**Tagore Academy Public School**

**Class X Vocational IT Chapter 2 (Web Applications Basic)**

1. What is Computer Accessibility?

It refers to the user friendliness of a computer system for all, regardless of their disability or age-related limitations.

1. What are Accessibility Options? Explain every option in detail.

It is a specific feature of windows XP found in control panel which is used to customize the way of using keyboard, computer display, system sounds or mouse function.

To launch accessibility options in Windows XP, Click Start > Control Panel > Accessibility Options.

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. It essentially serializes keystrokes instead of pressing multiple keys at a time, allowing 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.

To enable StickyKeys, select Use StickyKeys from Accessibility Options window (Keyboard Tab) > Click Apply > Click OK.

FilterKeys 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. Using FilterKeys, you can also slow the rate at which a key repeats when you hold it down.

To enable FilterKeys, select Use FilterKeys from Accessibility Options window (Keyboard Tab) > Click Settings under FilterKeys and check “Ignore Repeated Keystrokes” > Click Apply > Click OK.

A toggle key is a key that is used to turn a function on or off, or to switch between two functions. Examples of toggle keys are the caps lock key, number lock key and scroll lock key. A toggle key can also be used as an accessibility option to alternate the input mode of keys.

ToggleKeys is 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.

To enable ToggleKeys, Check Use ToggleKeys > Click Settings under ToggleKeys > Click Apply > Click OK.

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. Sound Sentry is a way for Windows to provide visual notifications for sounds. So for instance, when an error sound plays, there will also be a visual alert displayed if you have this setting enabled.

To enable SoundSentry, Check Use SoundSentry under Accessibility Options (Sound Tab). Doing so activates a

drop down list wherefrom you can choose the type of visual warning desired > Click Apply > Click OK.

ShowSounds instructs applications that convey information by sound, to also provide information visually, through text captions or informative icons. The show sounds option indicates whether the user wants applications to present all important information in visual form, rather than presenting some important information only in audible form.

To enable ShowSounds, Check Use ShowSounds under Accessibilty Options (Sound Tab) > Click Apply >

Click OK.

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. Sometimes it’s hard to read text on your screen because you need more color contrast. Use High Contrast feature to increase contrast

To enable HighContrast, Check Use HighContrast Under Accessibility Options (Display Tab) > Click Apply >

Click OK.

Cursor Options is also an accessibility feature that assists people with vision impairment by changing the blink rate and width of the cursor.

• To change the speed of the cursor blink, move the Blink *Rate* slider back and forth.

• To change the width of the cursor, move the Widthslider back and forth.

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.

To enable MouseKeys, Check Use MouseKeys under Accessibility Options (Mouse Tab) > Click Apply > Click OK.

Accessibility Options General tab enables us to configure accessibility options for all users. Select the General Tab, a window to configure additional accessibility options will be displayed. “Turn off accessibility features after idle for”, “Give warning message when turning a feature on” and “Make a sound when turning a feature on or off”.

SerialKeys is an accessibility feature that assists people that have diffi culty using a keyboard or a mouse (or both). They can use special devices such as Sip, Puff and Breath Switches to provide input to the computer through Serial Ports.

To enable SerialKeys, Check Use SerialKeys under Accessibility Options (General Tab) > Click Apply > Click OK.

1. What is a computer network?

A computer network is a collection of computers and other hardware devices which allows computers to exchange data and share resources and information.

1. What is PAN?

A **personal area network**, or **PAN**, is a computer network organized around an individual person within a single building. This could be inside a small office or residence. A typical PAN would include one or more computers, telephones, peripheral devices, video game consoles and other personal entertainment devices.

1. What is LAN?

A **local area network**, or **LAN**, consists of a computer network at a single site, typically an individual office building. A LAN is very useful for sharing resources, such as data storage and printers. LANs can be built with relatively inexpensive hardware, such as hubs, network adapters and Ethernet cables.

1. What is MAN and CAN?

A **metropolitan area network**, or **MAN**, consists of a computer network across an entire city, college campus or small region. A MAN is larger than a LAN, which is typically limited to a single building or site. Depending on the configuration, this type of network can cover an area from several miles to tens of miles. A MAN is often used to connect several LANs together to form a bigger network. When this type of network is specifically designed for a college campus, it is sometimes referred to as a campus area network, or CAN.

1. What is WAN?

A **wide area network**, or **WAN**, occupies a very large area, such as an entire country or the entire world. A WAN can contain multiple smaller networks, such as LANs or MANs. The Internet is the best-known example of a public WAN.

1. What is the difference between Peer-2-Peer & Client-Server architecture?

There’s a huge difference between client/server and peer-to-peer networks. For instance, a peer-to-peer network has no central server. Each workstation on the network shares its files equally with the others. There’s no central storage or authentication of users. Conversely, there are separate dedicated servers and clients in a client/server network. Through client workstations, users can access most files, which are generally stored on the server. The server will determine which users can access the files on the network.  
  
Peer-to-peer networks should be installed in homes or in very small businesses where employees interact regularly. They are inexpensive to set up however, they offer almost no security. On the other hand, client/server networks can become as big as you need them to be. Some support millions of users and offer elaborate security measures. As you can imagine, client/server networks can become very expensive.

1. What is Intranet, Extranet & Internet?

Intranet is shared content accessed by members within a single organization.

Extranet is shared content accessed by groups through cross-enterprise boundaries.

Internet is global communication accessed through the Web.

1. What is WWW?

The World Wide Web is an information system of interlinked hypertext documents that are accessed via the Internet

1. What are the advantages of networking?
2. Files can be stored on a central computer (the file server) allowing data to be shared throughout an organisation.
3. Files can be backed up more easily when they are all on a central fileserver rather than when they are scattered across a number of independent workstations.
4. Networks also allow security to be established, ensuring that the network users may only have access to certain files and applications.
5. Software and resources can be centrally managed.
6. Network versions of software often allow for their speedy installation on workstations from the file server.
7. Expensive devices such as laser printers or scanners can be shared.
8. Users can access their files from any workstation
9. What are the ways to signal data in networking?

Signals can be created using:

• Electrical impulses that travel copper wire

• Pulses of light that travel through strands of glass or plastic

• Radio transmissions

• Laser transmissions

• Satellite transmissions

• Infrared pulses

1. How the data is transferred over Internet?

When you send an email, or click on a web page in a browser, a series of events must occur before any information leaves your computer. Many different types of software are involved in something as simple as sending an email. For example:

* Your email program must ask you to provide some necessary information, such as your own name and email address, the name and email address of the person you are sending the email to, and the subject line and body of the email itself, which contains your message.
* The data generated by your email program must then be put in some standard format, which many different types of machines can understand. Your email will go through several switches, routers, gateways and other machines on the internet before it reaches its destination. You might be running Windows on your machine, but these other machines that route your email to its destination are probably running their own proprietary operating systems. The recipient of your email might be using a computer with Mac OS or Linux. For these reasons, the email data generated by your email program must be converted to some neutral format that is understood by all the machines that will handle it along the way.
* The data must be broken down into smaller chunks. Your 10 megabyte email cannot be transmitted as a single file. It has to be broken up (sometimes into hundreds, thousands, or even millions of chunks, depending on size) before it can be transmitted. These chunks are called "packets".
* Each packet must contain some basic information, which is added to it by software on your computer. This information would include the name and internet addresses of the source and recipient. In addition, it also includes extra information which is used for error-checking. Transmission across the internet is a very chancy business. Some packets are lost in transit - they never reach their destination. Others may reach their destination but are garbled in transit. For this reason, there must be some way to verify the integrity of a packet at the other end. This is usually done through extra information appended to the packet, and there is software on your computer that generates this extra error checking information.
* In a similar manner, your computer must verify that each packet reaches its destination. It does this by talking to the computer at the other end, in effect carrying out a conversation with it. Each time a packet fails to show up at the other end, or shows up garbled, the computer at the other end tells your computer to re-transmit it.
* If you are sending your data over a secure connection (for example, clicking a web page protected by SSL encryption, such as your bank's web pages), then your data also needs to be encrypted before it can be sent. This is also done by software on your computer.
* Finally, these packets must be converted to electrical signals, which can then be transmitted to the next computer in line. Remember, if you send an email or click on a web page, you are not really talking to the computer at the other end. You are going through a whole relay of switches and other devices between you and the computer at the other end. There might be 20 or 30 such devices in between, starting with your own router or cable modem. Since the devices between you and the end computer are simply relays, they don't actually read each data packet completely. But they do read the addresses to make sure they forward them in the proper direction to reach the recipient at the other end. Each relay must also do error checking, to make sure that no errors appear at any stage.

**Solved Assignment Class X (For Reference)**

**Chapter 2**

1. What is ISP?

An Internet Service Provider is an organization which provides you with access to the Internet via a dialup, direct or wireless connection. Examples: BSNL, MTNL and Vodafone.

2. What is the use of a modem?

A MODulator DEModulator (MODEM) is a device which converts digital computer signals into analog signals and vice versa.

3. Describe the ways to connect with internet.

There are lots of ways to connect devices like mobile phones and computers to the internet.

For some of us, our options depend on where we live, what devices we have, and if we want to use the internet when we're away from home.

**Dial-up connections**

To get a dial-up connection, your computer will dial a phone number using your telephone line.

Dial-up connections need a modem to connect to the internet and you pay for a call each time you dial-up. Dial-up connections are really slow compared to broadband, and are usually too slow for streaming video and making voice or video calls on the internet.

If you want to do more than read web pages and send emails, you'll probably need a broadband connection.

**Broadband connections**

Broadband is a high-speed internet connection.

Unlike dial-up, with broadband your phone line is not tied up. You can make a phone call and be on the internet at the same time. With broadband, you can watch live news and sport, download and share large files quickly and shop or bank online more easily.

There are different ways to get broadband which means it doesn't matter where you live in India or Australia. Everyone can get access to a fast internet connection.

**Fixed broadband connections**

A 'fixed broadband connection' is a permanent connection to the internet.

If you've got fixed broadband at home, you'll have a broadband modem that you can plug a cable into. If your modem is also a wireless modem, you'll be able to connect wireless internet devices to your modem without using a cable.

Wireless connections can be good if you have more than one person and more than one device all wanting to use the same fixed connection. Most wireless connections let you use the internet in different rooms and even if you're outside.

With a fixed broadband connection, you might also look into getting an internet phone rather than keeping your traditional phone line.

This is called VoIP—which stands for 'voice over internet protocol'.

**Fixed wireless and satellite connections**

If you live in a remote part of India, you can get a broadband internet connection by using either a fixed wireless connection or a satellite connection.

Once you have a broadband connection to your home, you might like to set up a wireless router so you can connect several wireless devices and use them in and around the home.

**Mobile broadband connections**

You could also get the internet on a mobile broadband connection where you plug a USB modem into your device and use mobile phone towers to access the internet.

This can be useful if you need the internet when you're out and about, or if you live in an area with good mobile phone coverage.

**Internet on your mobile phone**

Many mobile phones let you access the internet if you've signed up for internet in your mobile phone plan.

'Smartphones' are mobile phones that are like small computers. They have software on them to make it easier for you to surf the internet, check your email and use social networking sites.

**Wireless hotspots**

If you're out and about with an internet device like a laptop, tablet or smartphone, you might want to connect at a wireless hotspot.

Wireless 'hotspots' are places like libraries and cafés, which offer you free access to their broadband connection. You may need to be a member of the library or a customer at a café to get the password for the wireless connection.

**3 G**

3G, short form of third generation, is the third generation of mobile telecommunications technology. This is based on a set of standards used for mobile devices and mobile telecommunications use services and networks that comply with the International Mobile Telecommunications-2000 (IMT-2000) specifications by the International Telecommunication Union. 3G finds application in wireless voice telephony, mobile Internet access, fixed wireless Internet access, video calls and mobile TV. 3G telecommunication networks support services that provide an information transfer rate of at least 200 kbit/s. Later 3G releases, often denoted 3.5G and 3.75G, also provide mobile broadband access of several Mbit/s to smartphones and mobile modems in laptop computers. This ensures it can be applied to wireless voice telephony, mobile Internet access, fixed wireless Internet access, video calls and mobile TV technologies.

**WiMAX**

WiMAX (Worldwide Interoperability for Microwave Access) is a wireless communications standard designed to provide 30 to 40 megabit-per-second data rates,with the 2011 update providing up to 1 Gbit/s for fixed stations. The name "WiMAX" was created by the WiMAX Forum, which was formed in June 2001 to promote conformity and interoperability of the standard. The forum describes WiMAX as "a standards-based technology enabling the delivery of last mile wireless broadband access as an alternative to cable and DSL".

**WiFi**

Wi-Fi (or WiFi) is a local area wireless computer networking technology that allows electronic devices to network, mainly using the 2.4 gigahertz (12 cm) UHF and 5 gigahertz (6 cm) SHF ISM radio bands.

The Wi-Fi Alliance defines Wi-Fi as any "wireless local area network" (WLAN) product based on the Institute of Electrical and Electronics Engineers' (IEEE) 802.11 standards". However, the term "Wi-Fi" is used in general English as a synonym for "WLAN" since most modern WLANs are based on these standards. "Wi-Fi" is a trademark of the Wi-Fi Alliance. The "Wi-Fi CERTIFIED" trademark can only be used by Wi-Fi products that successfully complete Wi-Fi Alliance interoperability certification testing.

4. Describe communication channels.

Kinds of Communication Channel

Communication channels are divided in two categories, namely guided media and unguided media.

**Guided Media**

In this category the communication device is attached to each other directly with cables. The data signals are restricted to a cabling platform and thus they are also known as bounded media. Generally the guided media is called LAN. Some kinds of guided media are coaxial cable, twisted pair wire and fiber optic cable.

1) Twisted Pair Cable - It is the most common used communication media and used in LAN (local area network) for transfer of data between various computers. They are also used in landline telephones to transfer data signals and voice. They are made from a pair of copper wire. They are covered with insulating materials like plastic. The transmission of data takes place at a speed of 9600 bits/second within a distance of 100 meters.

2) Coaxial Cable - They are also known as coaxes and carries signals with high frequency range. They are made from a single copper wire. They are also used in telephone lines. The bandwidth is 80 times more than twisted pair cable. They are also used in LAN.

3) Fiber Optic Cable - They use light to transfer data. The data is transferred at a very high speed of billions bit/second. They are highly used by cable operators, telephone, and broadband internet companies. They are made from glass and is as thin as the human hair. They are coated with plastic also known as jacket.

**Unguided Media**

In this form the data is transferred in the form of waves. This means that they do not travel along a specific path. It is also known as unbounded media. Data can be transferred all over the globe. Kinds of unguided media are microwave, cellular radio, radio broadcast and satellite.

1) Microwaves- In this kind the data is transferred via air. The waves travel in a straight line. The data is received and transferred via microwave stations. The speed at which data is transferred is 150 Mbps. They are widely used by telephone and cable companies.

2) Satellite- The signals are received from earth stations. Devices like GPS and PDAs also receive signals from these earth based stations. These satellites are located at a distance of 22300 miles above the earth. The process of transferring and receiving data takes place within few seconds. The data is transferred at a speed of 1 Gbps. They are used for purposes like weather forecast, military communication, radio transmission, satellite TV, data transmission, etc.

3) Cellular Radio- they are used for communication via mobile. High frequency radio waves are used for the transmission of data. You can receive and make calls and also access the internet.

4) Radio Broadcasting- Data is transferred and received via radio signals in the air. The transmission takes place for a long distance across cities or countries. The data is received and transferred via a transmitter. The speed at which data travels is 54 Mbps.

5. What is IM?

Instant messaging (IM) is a type of online chat which offers real-time text transmission over the Internet. A LAN messenger operates in a similar way over a local area network. Short messages are typically transmitted bi-directionally between two parties, when each user chooses to complete a thought and select "send". Some IM applications can use push technology to provide real-time text, which transmits messages character by character, as they are composed. More advanced instant messaging can add file transfer, clickable hyperlinks, Voice over IP, or video chat.

Non-IM types of chat include multicast transmission, usually referred to as "chat rooms", where participants might be anonymous or might be previously known to each other (for example collaborators on a project that is using chat to facilitate communication). Instant messaging systems tend to facilitate connections between specified known users (often using a contact list also known as a "buddy list" or "friend list"). Depending on the IM protocol, the technical architecture can be peer-to-peer (direct point-to-point transmission) or client-server (a central server retransmits messages from the sender to the communication device).

6. What is a blog?

A blog (a truncation of the expression weblog) is a discussion or informational website published on the World Wide Web consisting of discrete, often informal diary-style text entries ("posts"). Posts are typically displayed in reverse chronological order, so that the most recent post appears first, at the top of the web page.

“A blog is a means of sharing thoughts and ideas. Your blog can be a personal diary, a project collaboration tool, a guide, or any means of communicating and publishing information on the web. Its uses are as limitless as your imagination.”