image menu at the top.
- Step 2: Choose Flatten Image.

All visible layers will be merged into one single background layer.

- 9. To delete a layer in GIMP, you can follow these steps:
  - Step 1: Open your image in GIMP.
  - Step 2: In the Layers panel, locate the layer you want to delete.
  - Step 3: Right-click on the layer you want to delete.
  - Step 4: From the context menu that appears, select **Delete Layer**.
- 10. The Paintbrush Tool is used to create soft, smooth brush strokes on the canvas or image. It supports anti-aliasing and opacity control for more natural painting.

#### **Steps to use Paintbrush Tool:**

- Step 1: Select the Paintbrush Tool from the Toolbox.
- Step 2: Choose the desired Foreground Colour.
- Step 3: Select a Brush shape and adjust its size and opacity in Tool Options.
- Step 4: Click and drag on the image to create strokes.
- 11. a. **Contiguous:** This option determines whether the selection of the foreground should be limited to contiguous (connected) regions. When enabled, only pixels that are directly connected to each other will be considered as part of the foreground. This is useful when the foreground is a single, unbroken area.
  - b. **Interactive Refinement:** This feature allows for a more dynamic and user-controlled approach to refining the selection. Once the initial selection is made, the user can interactively adjust the selection by painting over areas to refine the edges and include or exclude parts of the image.
  - c. **Smoothing:** This option controls how smooth the edges of the selection will be. Smoothing helps to reduce the jagged edges that can occur when selecting the foreground.
- 12. a. Fuzzy Select tool, or Magic Wand tool, is used to detect the edges of the image automatically on the basis of colour codes and do the selection quickly.
  - b. Bucket Fill fills an area with a selected color or pattern.
  - c. Perspective Clone recreates portions of a picture while maintaining perspective.
- 13. a. **Smudge Tool:** This tool is used to show the image as the wet paint on the image has been spread by a finger.

- b. **Handle Transform Tool:** The primary purpose of transform tools is to change how an image or a specific component of an image appears. Handle Transform is utilised for adjusting scaling.
- c. **Color Picker Tool:** By clicking on a certain colour inside an image that has been opened on the screen, the Color Picker Tool is used to choose a colour from the image. This tool allows you to choose the colour of the foreground and backdrop.
- d. **Distort Filter-Emboss:** It makes the picture appear to be embossed. Option settings include an image's azimuth (a component of lighting), elevation, and depth.

### C. Competency-based/Application-based questions:

- 1. Rajesh should use the Intelligent Scissors Tool to select the edges of an image automatically based on prominent colour changes.
- 2. Sanya can use the Healing Tool to remove moles or blemishes.
- 3. Different selection tools will be needed like Rectangle Selection Tool, Ellipse Selection Tool, Free Selection Tool etc and Masking will help in Making Collage.
- 4. Step 1: Shaurya can start with his and his friends photograph in GIMP, then add a new layer of his friends photograph.
  - Step 2: He can then see in the layers palette, that the his image is the first layer and the friends' image is the second layer.
  - Step 3: Next right-click on the his image layer and select Add Layer Mask from the popup menu. A dialog box will open.
  - Step 4: For now, leave the setting to 'White (full opacity)' and click on 'Add'. You will see a white box in the his image layer. Click on it to select it.
  - Step 5: Now select the brush tool, and click and drag on the coloured background. The mask layer will ensure that friends photograph background of the second layer shows through.
  - Step 6: Use Zoom In to enlarge the image and 'brush' the entire background with his friends' image.
  - Step 7: You should get his photograph over the friends photograph.



Do it yourself.

# Javascript Part 1

## Lab Assignment 'n Activity Page 328-377

Do it yourself.



Video Session Page 378

Do it yourself.

### Unsolved Exercise (2)



### Section A (Objective Type Questions)

1. iii

- 2. iii
- 3. i
- 4. ii

5. iv

- 6. ii
- 7. iii

3. .js

8. ii

**B.** 1. 1(one)

- 2. <script>
- 4. (;)semicolon

- 5. typeof
- 6. do...while loop
- 7. default 10. interpreted
- 8. question's default answer 9. Brendan Eich
- 11. operator 12. expression

13. Dynamic HyperText Markup Language

**C.** 1. True

- 2. False
- 3. False
- 4. True

5. True

- 6. True
- 7. False
- 8. True

9. True

10. True

### **Section B** (Subjective Type Questions)

1. Two uses of JavaScript language are:

Dynamic Page Creation: JavaScript allows the users to change the elements of the web pages dynamically.

Validation of User Input: This is one of the primary applications of JavaScript, which allows users to validate input entered into various types of fields such as textboxes.

- 2. Primitive data types: String, Number, Boolean, Undefined, Null, Symbol, BigInt
  - Non-Primitive (Reference) data types: Object, Array, Function, Date, RegExp
- 3. The switch statement executes certain statements depending on user's choice. The case statement is used to define different cases where each case has a unique label and a set of statements associated with it.

#### **Example:**

```
switch (grade) {
   case 'A':
        document.write("You get a bonus of 5000 rupees");
        break;
   case 'B':
        document.write("You get a bonus of 2500 rupees");
        break;
   default:
        document.write("Invalid grade");
}
```

- 4. An infinite loop is a piece of code that never ends because it never reaches the ending condition. An infinite loop might cause your software or browser to fail and your machine to become unresponsive. In order to avoid such situations, we must be aware of infinite loops and how to avoid them.
- 5. The confirm() method is used to obtain confirmation from the user. It returns true if the user clicks "OK" and false if the user clicks "Cancel".

#### **Example:**

```
var result = confirm("Do you want to proceed?");
if (result) {
    document.write("User choose OK");
}
else {
    document.write("User choose Cancel");
}
```

- 6. Looping is the process of repeatedly executing a set of statements based on a specified condition. JavaScript provides various types of loops like for, while, and do...while.
- 7. The syntax to use the for loop is as follows:

```
for (initialisation_expression; conditional_expression; update_
expression) {
// loop body
}
```

8. The result would be "33" because the number 1 and 2 are added, then JavaScript converts the sum to a string and concatenates "3" at the end.



- 9. -1 1
  - -5
  - 4

5foo

- 10. Jump statements like break and continue are used to alter the normal flow of execution in loops or switch statements. break exits the loop, and continue skips the current iteration and continues with the next iteration.
- 11. JavaScript was developed by Brendan Eich, a Netscape Communications Corporation programmer, in 1995.
- 12. There are mainly two types of HTML editors named WYSIWYG editor and Text editor.
- 13. JavaScript has various uses/applications as shown below:

**Development of Multimedia Applications:** JavaScript can be used by the user to include multimedia elements like images, audio, video, animations, etc. within the web pages. You can show, hide, modify, resize, and create picture rollovers with JavaScript. By adding scrolling text to the status bar, multimedia applications can become more engaging.

**Supplements Client and Sever Side Processing:** JavaScript can be processed on the client side as well as the server side.

- 14. In JavaScript there are two types of comments,
  - i. **Single-line comments** start with //:

```
// This is a single-line comment let x = 5;
```

ii. Multi-line comments are enclosed between /\* and \*/:

```
/* This is a
multi-line comment */
let y = 10;
```

B. 1. JavaScript code can be written in a file and saved with the .js extension and this file can then be linked inside the <HEAD> and </HEAD> tags of the HTML document in which we want to add this code. The SRC attribute of the <script> tag allows to give path of the JavaScript file. The syntax to add external JavaScript is:

```
<HEAD>
<SCRIPT TYPE="text/javascript" SRC="D:\first.js">
</SCRIPT>
</HEAD>
```

To use external JavaScript, follow the given steps:

Step 1: Open the Notepad and type the following line:

```
alert("Hello World");
```

Step 2: Save the file with .js extension.



#### Step 3: Open another Notepad and type the following code:

```
<hr/>
<HEAD>
<TITLE> My First JavaScript </TITLE>
<SCRIPT TYPE="Text/javascript" SRC="external.js">
</SCRIPT>
</HEAD>
<BODY>
```

This message box is displayed using external JavaScript.

```
</BODY>
```

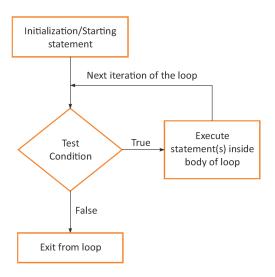
Step 4: Save the file with .html extension and open the web page in a web browser. You will get the same output as the previous web page.

#### 2. The while loop:

The while statement or loop is used to repeat a set of instructions until a conditional expression returns True. Once the expression returns False, the loop is terminated. Following is the syntax of the while loop in JavaScript:

```
initialisation_expression;
while (conditional_expression) {
//loop body
update_expression;
}
```

#### Flow Diagram:

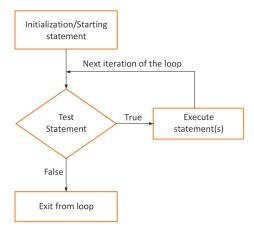


#### The for loop:

The for statement or loop is used to repeat an instruction or a set of instructions for a fixed number of times. The syntax to use the for loop is as follows:

```
for (initialisation_expression; conditional_expression; update_
expression) {
// loop body
}
```

#### Flow Diagram:



- 3. **The while Loop:** The while statement or loop is used to repeat a set of instructions until a conditional expression returns True. Once the expression returns False, the loop is terminated.
  - **The do....while Loop:** Do while is a different type of loop than either the for or while loops. This loop will always execute the statement at least once, even if the condition is false. After one iteration of the loop has been completed, the condition is checked. Depending on the condition, the loop will continue to run further or terminate.
- 4. A web page is traditionally made up of three separate parts with separate responsibilities: HTML code defines the structure and meaning of the content on a page, CSS code defines its appearance, and JavaScript code defines its behaviour.
- 5. **Implicit Type Conversion:** When an expression is evaluated and two different types are given that are incompatible to perform the operation, JavaScript automatically converts them.
  - **Explicit Type Conversion:** The developer does this type of conversion by utilizing the built-in type conversion methods.
- 6. Composite (non-primitive) data types are those that can hold multiple values or more complex entities, such as Arrays and Objects in JavaScript
- 7. **Undefined:** A variable that has been declared but has not been assigned a value is of type undefined.



Example:

let myVariable;

console.log(myVariable); // Output: undefined

**Null:** Represents the intentional absence of any object value. It is often used to indicate that a variable should have no value.

Example:

let emptyValue = null;

8. Some rules and best practices for naming variables in JavaScript are as follows:

JavaScript variables are typically written in camelCase.

JavaScript variable names are case-sensitive. This means firstName, Firstname, and firstname are all different variables.

Use meaningful names that describe the value the variable holds or the purpose it serves.

Variable names can include Letters (a-z, A-Z), Digits (0-9), dollar sign (\$), underscore (\_). However, variable names cannot start with a digit.

Variable names cannot be JavaScript reserved words.

- 9. a. src: Specifies the URL of an external JavaScript file to be loaded.
  - b. **type:** Specifies the type of script language. The default value is "text/javascript", which can be omitted.
  - c. **charset**: Specifies the character encoding for the script.
- 10. a. var s = x + y;
  - b. var sqrt = Math.sqrt(x);
  - c. document.write(typeof n);
- 11. 1. document.write(str1.length);
  - document.write(str1.search("world"));
  - document.write("@@^^" + str1 + "^^@@");
  - 4. document.write(str1.substring(4, 12));
- 12. a. 13
  - b. 16
  - c. @
    - @
    - @
    - @
    - @

d. The number is 1

The number is 2

The number is 4

The number is 5

#### C. Competency-based/Application-based questions:

- 1. Chirag can achieve this by using JavaScript. JavaScript can be embedded into the website to add interactivity such as form validation, creating dynamic content, and handling user events (clicks, hover, etc.).
- 2. Shweta can use the prompt() method of JavaScript. This method displays a dialog box asking the user to input a value.

```
3. <script language="JavaScript">
  var prod = 2;
  for (var ctr = 2; ctr <= 9; ctr += 2) {
     prod = prod * ctr;
     document.write(prod + ", " + ctr + "<BR>");
  }
  </script>
```

4. i. **Relational operator:** >= (greater than or equal to)

Logical operator: ! (not)

ii. if (B<A)



Do it yourself.