

UNIT-4: WEB APPLICATIONS AND SECURITY

1	Computer Accessibility refers to the user friendliness of a computer system for all, regardless of their disability. This is mainly a software issue. However, when a combination of hardware and software, it enables a person with a disability or impairment to use a computer. It is known as Assistive Technology.
2	Accessibility Options in Control Panel are used to customize the way your keyboard, display, or mouse function. Many of these features are useful for people with disabilities
3	To launch accessibility options in WindowsXP, Click Start > Control Panel > Accessibility Options
4	StickyKeys is an accessibility feature to help computer users with physical disabilities, but it is also used by others as a means to reduce repetitive strain. StickyKeys allows the user to press and release a modifier key, such as Shift, Ctrl, Alt, or the Windows key, and have it remain active until any other key is pressed.
5	Filter Keys is a feature of Microsoft Windows. It is an accessibility function that tells the keyboard to ignore brief or repeated keystrokes, making typing easier for people with hand tremors.
6	ToggleKeys is also a feature of Microsoft Windows. It is an accessibility function which is designed for people who have vision impairment or cognitive disabilities. When ToggleKeys is turned on, computer emits sound cues when the locking keys (Caps Lock, Num Lock, or Scroll Lock) are pressed. A high sound is emitted when the keys are switched on and a low sound is emitted when they are switched off.
7	SoundSentry is designed to help users with auditory impairments. SoundSentry generates visual warnings, such as a blinking title bar or a flashing border, whenever the computer generates a sound.
8	ShowSounds instructs applications that convey information by sound, to also provide information visually, through text captions or informative icons.
9	High Contrast is an accessibility feature to assist people with vision impairment. You can change the size and color of fonts and the background for ease of viewing.
10	Cursor Options is also an accessibility feature that assists people with vision impairment by changing the blink rate and width of the cursor.
11	MouseKeys is an accessibility feature that assists people who have difficulty using a mouse. This option uses the keyboard (especially numeric keypad) as a pointing device instead of a mouse.
12	Serial Keys is an accessibility feature that assists people that have difficulty using a keyboard or a mouse (or both).
	Assessment Fill in the blanks 1. The option in Microsoft Windows XP used for helping users with physical

	<p>disabilities and to reduce repetitive strain is Sticky Keys.</p> <p>2. Sound Sentry is designed to help users with auditory impairments.</p> <p>3. The High Contrast option in Microsoft Windows XP is designed to assist people with vision impairments.</p> <p>4. Serial Keys is designed to assist people that have difficulty using a keyboard or a mouse.</p>
13	A computer network is a collection of computers and other hardware components interconnected by communication channels (cables or satellites) that allow sharing of resources and information.
14	<p>Networks are designed using the following architecture:</p> <p>PEER-TO-PEER (P2P) ARCHITECTURE: Networks in which all computers have an equal status are called peer to peer networks. Generally in such a network each terminal has an equally competent CPU.</p> <p>CLIENT-SERVER ARCHITECTURE: Networks in which certain computers have special dedicated tasks, providing services to other computers (in the network) are called client server networks. The computer(s) which provide services are called servers and the ones that use these services are called clients.</p>
15	<p>TYPES OF NETWORKS</p> <p><input type="checkbox"/> LOCAL AREA NETWORK: A local area network (LAN) is one which connects computers and devices in a limited geographical area such as home, school, computer laboratory, office building, or closely positioned group of buildings.</p> <p><input type="checkbox"/> WIDE AREA NETWORK A wide area network (WAN) is one which covers a broad area (i.e., any network that links across metropolitan, regional, or national boundaries). The Internet is the most popular WAN, and is used by businesses, governments, non-profit organizations, individual consumers, artists, entertainers, and many others.</p>
16	The Internet is a global system of interconnected computer networks that use the standard Internet protocol suite to serve billions of users worldwide. It is a network of networks
17	World Wide Web (abbreviated as WWW or W3, commonly known as the Web), is a system of interlinked hypertext documents accessed via the Internet.
18	<p>Advantages associated with networking are:</p> <ul style="list-style-type: none"> •Data Sharing •Files Transfer •Hardware Sharing •Internet Access Sharing •Usage of network based applications
19	To use the Internet, you need an Internet connection. Internet connections are

	<p>provided by Internet Service Providers (ISP) such as Bharat Sanchar Nigam Limited (BSNL), Airtel, Jio, Vodafone etc</p> <p>An Internet service provider (ISP) is an organization which provides you with access to the Internet via a dial-up (using modem) or direct (hard wired) or wireless connection.</p>
20	<p>A modem is a device that converts digital computer signals into a form (analog signals) that can travel over phone lines. It also re-converts the analog signals back into digital signals. The word modem is derived from its function MODulator/DEModulator.</p>
21	<p>Types Of Common Internet Connectivity</p> <p>Dial-up: Dial-up Internet access is a form of Internet access that uses the facilities of the public switched telephone network (PSTN) to establish a connection to an Internet service provider (ISP) via telephone lines using a device called MODEM.</p> <p>DSL: Digital subscriber line(DSL) provide Internet access by transmitting digital data over wires of a local telephone network. DSL service is delivered along with wired telephone service on the same telephone line.</p> <p>Cable Internet Access: Cable Internet Access is a form of broadband Internet access that uses the cable television infrastructure.</p> <p>3G: 3G, short for 3rd Generation is a set of standards used for mobile devices and mobile telecommunication services and networks. High-Speed Downlink Packet Access (HSDPA) is 3G mobile telephony communications protocol that allows higher data transfer speeds and capacity.</p> <p>WiMAX: WiMAX (Worldwide Interoperability for Microwave Access) is a wireless communications standard designed to provide mobile broadband connectivity across cities and countries through a variety of devices.</p> <p>Wi-Fi: Wi-Fi is a popular technology that allows an electronic device such as computers or mobile phones to exchange data wirelessly over a network, including high-speed Internet connections.</p>
22	<p>DATA TRANSFER ON THE INTERNET:-</p> <ol style="list-style-type: none"> The data is broken up into bits of same sized pieces called packets. A header is added to each packet explaining where the data has come from, where it should end up and where it fits in with the rest of the packets. Each packet is sent from computer to computer until it finds its destination. Each computer on the way decides where next to send the packet. All packets may not take the same route At the destination, the packets are examined. If any packets are missing or damaged, a message is sent asking for them to be re-sent. This continues until all packets have been received intact. The packets are now reassembled into their original form. All this done in seconds!
	<p>ASSESSMENT</p> <p>Fill in the blanks:</p>

1. The acronym for LAN is **Local Area Network**.
2. Three types of Wired Internet Connectivity are **Dialup** , **DSL** & **Cable Internet Access** .
3. Three types of Wireless Internet Connectivity are **3G** , **WiMax** & **WiFi**.

II. Answer the following:

1. Define networking?

Ans Networking is interconnection of devices or hardware components.

2. Give any three advantages of networking.

Ans Data Sharing, Hardware Sharing, Internet Access Sharing

3. Explain the term packet with reference to data transfer.

Ans When any file is transferred from one computer to another it is broken into equal sized pieces (bits) known as packets

4. Explain Wifi and its significance.

Ans Wi-Fi is a popular technology that allows an electronic device such as computers or mobile phones to exchange data wirelessly over a network, including high-speed Internet connections.

5. Compare LAN with WAN

Ans

LAN	WAN
LAN is Local Area Network	WAN is Wide Area Network
It is limited to a small geographical area	It is not limited to any area and is widely available across the globe
Helps to form a network for an organization.	Helps all individuals to connect and access information over Internet

6. Expand the following terms :

- a. DSL : **Digital Subscriber Line**
- b. ISP : **Internet Service Provider**
- c. Modem : **Modulator Demodulator**
- d. www : **World Wide Web**
- e. LAN : **Local Area Network**
- f. MAN : **Metropolitan Area Network**
- g. WAN : **Wide Area Network**
- h. P2P : **Peer to Peer**

	<p>7. Explain P2P Architecture and how it is different from Client Server Architecture?</p> <p>Ans Networks in which all computers have an equal status are called peer to peer networks.</p> <p>Networks in which certain computers have special dedicated tasks, providing services to other computers (in the network) are called client server networks.</p>
23	<p>Instant messaging (IM) is a form of communication over the Internet that offers an instantaneous transmission of text-based messages from sender to receiver.</p>
24	<p>For utilizing audio and video chat or conferencing, you need to have microphones and headsets or speakers and web cameras so that users can talk or see each other.</p>
25	<p>Key Features of an instant messaging are as follows:</p> <ol style="list-style-type: none"> 1) Text Messages can be sent to one or more person (Similar to SMS) 2) Audio calling and conferencing. 3) Video calling and conferencing. 4) File transfers (Not limited to documents, spread sheets, audio files, video files, etc.) 5) Message history (Save messages for future reference).
26	<p>Some of the popular instant messaging software are:</p> <ul style="list-style-type: none"> ➤ Whatsapp ➤ Facebook Messenger ➤ Zoom ➤ Skype ➤ Telegram
	<p>ASSESSMENT</p> <p>1. Fill in the blanks:</p> <p>a. <u>Instant Messaging</u> is a form of communication over the Internet that offers an instantaneous transmission of text-based messages from sender to receiver.</p> <p>b. <u>Microphone</u> , <u>Speaker</u> & <u>Internet</u> & Web Camera are required for audio and video conferencing.</p> <p>2. List any five application based instant messaging software.</p> <p>Ans WhatsApp, Facebook Messenger, Zoom, Skype, Telegram</p> <p>3. What do you mean by instant messages?</p> <p>Ans instantaneous transmission of text-based messages from sender to receiver over internet is known as instant messages.</p> <p>4. Give any three key features of Instant Messaging.</p> <p>Ans</p>

	<p>1) Text Messages can be sent to one or more person (Similar to SMS)</p> <p>2) Audio calling and conferencing.</p> <p>3) Video calling and conferencing.</p> <p>4) File transfers (Not limited to documents, spread sheets, audio files, video files, etc.)</p> <p>5) Message history (Save messages for future reference).</p>
	<p>ASSESSMENT</p> <p>Answer the following:</p> <p>1. State any 03 rules and etiquettes to be followed while chatting on the Internet.</p> <p>Ans 1. Messages should be short and to the point</p> <p>2. Don't type your messages in upper case</p> <p>3. Give people time to respond</p> <p>2. What are the basic needs to use instant messaging (chat) software.</p> <p>Ans We require an active internet connection at both ends sender and receiver, chat application, id or details of the person to whom we want to chat</p>
27	<p>A blog is a discussion style site used by non-technical (or technical users) users for creating personal web pages. Blogs are similar to an online personal diary and simple to use.</p> <p>You can use a blog to convey messages about events, announcements, news, reviews, etc. Blogs are usually managed using a web browser and this requires active internet connection.</p>
28	<p>Some of the popular blogs include:</p> <p>www.WordPress.com</p> <p>www.blogger.com</p> <p>www.blog.com</p> <p>www.weebly.com</p> <p>www.blogsome.com</p>
	<p>ASSESSMENT</p> <p>1. What is a blog? Explain its use.</p> <p>Ans A regularly updated website or web page, typically one run by an individual or small group, that is written in an informal or conversational style. It is used to convey messages about new, events, reviews or any announcements.</p> <p>2. List any 5 websites that provide blog service.</p> <p>Ans wordpress.com, blogger.com, blog.com, weebly.com, blogsome.com</p> <p>3. Difference between web page and website.</p> <p>Ans Web page is one single page on the internet displaying some relevant content.</p> <p>Website is a combination of multiple webpages on one single site.</p>

	<p>4. What do you mean by publishing a post? Ans Publishing a post means, making the post available or accessible publically by all over internet.</p>
29	<p>There are several free offline blog editors available that can be downloaded and installed on the local computer such as: Qumana Windows Live Writer Blogdesk</p>
	<p>ASSESSMENT Answer the following: 1. Explain the purpose of an offline blog editor. Ans Offline blog editors helps us to write blogs even if there is not active internet connection and save it on the hard disk and can be published at any later time.</p> <p>2. List any three offline blog editors. Ans Qumana, Windows Live Writer, Blogdesk</p>
30	<p>Online transactions have made transactions very convenient and simplified the workflow in many forms in a business. Online transactions deals with transfer of money over the internet.</p>
31	<p>Many protocols and security measures have been adopted to ensure the safe and secure OLTP (Online Transaction process).</p>
32	<p>Numerous benefits of online transactions like, fast transaction speed, convenience, low risk of theft etc has exponentially increased its use among people.</p>
33	<p>Online shopping is a form of electronic commerce where customers can buy or sell goods over the Internet. Customers need to have an active internet connection for viewing goods or services offered by a seller; customers can pay online using a credit, debit card or by internet banking.</p>
34	<p>Online shopping could be useful in situations when:</p> <ul style="list-style-type: none"> • A customer does not have sufficient time to visit stores. • Visiting a store is more expensive than purchasing a product online. • A product or service that is not available in the local market is available online
35	<p>Some of the popular online transaction websites are:</p> <ul style="list-style-type: none"> • IRCTC, an online portal for booking flight and train tickets. • Flipkart, an online shopping portal for buying consumer products. • EBay, an online portal for buying and selling goods. • Redbus, an online portal for booking bus tickets.
36	<p>To perform an online transaction, all you need is a web browser and an active internet connection. In some cases where purchasing is involved, you will need a valid credit card, debit card or online banking support referred to as Net Banking</p>

	Subscription.
	<p>ASSESSMENT</p> <p>1. Explain the purpose of Online transactions. Ans Online transaction enables us to do monetary transaction using an active internet connection at any location.</p> <p>2. List any five websites that allow online transactions. Ans Flipkart.com, Amazon.com, Oyo.com, irctc.co.in , Myntra.com</p> <p>3. List any three payment tools to use online transactions. Ans Credit Card, Debit Card, Internet Banking</p> <p>4. Give any two benefits of online transactions. Ans Saves Time, Saves Money</p>
37	Internet security is a branch of computer security specifically related to the Internet, often involving browser security but also network security. Its objective is to establish rules and measures to use against attacks over the Internet. The Internet represents an insecure channel for exchanging information leading to a high risk of intrusion or fraud, such as phishing.
38	Though Internet provides valuable information and entertainment, it may leave your computer unsecure due to many online threats. You need to ensure that your usernames, passwords, credit card or online banking information secure as they are prone to be tracked and used by unauthorized users. Some websites can also install Malware on the computer without user consent thereby leaving the computer damaged or insecure.
39	Online threats such as Phishing, email spoofing, chat spoofing, etc. can increase the chances of users getting compromised.
40	You can reduce the risks by using best practices such as using Antivirus Software, Antispyware Software, Firewalls, strong passwords, etc. in addition to spreading awareness of the best practices.
41	<p>Best Practices for Security</p> <ul style="list-style-type: none"> ➤ Use strong passwords, a combination of alphanumeric and special characters could be used for creating a password that is not so easy to crack or guessed by other users. ➤ Use encryption software ➤ Keeping your username and password private ➤ Do not share personal information ➤ Use antivirus and antispyware software ➤ Do not immediately respond to mails from unknown users ➤ Clear browser cookies frequently: Cookies are programs that are created on your local computer when you visit websites. ➤ Keep the operating system and software applications up to date ➤ Install firewalls: Firewalls could be software or hardware and can assist in keeping a computer and a network secure. Firewalls analyze the

	<p>network traffic and determine if the traffic should be allowed or not.</p> <ul style="list-style-type: none"> ➤ Never install software from unknown sources ➤ Remove unwanted or unknown software applications
	<p>ASSESSMENT</p> <p>1. Explain the purpose of Internet Security. Ans The Internet represents an insecure channel for exchanging information leading to a high risk of intrusion or fraud, such as phishing. So we require rules to be followed to minimize the risk of internet related frauds.</p> <p>2. Explain different kinds of online threats. Ans Phishing, Email Spoofing, Chat Spoofing</p> <p>3. Explain the need to clear data stored in browsers. Ans We need to clear the data stored in browsers like our id and password, details of the websites visited to avoid being misused by someone else on any public or shared computer.</p>
42	Every organization must follow a standard set of safety rules and procedures. These rules must be stated and displayed clearly at important areas . All the employees must be given a demonstrations and training to follow safety rules
43	Basic safety rules to follow at workplace are Fire safety, Falls and slips, Electrical safety, Use of first aid Timely repairs should be carried out by a competent person/ organization at workplace / home to avoid/minimize any hazards.
44	Most of the time fire can be prevented using appropriate measures. - Fire escape plans must be installed at proper levels - Conduct regular drills - Smoke alarms must be placed at proper intervals - Keep workplace a no-smoking zone - Maintenance of safety equipment must be taken care of regularly
45	Falls and Slips Safety rules - Keep the moving area clean and clutter free. - Workplace must be proper ventilated receive light. - Wear non slippery footwear. - Floors must be clean and dry - Oil spills, dust must be immediately cleaned.
46	Following are some of the measures we should take to keep ourselves safe from electricity hazards and accidents:-

	<ul style="list-style-type: none"> - Electrical equipment used should be approved by a recognised organization. - Workers should be trained to handle the electric equipment safely - Damaged and hazardous electrical equipment should be immediately replaced. All old and workout and frayed switches and wires should be changed. - Heat emanating equipment should be kept away from the electrical equipment. - Take care that the outlets/ circuits should not be overloaded . - Switch off and unplug the electrical appliances before cleaning or relocating them.
47	First Aid is the immediate assistance provided to the injured to save life and minimize health loss till the proper medical aid/ facility is provided.
48	<p>Some rules of First Aid are :</p> <ul style="list-style-type: none"> - Assure the injured to remain calm and not to panic - Keep them warm if they are under shock - Do not move the victim in case of back/neck injury
49	Some types of occupational hazards are : Physical hazards, chemical hazards, biological hazards, behavioural hazards, radiological hazards, ergonomic hazards etc.
	<p>ASSESSMENT</p> <p>1. Enlist any three basic safety rules to follow at workplace.</p> <p>Ans Fire safety, Falls and slips, Electrical safety, Use of first aid</p> <p>2. Give any two basic safety rules for ensuring Falls and Slips safety.</p> <p>Ans</p> <ul style="list-style-type: none"> - Keep the moving area clean and clutter free. - Workplace must be proper ventilated receive light. <p>3. Give any two electrical safety rules in any organization.</p> <p>Ans</p> <ul style="list-style-type: none"> - Electrical equipment used should be approved by a recognised organization. - Workers should be trained to handle the electric equipment safely <p>4. Explain any two first aid rules.</p> <p>Ans</p>

	<p>- Assure the injured to remain calm and not to panic</p> <p>- Keep them warm if they are under shock</p> <p>5. What do you mean by occupational hazards?</p> <p>Ans An occupational hazard is the illness one may acquire due to his occupation. Like people working in a chemical factory may get affected due to presence of certain chemicals.</p> <p>6. List any three types of occupational hazards.</p> <p>Ans Some types of occupational hazards are : Physical hazards, chemical hazards, biological hazards, behavioural hazards, radiological hazards, ergonomic hazards etc.</p>
50	<p>Accident: an accident is an unplanned event that may happen all of a sudden and may lead to unwanted or unprecedented results/outcomes.</p> <p>Or</p> <p>It can be defined as an unfortunate incident that occurs unintentionally causing hazardous result or injury or unwanted results.</p>
51	<p>Accidents may be of following types :</p> <ul style="list-style-type: none"> - Accidents at workplace : Slips and fall accidents, fire - Industrial disease/illness - Road traffic accidents - Clinical Accidents - Sports related accidents
52	<p>Workplace accidents may include injuries that are caused to the workers due to falls, slips and trips</p> <p>Slip and fall accidents may occur at any working environment and the injuries may vary from minor ache to major severe accident. Some injuries suffered might include fracture, sprain, knee or elbow injury, wrist or head injuries etc.</p>
53	<p>Accidents must be handled carefully. The accident should be handled compassionately without assigning blame on others.</p> <ul style="list-style-type: none"> - Every organization must follow SOP for accident handling - Safety measures must be placed to prevent workplace accidents - Immediately call the medical team for any injury - Stay alert - Pay attention to and follow emergency drills
54	<p>Any unexpected situation that needs immediate attention and action.</p> <p>An emergency situation is one that:</p> <ul style="list-style-type: none"> ● threatens the employees, customers or the public ● disrupts or shuts down the operations

	<ul style="list-style-type: none"> ● causes physical or environmental damage
55	<p>An emergency must be handled immediately to prevent further losses and to minimize the loss. One must be alert to notice any kind of emergency. There are various types of emergencies that may occur at home. School or workplace.</p>
56	<p>Some of the types of emergencies are as follows :</p> <ul style="list-style-type: none"> - Chemical spills - Extreme heat waves - Droughts - Pandemics - Terrorist attack - Fire - Floods - Thunderstorms - Leakage of some hazardous gas/ chemical
57	<p>Some of the types of emergencies that require evacuation are:</p> <ul style="list-style-type: none"> ● Fire ● Explosion ● Floods ● Earthquake ● Hurricane ● Tornado ● Toxic material release ● Civil disturbance ● Workplace violence
	<p>ASSESSMENT</p> <p>1. Explain the terms accident and emergency.</p> <p>Ans An accident is an unplanned event that may happen all of a sudden and may lead to unwanted or unprecedented results/outcomes.</p> <p>Any unexpected situation that needs immediate attention and action is emergency.</p> <p>2. Enlist any four types of accidents.</p> <p>Ans</p> <ul style="list-style-type: none"> - Accidents at workplace : Slips and fall accidents, fire - Industrial disease/illness

- **Road traffic accidents**
- **Clinical Accidents**
- **Sports related accidents**

3. Give any three situations of emergency that require evacuation.

Ans

- **Fire**
- **Explosion**
- **Floods**
- **Earthquake**
- **Hurricane**
- **Tornado**
- **Toxic material release**
- **Civil disturbance**
- **Workplace violence**

4. Give any two ways to handle accidents.

Ans

- **Every organization must follow SOP for accident handling**
- **Safety measures must be placed to prevent workplace accidents**
- **Immediately call the medical team for any injury**
- **Stay alert**
- **Pay attention to and follow emergency drills**