**How does the Internet Work?**

The answer to all the questions can be found in the listed videos. I suggest reading through all the questions first so that you know what answers you’re looking for, then watching videos that sound like they will answer the question you’re trying to answer. **Answers must be in complete sentences to receive credit.**

Internet Infrastructure as Fast as Possible - <https://youtu.be/n71TUnTNdw8>

DNS as Fast as Possible - <https://youtu.be/Rck3BALhI5c>

Internet vs Web as Fast as Possible - <https://youtu.be/laepk9KrAZY>

Internet Protocol - IPv4 vs IPv6 as Fast as Possible - <https://youtu.be/aor29pGhlFE>

Routers vs. Switches vs. Access Points - And More - <https://youtu.be/Vc16CCAAz7Q>

What is TCP/IP? - <https://youtu.be/PpsEaqJV_A0>

HTML5 as Fast as Possible - <https://youtu.be/IsXEVQRaTX8>

Bits vs Bytes as Fast as Possible - <https://youtu.be/Dnd28lQHquU>

How Do URLs Work? - <https://youtu.be/OvF_pnJ6zrY>

Questions:

1. What is the difference between bits and bytes and what are they used for?

 Bits are often used to transfer data speed and bytes can store information. A byte is much bigger – eight times bigger, with eight bits in every byte.

1. Why is HTML5 the new standard?

It is the new standard because HTML5 allows developers to create rich internet applications without the need for third party APIs and browser plug-ins. This new standard adds several exciting news features and capabilities to HTML. It structures and presents content on the web.

1. What is the difference between the Internet and the Web?

The internet is a massive network of networks, a networking infrastructure. It collects millions of computers together globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the internet. The web is a way of accessing information over the medium of the internet. It is an information-sharing model that is built on top of the internet. The web is just one of the ways that information can be disseminated over the internet.

1. What is the role of an ISP?

An ISP (internet service provider) is a company that provides individuals and other companies’ access to the internet and other related services such as Web site building and virtual hosting

1. What is a modem?

A modem is a hardware device that allows a computer to send and receive data over a telephone line or a cable or satellite connection.

1. What is a browser?

A program with a graphical user interface for displaying HTML files, used to navigate the World Wide Web

1. What is the difference between guided and unguided media?

The difference between guided and unguided media is that guided media uses a physical path or conductor to transmit the signals whereas, the unguided media broadcast the signal through the air

1. Summarize how the internet was developed.

The first workable prototype of the internet cam in the late 1960s with the creation of ARPANET (Advanced Research Projects Agency Network). ARPANET used packet switching to allow multiple computers to communicate on a single network. The technology continued to grow in the 1970s after scientist Robert Kahn and Vinton Cerf developed transmission control protocol and internet protocol, a communications model that set standards for how data could be transmitted between multiple networks. The researchers began to assemble the “networks to networks” that became the modern internet.

1. What is a web server and what purpose does it serve?

A web server is a program that uses HTTP (hypertext transfer protocol) to serve the files that form web pages to users, in response to their requests, which are forwarded by their computers’ HTTP clients. A web server’s main purpose is to store web site files and broadcast them over the internet for you to see.

1. What is a router and what purpose does it serve?

A router is a networking device that forwards data packets between computer networks. Routers main purpose is to perform the traffic directing functions on the internet

1. What are packets and what purpose do they serve?

Packets are the basic unite of communication over a TCP/IP network. Devices on a TCP/IP network divide data into small pieces, allowing the network to accommodate various bandwidths, to allow for multiple routes to a destination, and to retransmit the pieces of data which are interrupted or lost.

1. What are IP addresses and what purpose do they serve?

A unique strong of numbers separated by periods that identifies each computer using internet Protocol to communicate over a network. An IP address serves two purposes: host or network interface identifications and locating addressing

1. What is Intranet and what purpose does it serve?

Intranet is a network used only by employees of an organization. The purpose is to share company information and computing resources among employees

1. What is bandwidth?

The range of frequencies within a given band, particular used for transmitting a signal

1. What is a firewall?

A part of a computing system or network that is designed to block unauthorized access while permitting outward communication

1. What is the “backbone” (Internet backbone service providers) and what purpose does it serve?

A backbone is a part of computer network that interconnects various pieces of network, providing a path for the exchange of information between different LANS or subnetworks. A backbones main purpose is to tie together diverse networks in the same building, in different buildings in a campus environment, or over wide areas

1. What is the purpose of a domain name?

Domain names are used to identify one or more IP addresses. A domain names main purpose is used in URLs to identify particular Web pages.

1. Match the parts of the URL to its name:

The scheme identifies the protocol to be used to access the resource on the internet. The host name identifies the host that holds the resource. The path identifies the specific resource in the host that the web client wants to access. The query string follows the path component, and provides a string of information that the resource can use for some purpose.

1. What is a static IP address?

A static IP address is a number (in the form of a dotted squad) that is assigned to a computer by an Internet service provider (ISP) to be its permanent address in the internet

1. What is a dynamic IP address?

A dynamic internet protocol address (dynamic IP address) is a temporary IP address that is assigned to a computing device or node when it’s connected to a network.

1. What is the difference between IPv4 and IPv6?

 An IP address is binary numbers but can be stored as text for human readers. IPv4 is a protocol for use on packet-switched Link Layer networks. It provides an addressing capability of approximately 4.3 billion addresses. IPv4 is more advanced and has better features compared to IPv4. It has the capability to provide an infinite number of addresses. It is replacing IPv4 to accommodate the growing number of networks worldwide and help solve the IP address exhaustion.

1. What is the function of a DNS?

To translate domain names into the IP addresses in which computers can understand

1. What does HTTP stand for and how is it used?

 HTTP stands for Hyper Text Transfer Protocol. It is one of the protocols used in application layer of layered architecture of data communications

1. What does HTTPS stand for and how is it used?

HTTPS stands for Hypertext Transfer Protocol Secure.   It is an extension of http for secure communication over a computer network, and is widely used on the internet. The ‘S’ at the end of HTTPS stands for secure. It mean all communications between your browser and the website are encrypted. HTTPS is often used to protect highly confidential online transactions like online banking and online shopping forms.

1. What does FTP stand for and how is it used?

 It stands for File Transfer Protocol, it’s a standard network protocol used for the transfers of computer files between a client and server on a computer network

1. What does SMTP stand for and how is it used?

SMTP stands for Simple Mail Transfer Protocol. SMTP is used when email is delivered form an email client, such as outlook express, to an email server or when email is delivered from one email server to another

1. What does TCP/IP stand for and how is it used?

TCP/IP stands for Transmission Control Protocol/Internet Protocol, which is a suite of communication protocols used to interconnect network devices on the internet. It can also be used as a communication protocol in a private network (an intranet or an extranet)