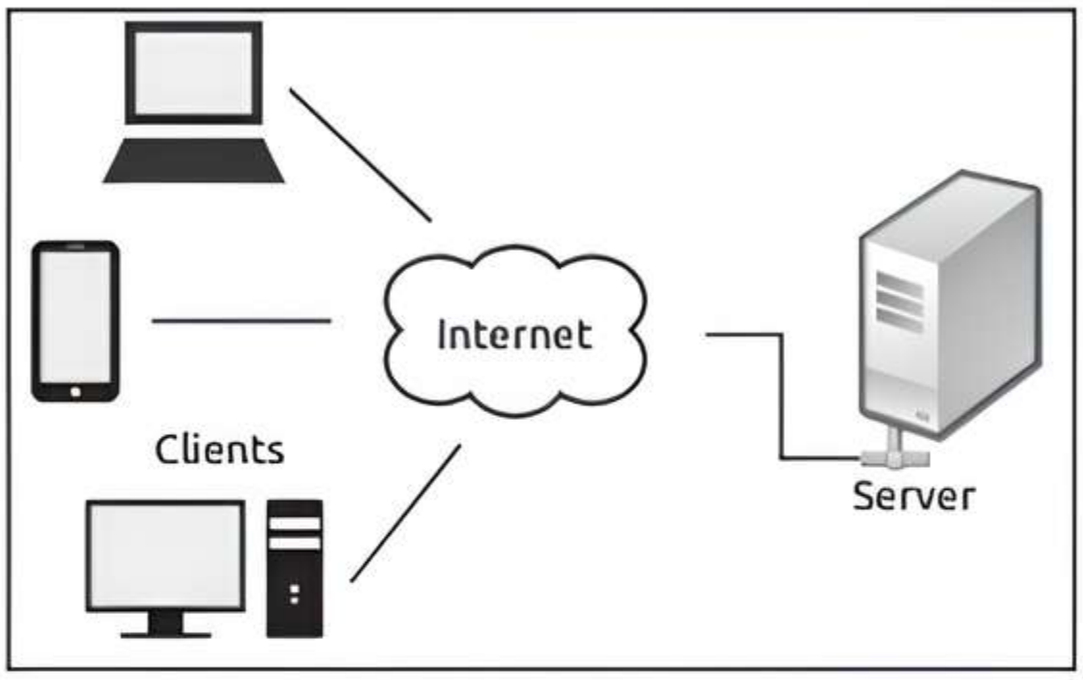
Chapter 1

# Introducing Internet

## Fastrack REVISION

- **Computer Network:** It is a system in which multiple computers or other hardware devices are connected together using special hardware and software, which enables them to exchange information and resources.
- **Internet:** It is a world-wide network, connecting millions of computers, together through telephone lines, cables and other means to form a network. The term 'Internet' is the short form for **International Network**. It is generally used as a way to communicate and share a large amount of information.
- **ARPANET:** Internet was evolved in 1969, under the project named ARPANET (Advanced Research Projects Agency Network) to connect computers at different **universities and U.S. defence**.
- **CSNET:** National Science Foundation (NSF) formed a common network called **CSNET in 1970** that allowed dial-up connections and gained a lot of popularity due to its simple idea. Later on, NSFNET came into existence through continuous research and development in this field.
- **World Wide Web (WWW):** It is an internet based service, which uses common set of rules known as **Protocols**, to distribute documents across the Internet in a standard way.
- The **World Wide Web** was invented by a British scientist, **Sir Tim Berners-Lee in 1989**.
- The **World Wide Web**, or **Web** for short, or simply Web, is a massive collection of digital pages to access information over the Internet.
- The Web uses the **HTTP protocol**, to transmit data and allows applications to communicate in order to exchange business logic.
- The Web also uses browsers, such as Internet Explorer, Mozilla Firefox, Google Chrome, etc. to access Web documents called **Web pages** that are linked to each other via hyperlinks. Web documents also contain graphics, sounds, text and video.
- **Server:** A server is a computer that provides data to other computers. The entire structure of the Internet is based upon a client-server model.
- **Web Server:** It helps to deliver web content that can be accessed through the Internet. The most common use of web servers is to host websites, as the internet is not only used to fetch the information but there are other uses such as gaming, data storage or running business applications.
- The primary job of a web server is to deliver web pages to clients. The communication between the client node and server node takes place using the **Hypertext Transfer Protocol (HTTP)**. The delivered web pages include images, style sheets and scripts in addition to text content.




**Client Server Model**

- A web server commonly known as **HTTP server** or **application server** is a program that serves content using the HTTP protocol. This content is generally in the form of HTML documents, images and other web resources, but can include any type of file.
- **Apache Web Server:** The Apache is the most popular web server developed by the **Apache Software Organisation**. It is an open source software and can be installed on almost all the operating systems such as Linux, UNIX, Windows, Mac OS X and many more.
- **Internet Information Services Web Server (IIS):** It is a product of **Microsoft**. It contains almost similar features as Apache Web Server. But the major difference between the two is that Apache is an open source program whereas IIS is not.
- **Java System Web Server:** It is developed and maintained by **Sun Microsystems**. It is suited for both medium and large websites and may run on windows, Linux and Unix platforms.
- **Web Client or Thin Client:** It is the term used for the client computer that sends request to a web server for accessing websites/web pages. A web client may be referred to as an application program installed on the client side that is responsible for communicating with a web server, using **Hypertext Transfer Protocol (HTTP)**.
- The information spread over the World Wide Web is compiled in the form of websites and web pages.
- **Website:** The collection of web pages on the World Wide Web that is accessed by its own Internet address is called a **website**. Thus, a website is a collection of related web pages.
- A website is just like a book that contains multiple pages that are linked to each other. The first page of a website is known as the **Home page**.
- **Web Page:** A web page is a document which contains information that travels over the web. It may contain different types of information such as text, audio, video, images, hyperlinks, etc.

- A **Web page** also known as **Electronic Page**, is a part of the World Wide Web. It is just like a page in a book. The basic unit of every website or document on the Web is a Web page containing the information.
- **Static Web page:** A static web page often called a **flat page or stationary page**, is a web page that is delivered to the user exactly as stored. A static web page displays the same information for all users and is created using the HTML.
- **Dynamic Web page:** A dynamic web page is a web page which needs to be refreshed every time whenever it opens in any of the web browsers to display the updated content of the site.
- **Web Browser:** A Web Browser is an application software that lets us view web pages, graphics and the online content. Browser software is specifically designed to convert **HTML** and **XML** into readable documents.
- A Web Browser is installed on a **web client**. A web client sends the request for accessing a website through web browser software only.
- The most **popular web browsers** are: Google Chrome, Mozilla Firefox, Microsoft Edge, Safari, Opera and UC Browser.


- **Blog:** A website in which articles are posted regularly and displayed in reverse sequential order is known as a blog.
- **Blogger:** Authoring, maintaining or adding an article on an existing blog is known as **blogging**. A person who writes a blog is simply known as a **blogger**.
- **Newsgroup:** A newsgroup is an online discussion forum accessible through Usenet. It is an Internet-based discussion group, similar to a **Bulletin Board System (BBS)**, where people post messages concerning whatever topic around which the group is organised.
- The main difference between a **newsgroup** and a **chat room** is that there is no instant communication in a newsgroup as in the chat room.
- **Hypertext Markup Language (HTML):** It is a computer language that is used for creating web pages, which are displayed on World Wide Web. It is also known as a **markup** and **tag-based language**.
- The HTML documents are created using text-based editors such as Notepad, WordPad, etc., and HTML files are saved with extension **.html**
- **Uniform Resource Locator:** URL's, or 'Uniform Resource Locators' are the web browser addresses of internet pages and files. It is the way to locate a file or document on the Internet.
- The URL specifies the address of a file and every file on the Internet has a unique address. It works with IP addresses to give a name, location to web pages.
- **Format of a URL:**

  **Protocol identifier or scheme://site address/path/filename**
- Every URL has three parts to address a page or file:
  1. **Protocol identifier** or **scheme** which ends with a '//:'
  2. **Host computer** which ends with web extensions such as .com, .org etc.
  3. **Filename** or **page name** which displays the related information.

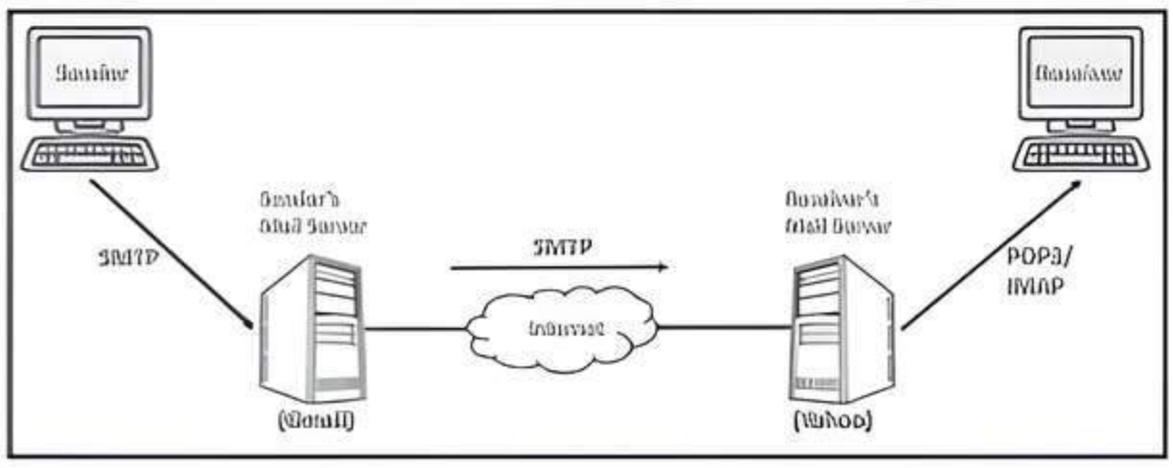
  **Example: http://www.blueprinteducation.co.in/product-details/exam-mate-mathematics-101**
- **The above URL consists of:**
  - **Protocol:** http
  - **Host computer name:** www
  - **Domain name:** blueprinteducation
  - **Domain type:** co.in
  - **Path:** product-details
  - **File name:** exam-mate-mathematics-101
- **E-mail Address:** An E-mail address is the address of an electronic postbox that can **receive/send e-mail messages** on a network.
- **E-mail address has the following format:**

  **Example: shilpa123@blueprinteducation.co.in**

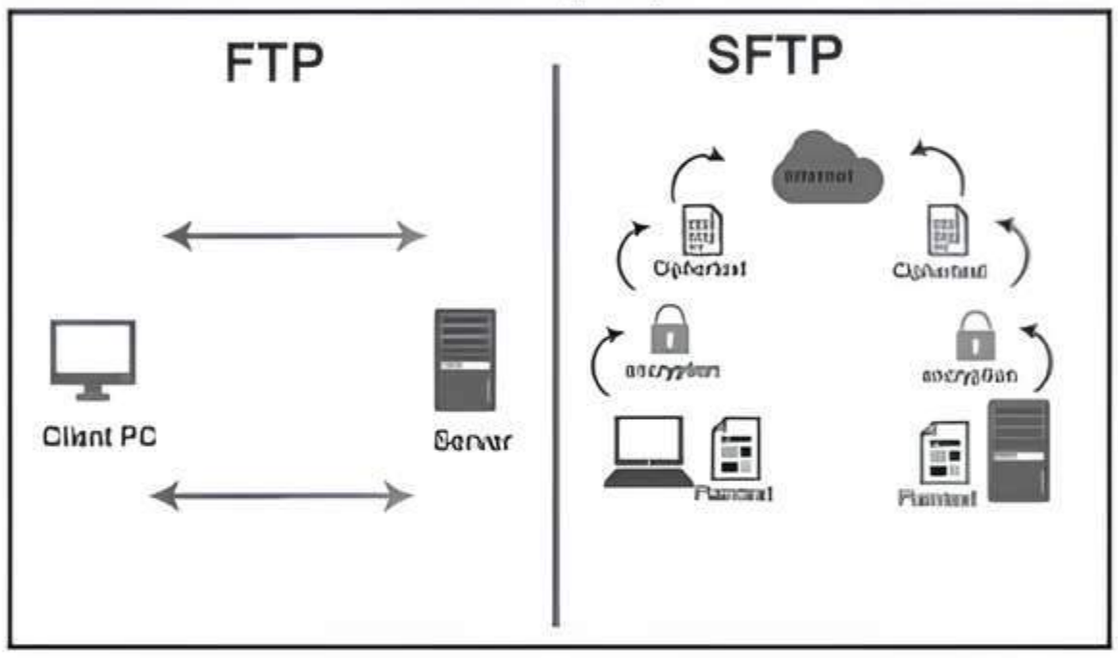
  The above URL consist of:

  **Username:** shilpa123

  **Domain:** blueprinteducation.co.in
- **Downloading:** It is the process of copying a file from one computer to another across the internet. **For example**, when we download a free antivirus program from a website, it means we are copying it from web server to our computer.
- **Uploading:** It is the process of sending some files from our computer to a remote server. **For example**, when we send an attachment through an e-mail, or we upload images, audio and video files on a social networking website, we are actually uploading the files.
- **Transmission Control Protocol (TCP) / Internet Protocol (IP):** It is a suite of communication protocols used to interconnect network devices on the internet. **It specifies how data is exchanged over the internet** by providing end-to-end communications that identify how it should be broken into packets, addressed, transmitted, routed and received at the destination.
- **TCP:** It is used for creating the packets, arranging them together in the correct order and then checking that no packets are lost during the transmission.
- **IP:** It is used to send information to the proper address. **Each computer on the internet has its own unique address** known as the **IP address**.
- **Internet Protocol Address (IP Address):** It is the unique identifier for each connected device on a network. It is usually mounted on the **LAN card** or **Ethernet card** of a computer or of a device. The IP addresses are managed by **IETF (Internet Engineering Task Force)**.
- **SMTP:** It stands for **Simple Mail Transfer Protocol**. It is a set of communication guidelines that allows software to transmit an electronic mail over the Internet.
- **Post Office Protocol (POP):** It is the most common protocol used by personal computer for receiving e-mail. This has the version 3, therefore, it is called POP3.



- **Hypertext Transfer Protocol (HTTP):** It defines how messages are formatted and transmitted over the web.
- **Hypertext Transfer Protocol Secure (HTTPS):** It is an extension of Hypertext Transfer Protocol (HTTP). It is for secure communication over a computer network and is widely used on the Internet.
- **Remote Login:** It is a login that allows computer users to connect to a host computer through a network. It works exactly the same way as desktop sharing where there are host computers and remote users.
- **Telnet:** The **Telecommunication network (Telnet)** is an older network protocol used on local area network to provide a bi-directional interactive communication facility. It allows a user at one end to establish a TCP connection to a login server at another end.
- **File Transfer Protocol (FTP):** It is a standard Internet Protocol for transmitting files among the computers on the Internet. It is mainly used for performing basic file operations such as uploading, downloading, deleting, renaming, moving and copying files from client side to the server side.
- **SSH Protocol:** The **Secure Shell (SSH)** protocol is a method for **secure remote login** from one computer to another. It protects the security and integrity of communication with strong encryption.
- **SCP Protocol:** SCP stands for **Secure Copy Protocol**. It is a secure file transfer protocol which allows copying of files from one machine to another over the Internet.
- **SFTP Protocol:** SFTP stands for **Secure File Transfer Protocol**. It is a secure version of File Transfer Protocol (FTP), which facilitates data access and data transfer over a Secure Shell (SSH) data stream.




# Practice *Exercise*

## ? Multiple Choice Questions

**Q 1. Which of the following agencies initially started the project 'Internet'?**
a. NSF b. NSA
c. ARPA d. None of these

**Q 2. How many types of web pages are there?**
a. 3 b. 2 c. 5 d. 4

**Q 3. Which of the following is not a web browser?**
a. Google Chrome b. Internet Explorer
c. Microsoft Endpage d. Mozilla Firefox

**Q 4. The first web browser was invented in 1990 by .....**
a. Charles Babbage b. Sir Tim Berners-Lee
c. Alan Turing d. Dennis Ritchie

**Q 5. Web browser is an ..... that is installed on a web client.**
a. application software b. system software
c. Both a. and b. d. None of these

**Q 6. What is the full form of IE?**
a. Internet Experiment b. Internet Explorer
c. Internet Explore d. Internet Experience

**Q 7. Mozilla Firefox was first launched in .....**
a. 2001 b. 2002 c. 2003 d. 2004

**Q 8. Safari is a web browser created by .....**
a. Apple b. Microsoft
c. Opera d. HCL

**Q 9. Which is the process of transferring files from a computer on the Internet to your computer called?**
a. Uploading b. FTP
c. Downloading d. Forwarding

**Q 10. IP addresses of two computers on a network:**
a. are not defined
b. cannot be the same
c. can be the same
d. must match with a third computer

**Q 11. In HTTPS, S means:**
a. Secret b. Socket
c. Secure d. Software

**Q 12. What is the full form of TELNET?**
a. Telephone Network
b. Tele Network
c. Telecommunication Network
d. Teleconferencing Network

**Q 13. FTP is a standard Internet protocol for:**
a. creating a connection with the remote host.
b. transmitting files among computers on the Internet.
c. providing bidirectional interactive communication.
d. secure remote login from one computer to another.

**Q 14. SCP stands for:**

a. Secure Copy Protocol
b. System Copy Protocol
c. Simple Copy Protocol
d. Secure Communication Protocol

**Q 15. SFTP *i.e.* Secure File Transfer Protocol is a part of:**

a. SCP b. SSH Protocol
c. Telnet d. SMTP

**Q 16. ARPANET used the concept of packet switching network consisting of subnet and ..... computers.**

a. local b. remote c. host d. network

**Q 17. ARPANET was developed by the ARPA (Advanced Research Project Agency) in ..... which is the research arm of DOD.**

a. 1968 b. 1966 c. 1969 d. 1967

**Q 18. Before ARPANET, the networks were basically the telephone networks which operated on the ..... principle.**

a. closed switching b. linear switching
c. packet switching d. circuit switching

**Q 19. The subnet was the first electronic store and forward type ..... network.**

a. closed switched b. linear switched
c. packet switched d. circuit switched

**Q 20. .....was created for organising machines into domains and map hostname onto IP address.**

a. Domain Addressing System
b. Domain Naming System
c. Host Naming System
d. Domain Mapping System

**Q 21. Internet was possible because of the use of the TCP/IP reference model and ..... protocol stack.**

a. FTP b. TCP/IP c. DHCP d. UDP

**Q 22. ..... is a globally existing network of networks consisting of a huge number of computers situated in all the parts of the world.**

a. Computer Network b. Intranet
c. Internet d. All of these

**Q 23. At first, ARPANET was intended to support the ..... on fault-tolerant computer networks.**

a. military research
b. educational research
c. governmental research
d. scientific research

**Q 24. After ....., the ARPANET became available for the academic research, government employee and contractors.**

a. 1980 b. 1986 c. 1983 d. 1990

**Q 25. After ..... the National Science Foundation(NSF) which formed the National Science Foundation Networks (NSFNET) linked five of the regional supercomputer centers together to provide a national high-speed backbone network across the United States.**

a. 1980 b. 1986 c. 1983 d. 1990

**Q 26. In ....., the ARPANET was officially shut down and dismantled.**

a. 1980 b. 1986 c. 1983 d. 1990

**Q 27. Which of the following networks are contributing to the growth of the Internet?**

**i. ARPANET ii. MILNET iii. USENET**
**iv. CSNET v. WWW**

a. i, ii, iv and v only b. ii, iii, iv and v only
c. i, iii, iv and v only d. All i, ii, iii, iv and v

**Q 28. The services that are available of the Internet are classified into the following two categories.**

**i. Communication services**
**ii. Management services**
**iii. Information retrieval services**

a. i and ii only b. ii and iii only
c. i and iii only d. All i, ii and iii

**Q 29. Which of the following are the person to group services located under communication services of the Internet?**

a. Email service b. Chat service
c. Both a. and b. d. None of these

**Q 30. Which of the following are information retrieval services on the Internet?**

**i. World Wide Web ii. File Transfer Protocol**
**iii. Telnet iv. Email**

a. i, ii and iv only b. ii, iii and iv only
c. i, ii and iii only d. All i, ii, iii and iv

**Q 31. .....allows remote accessing to the files which contain programs, technical handouts, reports etc.**

a. Remote Desktop b. FTP
c. Telnet d. Chat

**Q 32. ..... is a global hypertext system that was initially developed in 1989 by Tim Berners Lee.**

a. FTP b. Telnet c. www d. E-mail

**Q 33. FTP uses ..... as a transport protocol to provide relative end-to-end connections.**

a. IP b. UDP c. SMTP d. TCP

**Q 34. The ..... application is built with a protocol interpreter, a data transfer, process and user interface.**

a. TCP b. FTP c. Telnet d. Chat

**Q 35. When using FTP, the user will perform some or all of the following operations:**

**i. connect to a remote host**
**ii. select a directory**
**iii. list files available for transfer**
**iv. define the transfer mode**

a. i, ii and iv only b. ii, iii and iv only
c. i, ii and iii only d. All i, ii, iii and iv

**Q 36. ARPANET stands for:**

a. Advanced Research Project Agency Network
b. Advanced Research Programmed Auto Network
c. Advanced Research Project Automatic Network
d. Advanced Research Project Authorised Network

**Q 37. In this technique, there is no direct contact between users and their programs during execution:**

a. Time sharing b. Batch processing
c. System processing d. Message passing

**Q 38. A technique that marked the beginning of computer communications.**

a. Batch environment b. Message passing
c. User environment d. Time sharing

**Q 39. A type of technique in which dumb terminals are connected to a central computer system:**

a. Time Sharing b. Message passing
c. Batch environment d. User environment

**Q 40. TCP stands for:**

a. Transmission Control Program
b. Transmission Control Protocol
c. Transfer Control Program
d. Transfer Control Protocol

**Q 41. The "Victorian internet" is actually:**

a. telegraph b. batch environment
c. unit environment d. system environment

**Q 42. Packet switching was invented in:**

a. 1960s b. 1980s c. 2000s d. 1990s

**Q 43. The probability of failure-free operation of a software application in a specified environment for a specified time:**

a. software rellability b. software quality
c. software availability d. software safety

**Q 44. DARPA stands for:**

a. Data Advanced Research Projects Agency
b. Defense Advanced Research Product Agency
c. Data based Advanced Research Product Agency
d. Defense Advanced Research Projects Agency

**Q 45. Which of the following is responsible for approving standards and allocating resources in the Internet?**

a. Internet Architecture Board (IAB)
b. Internet Engineering Task Force (IETF)
c. InterNIC
d. None of the above

**Q 46. Which body in Internet provides the registration services to Internet community?**

a. Internet Architecture Board (IAB)
b. Internet Engineering Task Force (IETF)
c. InterNIC
d. None of the above

**Q 47. Who is responsible for discussing and investigating the operational and technical problems of Internet?**

a. Internet Architecture Board (IAB)
b. Internet Engineering Task Force (IETF)
c. InterNIC
d. None of the above

**Q 48. The Internet was developed by:**

a. US Department of Defense
b. US Department of Electronics
c. US Department of Commerce
d. None of the above

**Q 49. A user can get files from another computer by using:**

a. FTP b. TCP/IP
c. IP d. None of these

**Q 50. Which agency laid the foundation for the beginning of Internet?**

a. NSFNET b. ARPANET
c. W3C d. IAB

## ? Fill in the Blanks

### Type Questions

**Q 51. ..... initially aimed to connect computers at different universities.**

**Q 52. The World Wide Web was invented by a British scientist, ..... in 1989.**

**Q 53. Java System Web Server is developed and maintained by .....**

**Q 54. ..... refers to web browser in the user's computer system.**

**Q 55. Website is a collection of .....**

**Q 56. Every URL begins with the .....**

**Q 57. Every URL begins with the scheme known as .....**

**Q 58. Each computer on the internet has its own unique address known as the .....**

## ? Assertion and Reason

### Type Questions

**Directions (Q. Nos. 59-68):** *In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option.*

a. Both (A) and (R) are true and (R) is the correct explanation of (A).
b. Both (A) and (R) are true, but (R) is not correct explanation of (A).
c. (A) is true, but (R) is false.
d. (A) is false, but (R) is true.

**Q 59. Assertion (A): The internet is a collection of interconnected computer networks, linked by Transmission medium such as copper wires, fibre-optic cables, wireless connections etc.**
**Reason (R): World Wide Web is a collection of interconnected documents.**

**Q 60. Assertion (A): The IETF looks after the long term research issues and problems concerning the effective working and management of the internet.**
**Reason (R): The IAB is the primary association that approves the standards and allocates different resources.**

**Q 61. Assertion (A): A Server computer is a core component of the network, which provides services to the clients and controls access to hardware, software and other resources.**
**Reason (R): Clients are the computers that normally request and receive information or the services over the network.**

**Q 62. Assertion (A): The World Wide Web, often called as the Web, is a collection of information arranged in the form of documents that may contain text, hyperlinks and multimedia.**
**Reason (R): Sir Tim Berners-Lee, led the development of the World Wide Web in the late 1980s and early 1990s.**

Q 63. Assertion (A): HTML uses different types of tags for creating web pages.

Reason (R): HTML is Mark-Up Language.

Q 64. Assertion (A): Web pages are the host computers that store all the web content.

Reason (R): A web browser is an application program installed at client's computer that sends the request to a web server for viewing the web content, for example, the Internet Explorer, Mozilla Firefox, Baidu, Google Chrome, etc.

Q 65. Assertion (A): Apache Web Server can be installed on almost all the operating systems such as Linux, Unix, Windows, Mac OS X and many more.

Reason (R): Apache Web Server is a platform independent server.

Q 66. Assertion (A): Nginx Web Server can be used freely, without any payment.

Reason (R): Nginx Web Server is an open source software.

Q 67. Assertion (A): A web browser is an application software that is installed on a web client.

Reason (R): A web server sends the request for accessing a website through web browser software only.

Q 68. Assertion (A): Safari, a web browser created by Apple, is commonly and popularly used on the Macintosh systems since 2003.

Reason (R): Lynx web browser is especially meant for the CUI-based (Character User Interface) operating system such as UNIX. It contains features to access web pages.

## Answers

1. (c) ARPA
2. (b) 2
3. (c) Microsoft Endpage
4. (b) Sir Tim Berners-Lee
5. (a) application software
6. (b) Internet Explorer
7. (b) 2002
8. (a) Apple
9. (c) Downloading
10. (b) cannot be the same
11. (c) Secure
12. (c) Telecommunication Network
13. (b) providing bidirectional interactive communication.
14. (a) Secure Copy Protocol
15. (b) SSH Protocol
16. (c) host
17. (a) 1968
18. (d) circuit switching
19. (c) packet switched
20. (b) Domain Naming System
21. (b) TCP/IP
22. (c) Internet
23. (a) military research
24. (c) 1983
25. (b) 1986
26. (d) 1990
27. (c) i, iii, iv and v only
28. (c) i and iii only
29. (d) None of these
30. (c) i, ii and iii only
31. (b) FTP
32. (c) www
33. (d) TCP
34. (b) FTP
35. (d) All i, ii, iii and iv
36. (a) Advanced Research Project Agency Network
37. (b) Batch processing
38. (d) Time sharing
39. (a) Time Sharing
40. (b) Transmission Control Protocol
41. (a) telegraph
42. (a) 1960s
43. (a) software reliability
44. (d) Defense Advanced Research Projects Agency
45. (a) Internet Architecture Board (IAB)
46. (c) InterNIC
47. (b) Internet Engineering Task Force (IETF)
48. (a) US Department of Defense
49. (a) FTP
50. (a) NSFNET
51. ARPANET (Advanced Research Projects Agency Network)
52. Sir Tim Berners-Lee
53. sun microsystems
54. Web client
55. web pages
56. scheme
57. protocol identifier
58. IP (Internet Protocol) address
59. (b) Both (A) and (R) are true, but (R) is not correct explanation of (A).
60. (d) (A) is false, but (R) is true.
61. (b) Both (A) and (R) are true, but (R) is not correct explanation of (A).
62. (b) Both (A) and (R) are true, but (R) is not correct explanation of (A).
63. (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
64. (d) (A) is false, but (R) is true.
65. (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
66. (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
67. (d) (A) is false, but (R) is true.
68. (b) Both (A) and (R) are true, but (R) is not correct explanation of (A).

## ? Case Study Based Questions

### Case Study 1

***Read the given passage carefully and answer the following questions:***

**History of the Internet:** The first step towards today's Internet was taken by the US Department of Defence, in 1969, when they developed a network called ARPANET (Advanced Research Projects Agency Network). ARPANET initially aimed to connect computers at different universities and US defence in a way that the network could even survive a nuclear attack.

This was made possible by establishing multiple path connections among computers. Initially, it was mandatory for a university to sign a contract with the US Department of Defence to be a part of the ARPANET and start using it. To overcome this issue, US National Science Foundation (NSF) formed a common network called CSNET in 1970. CSNET allowed dial-up connections and since its idea was really simple, it gained a lot of popularity. By 1980s, around 200 computers were connected through CSNET. Through continuous research and development in this field, NSFNET came into existence. NSFNET had a higher capacity and greater speed than the CSNET. The NSFNET worked successfully and gained popularity, and led NSF to think about an improved version. This research led to the development of a new network called ASFNET, in 1992.

**Q 1. What is the Internet?**
a. Single network
b. A vast collection of different networks
c. Interconnection of local area networks
d. None of the above

**Q 2. Which of the following was developed by the US National Science Foundation?**
a. ARPANET b. NSFNET
c. CSNET d. Internet

**Q 3. Which of the following agencies initially started the project 'Internet'?**
a. ARPA b. NSF
c. NSA d. None of these

**Q 4. The full form of ARPANET is:**
a. Advanced Research Project Agency Internet
b. Advanced Research Project Agency Network
c. Advanced Research Provider Agency Internet
d. Advanced Research Protocol Agency Network

**Q 5. When was ARPANET founded?**
a. 1954 b. 1973 c. 1972 d. 1969

**Q 6. The full form of NSF is:**
a. National Science Foundation
b. Network Science Foundation
c. National Service Foundation
d. Network Service Foundation

**Q 7. When was ASFNET founded?**
a. 1993 b. 1991 c. 1992 d. 1994

## Answers

1. (b) A vast collection of different networks
2. (c) CSNET
3. (a) ARPA
4. (b) Advanced Research Project Agency Network
5. (d) 1969
6. (a) National Science Foundation
7. (c) 1992

## Case Study 2

***Read the given passage carefully and answer the following questions:***

**Governing Bodies of the Internet:** The internet is the world's largest network and it has connected almost each and every computer of the world. But you will be amazed to know that there is no particular governing body for the internet. The internet is coordinated and managed by different volunteer organisations. No single organisation has a complete control over the internet; rather every organisation has a particular responsibility.

**Q 1. Which of the following is responsible for the development and maintenance of different communication protocols over the internet?**
a. IAB b. IETF c. ICANN d. IRTF

**Q 2. Which of the following organisation looks after the long term research issues and problems concerning the effective working and management of the internet?**
a. ICANN b. IETF
c. IRTF d. None of the above

**Q 3. ..... is a company that connects your computer to the internet.**
a. W3C b. ISP c. Ethernet d. Inter NIC

**Q 4. Which of the following organisation is the primary association that approves the standards and allocates different resources?**
a. W3C b. IAB c. Inter NIC d. ICANN

**Q 5. The full form of ICANN is:**
a. Internet Computer for Assigned Names and Numbers
b. Internet Corporation for Assigned Names and Numbers
c. Internet Corporation for Architecture Names and Numbers
d. Internet Center for Assigned Names and Numbers

**Q 6. bWhich of the following protocol is used for goveming the RFC (Request for Comment)?**
a. Inter NIC b. IAB c. ICANN d. IRTF

**Q 7. The full form of IRTF is:**
a. Internet Research Transmission Force
b. Internet Research Transmit Force
c. Internet Research Transfer Force
d. Internet Research Task Force

## Answers

1. (b) IETF
2. (c) IRTF
3. (b) ISP
4. (b) IAB
5. (c) Internet Corporation for Architecture Names and Numbers
6. (a) Inter NIC
7. (d) Internet Research Task Force

## Case Study 3

***Read the given passage carefully and answer the following questions:***

**IP Address:** IP addresses are in aaa.aaa.aaa.aaa format, where each aaa is a number from 0 to 255. The length of IP address is 4 bytes. IP addresses identify the host computers, so that packets of information reach to the correct computer. For example: 162.187.23.87

**The IP address has the following characteristics:**

(i) IP addresses are unique.

(ii) No two machines can have the same IP address.

(iii) IP addresses are also global and standardised.

(iv) All machines connected to the internet agree to use the same scheme for establishing an address.

**Q 1. The minimum value of IP address string is:**

a. 2 b. 5 c. 16 d. 0

**Q 2. IP addresses are converted into:**

a. a binary string

b. alphanumeric string

c. a hierarchy of domain names

d. a hexadecimal string

**Q 3. Identify the IP address from the following URL: http://www.microsoft.com/athome/default.aspx.**

a. microsoft.com b. http

c. athome d. default.aspx

**Q 4. Each computer connected to the internet must:**

a. have a unique IP address

b. have a modem connection

c. have a web browser

d. be a Pentium machine

**Q 5. An IP address is a string of ..... numbers separated by periods.**

a. 3 b. 5 c. 4 d. 2

**Q 6. Which of the following translates domain names into IP addresses?**

a. Domain name system

b. Domain abbreviation

c. Web address

d. URL

**Q 7. The maximum value of IP address string is:**

a. 256 b. 568 c. 255 d. 128

### Answers

1. (d) 0
2. (c) a hierarchy of domain names
3. (a) microsoft.com
4. (a) have a unique IP address
5. (c) 4
6. (a) Domain name system
7. (c) 255

## Case Study 4

***Read the given passage carefully and answer the following questions:***

**Internet Protocols:** For communication over the Internet, the communicating devices must follow certain rules. These rules are called Internet Protocols. For e-mail communication, we use SMTP and POP. For communication between browser and server HTTP and HTTPS protocols are used. We can use TELNET to access services available on a remote computer.

**Q 1. Which of the following is an Internet Protocol?**

a. HTTP b. FTP

c. Both a. and b. d. None of these

**Q 2. SMTP protocol is:**

a. used for composing an e-mail message

b. used in receiving incoming e-mails by pulling the message from server to client

c. used in sending outgoing e-mails by pushing the message from client to server

d. None of the above

**Q 3. POP protocol is:**

a. used for composing an e-mail message.

b. used in receiving incoming e-mails by pulling the message from server to client

c. used in sending outgoing e-mails by pushing the message from client to server

d. None of the above

**Q 4. Which of the following internet protocols provides secure data transmission between server and browser with the help of encryption?**

a. HTTP b. HTTPS

c. TELNET d. ARPANET

**Q 5. The full form of POP (e-mail protocol) is:**

a. Post Order Protocol b. Push Order Protocol

c. Post Office Protocol d. Pull Over Protocol

**Q 6. Which of the following protocol is used for delivering data from the source to the destination?**

a. TCP b. IP c. SMTP d. ARPANET

**Q 7. The full form of SMTP is:** *(CBSE SQP 2020-21)*

a. Secure Mail Transfer Protocol

b. Secure Mail Transmit Protocol

c. Simple Mail Transmit Protocol

d. Simple Mail Transfer Protocol

### Answers

1. (c) Both a. and b.
2. (c) used in sending outgoing e-mails by pushing the message from client to server
3. (b) used in receiving incoming e-mails by pulling the message from server to client
4. (b) HTTPS
5. (c) Post Office Protocol
6. (b) IP
7. (d) Simple Mail Transfer Protocol

## Case Study 5

***Read the given passage carefully and answer the following questions:***

Bidya is a nurse in XYZ hospital. Owing to the emergency situation due to COVID-19, she needs to communicate in almost real-time with the Medical Superintendent about the status of the patients. The hospital has provided her a laptop, web camera and other accessories for communication purposes.

**Q 1. As instructed by the Medical Superintendent, Bidya has to send the RT-PCR reports of some patients who have tested negative to their respective family members using her laptop. Which web service should she avail?**

**Q 2. Bidya wants to establish a connection with the remote computer of pathology lab in the city, so that she can see the RT-PCR reports of her patients. Which protocol will be used for the same?**

**Q 3. Bidya has also been instructed by the Medical Superintendent to upload the RT-PCR reports in the Hospital's Data Server. Which Internet protocol shall be used during this process of uploading the reports into the Hospital's Server?**

**Q 4. The Medical Superintendent has asked Bidya to inform about the billing and payment details of the admitted patients. Bidya needs to securely access the details from the Hospital's server using her Admin Login Credentials. Which secured network protocol is she using to access the account details for the patients?**

**Q 5. Bidya, during her free time, likes to browse the Internet for products available for Online Shopping. Which Internet protocol does Bidya use while browsing for such products?**

### Answers

1. E-mail or electronic mail.
2. SSH/TELNET/PPP
3. FTP or File Transfer Protocol or SFTP.
4. SSH or Secured Shell
5. HTTP or Hypertext Transfer Protocol or HTTPS.

## Case Study 6

***Read the given passage carefully and answer the following questions:***

**Web Server:** Web server is a special computer system running on HTTP through web pages. The web page is a medium to carry data from one computer system to another. The working of the webserver starts from the client or user. The client sends their request through the web browser to the webserver. Web server takes this request, processes it and then sends back processed data to the client. The server gathers all of our web page information and sends it to the user, which we see on our computer system in the form of a web page. When the client sends a request for processing to the web server, a domain name and IP address are important to the webserver. The domain name and IP address are used to identify the user on a large network.

**Q 1. Define web servers.**

**Q 2. What is the full form of HTTP?**

**Q 3. What is the term used for computer that requests the resources or data from other computer?**

**Q 4. Which system translates internet domain and host names to IP address?**

**Q 5. What does the web server need to send back information to the user?**

**Q 6. Define IP address.**

**Q 7. What is the other name used for web address?**

### Answers

1. A web server is a computer that runs websites. It is a computer program that distributes web pages as they are requisitioned. The basic objective of the web server is to store, process and deliver web pages to the users. This intercommunication is done using Hypertext Transfer Protocol (HTTP).
2. Hypertext Transfer Protocol (HTTP).
3. Client computer.
4. Domain Name System (DNS)
5. The webserver need to send back domain name and IP address information to the user.
6. An IP address is a unique address that identifies a device on the internet or a local network. IP stands for "Internet Protocol" which is the set of rules governing the format of data sent via the internet or local network.
7. The web address contains information about the location of the webpage. It is also known as the URL (Uniform Resource Locator).

## Case Study 7

***Read the given passage carefully and answer the following questions:***

**History of Internet:** In mid 80's another federal agency, the NSF created a new high capacity network called NSFnet, which was more capable than ARPANET. The only drawback of NSFnet was that it allowed only academic research on its network and not any kind of private business on it. Now, several private organisations and people started working to build their own networks, named private networks, which were later (in 1990's) connected with ARPANET and NSFnet to form the Internet. The Internet really became popular in 1990's after the development of World Wide Web.

**Q 1. What does NSFnet stand for?**

**Q 2. What does ARPANET stand for?**

**Q 3. What is Internet?**

**Q 4. To which agency the computer has to be connected to join the Internet?**

**Q 5. Which line provides Internet access by transmitting digital data over the wires of a local telephone network?**

**Q 6. Name a piece of icon or image on a web page associated with another webpage.**

**Q 7. When did Internet really become popular after the development of World Wide Web?**

## Answers

1. National Science Foundation Network.
2. Advanced Research Projects Agency Network.
3. Internet is a vast collection of different networks.
4. Internet service provider.
5. Digital subscriber line.
6. Hyperlink.
7. 1990

# ? Very Short Answer

## Type Questions

**Q 1. Which term refers to the companies that provides internet connection to the users?**

**Ans.** ISP (Internet Service Provider).

**Q 2. What is a web server?**

**Ans.** A web server is a computer that stores all the web documents and sends them to the clients when requested.

**Q 3. What are clients?**

**Ans.** Clients are the computers that normally request and receive information on the services over a network.

**Q 4. What is a web browser?**

**Ans.** A web browser is an application program installed at a client's computer that sends a request to a web server for viewing web content.

### COMMON ERRORS

*Most of the students get confused between web browser and search engine.*

**Q 5. What is home page?** *(CBSE SQP 2021 Term-1)*

**Ans.** The first page of a website is known as the home page.

**Q 6. What is blog?**

**Ans.** Blog is an alternative word for weblog. People often write about their opinion or thought on a particular topic just like they write in their diary or journal. People who write on blogs are called bloggers.

**Q 7. What is blogging?**

**Ans.** Authoring, maintaining or adding an article on an existing blog is known as blogging.

**Q 8. In URL, http://www.blueprinteducation.co.in/product-details, which component identifies the website?**

**Ans.** www.blueprinteducation.co.in

**Q 9. What is the significance of URL?** *(CBSE SQP 2020-21)*

**Ans.** The URL (Uniform Resource Locator) specifies the address of a file and every file on the Internet has a unique address.

**Q 10. What is a protocol?**

**Ans.** A protocol is a set of rules and regulations to be followed for communication over a network.

**Q 11. On which model does Internet network model based?**

**Ans.** Transmission Control Protocol (TCP)/Internet Protocol (IP) Model.

**Q 12. Expand SMTP.** *(CBSE SQP 2021 Term-1)*

**Ans.** Simple Mail Transfer Protocol.

**Q 13. Name the most common protocol used by personal computer for receiving e-mail.**

**Ans.** POP (Post Office Protocol).

**Q 14. Discuss the purpose of HTTP briefly.**

**Ans.** HTTP is Hypertext Transfer Protocol which works as the foundation of data communication for the World Wide Web.

**Q 15. What is HTTPS?**

**Ans.** HTTPS is Hypertext Transfer Protocol Secure. It means all communications between the browser and the website are encrypted. HTTPS is used in online banking and online shopping order.

**Q 16. Mention the use of Remote login.**

**Ans.** Remote login allows computer users to connect to a host computer through a network.

**Q 17. What is the purpose of Telnet?**

**Ans.** Telnet is an internet facility that facilitates remote login.

**Q 18. Name the protocol which is used for uploading and downloading data from remote site.**

**Ans.** FTP (File Transfer Protocol).

**Q 19. Name the protocol which is used for secure remote login from one computer to another.**

**Ans.** Secure Shell (SSH) protocol.

**Q 20. How does SCP work?**

**Ans.** SCP uses Secure Shell (SSH) for data transfer and provides the same authentication and level of security as SSH.

**Q 21. Expand the term SFTP.**

**Ans.** Secure File Transfer Protocol.

**Q 22. What is gopher?**

**Ans.** Gopher is a menu driven system which enables the user to navigate within the internet information resources.

**Q 23. What is SIP?**

**Ans.** Session Initiation Protocol (SIP) is a protocol used to establish, modify and terminate VoIP telephone calls.

**Q 24. Why Internet is so popular?**

**Ans.** Due to its extensible use and sharing of data, Internet becomes so popular.

**Q 25. Mention any two major uses of Internet.**

**Ans.** The two major uses of Internet are as follows:

(i) For the students and educational purposes, Internet is widely used to gather information so as to do the research.

(ii) We can send/receive the mail all over the world.

**Q 26. Write two advantages of using Internet.**

**Ans.** Advantages of using Internet are as follows:

(i) It is used for communication, entertainment, searching information and for providing many types of services.

(ii) It provides the facility of e-mail.

**Q 27. Name the protocol, which helps you to communicate between a web server and a web browser.**

**Ans.** HTTP

**Q 28. Write the name of any two Internet Service Providers (ISP) in India.**

**Ans.** MTNL and Airtel.

**Q 29. Name any two ways of wireless connections of Internet.**

**Ans.** Wi-Fi and WiMax.

**Q 30. Name any two Internet protocols used by web.**

**Ans.** HTTP and FTP.

**Q 31. Name any five DSL broadband service providers in India.**

**Ans.** BSNL, Airtel, Reliance, MTNL and Tata Indicom.

**Q 32. What can a user do with WWW?**

**Ans.** Using WWW, a user can download files, listen to music view video files and jump to other documents or websites by using hypertext links.

**Q 33. Name any two major services provided by Internet.**

**Ans.** E-mail and WWW.

**Q 34. Can we use URL to access a web page? How?**

**Ans.** Yes, we can use URL to access a web page and as a location on a Web server, which is called a website and each website has a unique address known as URL.

**Q 35. Which language is helpful to create web pages?**

**Ans.** HTML is used for designing web pages.

**Q 36. Mr. Lal owns a factory which manufactures automobile spare parts. Suggest him the advantages of having a web page for his factory.**

**Ans.** The web page provides the information to the clients about his factory of spare parts. Moreover, he can receive the order on the Internet from the clients using the web page.

**Q 37. Write the relationship between a website and a web server.**

**Ans.** Web server is a computer on which a website is hosted.

**Q 38. Write the web extensions (top level domain names) given to a Websites of the following types of organisations.**

**(i) educational** **(ii) government**

**Ans.** (i) .edu. (ii) .gov.

**Q 39. Write web extensions given to sites of the following types of organisations:**

**(i) network organisation**

**(ii) government agencies**

**Ans.** (i) .net. (ii) .gov.

**Q 40. Name two web browsers of Internet.**

**Ans.** Internet Explorer and Google Chrome.

**Q 41. Expand the following web extensions using with Web addresses.**

**(i) .org** **(ii) .in**

**Ans.** (i) Organisation. (ii) India.

**Q 42. Write any two web extensions used with Web addresses.**

**Ans.** .org and .com

**Q 43. What is URL?**

**Ans.** URL means Uniform Resource Locator. It is a full unique address of a web page on the Internet. It specifies the Internet address of a file stored on a host computer connected to the Internet.

## ? Short Answer

### Type-I Questions

**Q 1. Write two advantages of using Internet.**

**Ans.** Advantages of using Internet are:

(i) It is used for communication, entertainment, finding information, reaching customers and for providing many types of services.

(ii) E-mail on Internet has greatly speed up the communication among companies and among individuals.

**Q 2. Discuss any four disadvantages of the Internet.**

**Ans.** Four disadvantages of the Internet are as follows:

(i) A lot of incorrect information is also available on the Internet. Anyone can post anything, which can be misleading.

(ii) There is a chance that one may use the Internet for different activities such as surfing without even realising the time that may be wasted during the activity.

(iii) Illegal or inappropriate content can also be found on the Internet.

(iv) Criminals can use the Internet to steal and misuse personal information such as details of credit cards and bank accounts.

**Q 3. "A web browser is different from a web server". Explain any two differences in web browser and web server with suitable example of each.**

**Ans.** A web browser is a software that can be used to browse and display pages available over Internet

whereas a web server is a software which provides these documents when requested by web browsers.

A web browser sends request to web servers for web services etc., and a web server responds to these requests by providing the required documents.

Google Chrome is an example of a web browser whereas Apache server is an example of a web server.

**Q 4. Differentiate between the terms website and web page.**

**Ans. Website:** A website is a central location that includes multiple web pages that are maintained by a person or organisation and is accessible to anyone, anywhere at any time using a browser from the internet.

**Web Page:** A web page is a document or a single page of the website displayed in a web browser.

**Q 5. What is a web browser? Write the names of any two commonly used web browsers.**

**Ans.** A web browser is an application used to access and view websites/web pages.

Common web browsers include Microsoft Internet Explorer, Google Chrome, Mozilla Firefox, Apple Safari, Netscape Navigator, Chromium, Opera.

**Q 6. Write a short note on the Inter NIC.**

**Ans.** The Inter NIC (Internet Network Information Center) governs the RFC (Request For Comment), which is actually a series of standards for the Internet.

**Q 7. Sarvesh, a student of Class X, is not able to understand the difference between web client and web server. Help him in understanding the same by explaining their role and giving suitable example of each.** *(CBSE SQP 2021 Term-1)*

**Ans. Web Client:** It is an application (Web Browser, Chatting Program, etc.) that requests for services from a web server.

**For example:** Web Browsers, Chatting Applications.

**Web Server:** Web server is a software (or any dedicated computer running this software) that serves the request made by web clients.

**For Example:** Apache server.

**Q 8. Gaurav creates a website to advertise his business. He chooses an ISP to host his website.**

**(i) State what Gaurav should have on home page to help user navigate his website.**

**(ii) State what ISP means.**

**Ans.** (i) Hyperlink should be present on home page to help user navigate his website.

(ii) ISP stands for Internet Service Provider. It refers to a company that provides Internet connection to the users.

**Q 9. Differentiate between a website and a web portal.**

**Ans.** A website is a location on an Internet server. The collection of web pages on the World Wide Web that is accessed by its own Internet address is called a website.

A web portal is a web site, which hosts other web sites and offers many services *i.e.*, a web site having hyperlinks to many other web sites, is called a web portal. For example, Yahoo! (www.Yahoo.com) is a web portal.

**Q 10. What are the types of web pages?**

**Ans.** Depending on the type of content that web pages contain, the web pages are divided into two types:

**(i) Static Web Pages:** The static web pages contain static content, the content that does not change *i.e.*, contain information that can only be viewed, and cannot be changed.

**(ii) Dynamic Web Pages:** The dynamic web pages display different content each time when they are viewed. These are created using scripting languages such as Java script, XML, etc.

**Q 11. What is the purpose of a web browser? Give the name of any two popular web browsers.**

**Ans.** A web browser is an application program used for exploring the information resources available on the World Wide Web to retrieve the required information.

Two popular web browsers are **Google Chrome** and **Mozilla Firefox**.

**Q 12. What is a blog and who are bloggers?**

**Ans. Blog:** A blog is an alternative word for a web log. People often write about their opinions or thoughts on a particular topic as they would in their diary or journal.

**Blogger:** People who write blogs are called bloggers.

**Q 13. Write two advantages and two disadvantages of blogs.**

**Ans. Advantages of blogs:**

(i) It allows us to get feedback on our thoughts.

(ii) It improves writing skills of blogger.

**Disadvantages of blogs:**

(i) It involves a lot of time.

(ii) There is no confidentiality as it is a public forum.

**Q 14. What do you mean by web address?**

**Ans.** Each web page has an address describing where it can be found. This address is known as web address or URL (Uniform Resource Locator). The URL specifies the address of a file and every file on the Internet has a unique address. It works with IP addresses to give a name and location to web pages.

**Q 15. What are different types of IP addresses?**

**Ans.** IP addresses are of two types:

**(i) Static IP Address:** Static IP addresses are those types of IP address that never change once they are assigned to a device on a network.

**(ii) Dynamic IP Address:** A dynamic IP address changes each time the device logs into a network. This kind of address is very tough to trace and are used by companies and business firms.

**Q 16. What do you understand by the term URL? How iis it different from an e-mail address?**

*(CBSE SQP-2021 Term-1)*

**Ans.** URL stands for Uniform Resource Locator. It is basically a web address that identifies a resource on the Internet. An e-mail address is an account on a mail server. The main difference is that an e-mial address contains an '@' sign whereas a URL never has it. An e-mail address does not start with a www.

**Q 17. What do you understand by a newsgroup? How is it different from a blog?** *(CBSE SQP-2021 Term-1)*

**Ans.** A newsgroup is an Internet-based discussion group. It is organised around a particular topic, *e.g.*, cyber safety. people can post messages on the group regarding the topic. Anyone can join a discussion group.

A blog is more like a website where an individual or group of people write about anything that interests them e.g., sports, culture, etc. It is usually owned by an individual and we can only post comments on a blog if it is allowed to do so.

**Q 18. What is DNS?**

**Ans.** It is practically impossible for a person to remember the IP address of all the computers one may have to communicate with. Therefore, a system has been developed which assigns names to some computers and maintains a database of these names and corresponding IP addresses. These names are called Domain Name System (DNS).

**Q 19. Explain the working of Remote login.**

**Ans.** Remote login works in exactly the same way as desktop sharing where there are host computers and remote users. To share a desktop, the host computer allows a remote user to view the contents of the host computer's desktop over the Internet.

**Q 20. Write the drawbacks of Telnet.**

**Ans.** The drawbacks of Telnet are:

(i) All the information including the usernames, passwords and commands is send in character form over a TCP connection.

(ii) Anyone could easily capture this information on an unprotected network.

**Q 21. What is FTP?**

**Ans.** FTP stands for File Transfer Protocol that is a standard Internet protocol for transmitting files between computers on the Internet. It is mainly used for performing the basic file operations such as uploading, downloading, deleting, renaming, moving and copying files from the client side to the server side.

**Q 22. What are the advantages of SSH?**

**Ans.** SSH has the following advantages:

(i) It protects the security and integrity of communication with strong encryption.

(ii) It provides several options for strong authentication and serves as a secure alternative to non-protected login protocols like TELNET.

**Q 23. Differentiate between SFTP and SCP.**

**Ans.** The basic difference between SFTP and SCP are:

(i) SFTP works on interactive mode while SCP works on non-interactive mode.

(ii) Using SFTP, the user can access remote file system *i.e.* deleting, creating and listing files whereas, SCP is used only for transferring files.

**Q 24. What is PPP?**

**Ans.** PPP (Point to Point Protocol) comes into play when we establish a connection to our ISP (Internet Service Provider) via modem and we make up two points on the network hence the protocol that is used to get things 'happening' between the two of us is the Point to Point Protocol or the PPP.

**Q 25. What is protocol independence?**

**Ans.** All protocols share the same physical cabling which allows multiple protocols to peacefully coexist over the network. So, common hardware can be used for a variety of protocols. This concept is known as Protocol Independence.

**Q 26. Define Internet and write its two uses in our daily life. How is it different from the World Wide Web (WWW).** *(CBSE SQP 2021 Term-1)*

**Ans.** Internet is a world wide network of interconnected computer networks and other devices. It provides us with a very easy, fast and convenient way to access any type of information. It uses the standard Internet Protocol (TCP/IP).

**Two uses:**

(i) To access any educational site example: Khan academy.

(ii) To send and receive e-mails using an e-mail service.

The Word Wide Web, or web for short are the pages you see when you're at a device and you're online whereas the Internet is the network of connected computers that the web works on.

**Q 27. How do Internet help us?**

**Ans.** Internet can be useful for us in following ways:

(i) Allows organisations to advertise their products.

(ii) Provides information.

(iii) Easily communicate with other people.

(iv) Save paper as we can publish documents on the Internet.

**Q 28. What is the significance of HTTP?**

**Ans.** HTTP is a protocol used on Internet. It works in combination with WWW. It allows us to access hypertext documents on WWW. Since, WWW allows us to access or use multimedia files on the Internet and the hypertext files support multimedia.

**Q 29. How do you differentiate between a web address and an e-mail address?**

**Ans.** The basic differences between a web address and an e-mail address are as follows:

(i) E-mail address is a network address whereas web address is the Internet address.

(ii) An e-mail address always contains the 'at the rate' sign (@) whereas, a web address never does.

## ? Short Answer

### Type-II Questions

**Q 1. Define Internet and write its two uses in our daily life. How is it different from the World Wide Web (WWW)?** *(CBSE SQP 2021 Term-1)*

**Ans.** The Internet is a worldwide network that links many smaller computer networks.

Uses of the Internet:

(i) E-learning. (ii) E-commerce.

**The difference between the Internet and www is as follows:**

**WWW:** It is a collection of various hypertext documents available over the Internet. WWW is a part of the Internet that covers web pages, websites and almost all the informative content developed using web languages such as HTML and XML and can travel over the Internet using protocols such as HTTP.

**Internet:** It is a worldwide network that provides various other services (apart from www) like email-communication, file sharing, etc. All the computers and other devices are connected by cables or telecommunication lines.

**Q 2. Define the following terms:**

**(i) Apache web server, (ii) Newsgroup,**

**(iii) Downloading.**

**Ans.** (i) **Apache Web Server:** The Apache is the most popular web server developed by the Apache Software Organisation. It is an open source software and can be installed on almost all the operating system such as Linux, UNIX, Windows, Mac OS X and many more.

(ii) **Newsgroup:** A newsgroup is an online discussion forum accessible through Usenet. It is an Internet-based discussion group, similar to a Bulletin Board System (BBS), where people post messages concerning whatever topic around which the group is organised.

(iii) **Downloading:** It is the process of copying a file from one computer to another across the Internet. For example, when you download a free antivirus program from a website, it means you are copying it from web server to your computer.

**Q 3. Explain all three parts of a URL (Uniform Resource Locator).**

**Ans.** Every URL has three parts to address a page or file:

(i) **Protocol identifier** or **scheme** which ends with a '//:'

(ii) **Host computer** which ends with web extensions such as .com, .org etc.

(iii) **Filename** or **page** name which displays the related information.

**Example: http://www.blueprinteducation.co.in/product-details/exam-mate-mathematics-101**

**The above URL consists of:**

- **Protocol:** http
- **Host computer name:** www
- **Domain name:** blueprinteducation
- **Domain type:** co.in
- **Path:** product-details
- **File name:** exam-mate-mathematics-101

**Q 4. What is e-mail address? Name two main parts of an e-mail address with the help of an example.**

**Ans.** **E-mail Address:** An E-mail address is the address of an electronic postbox that can **receive/send e-mail messages** on a network.

**E-mail address has the following format:**

**Example: shilpa123@blueprinteducation.co.in**

The above URL consists of:

(i) **Username:** shilpa123

(ii) **Domain:** blueprinteducation.co.in

**Q 5. Answer the following questions:**

**(i) What is FTP?**

**(ii) On which model does it work?**

**(iii) Mention its user.**

**Ans.** (i) FTP is a Standard Internet Protocol for transmitting files among the computers on the Internet.

(ii) FTP works on the Client and Server model where client and server act as two communication channels—a command channel for controlling the conversation and a data channel for transmitting file content.

(iii) The uses of FTP are:

(a) It is used to perform basic file operations such as uploading, downloading, deleting, renaming, moving and copying files from the client side to the server side.

(b) It is a client server protocol in which clients initiate conversations with servers by requesting to download a file.

**Q 6. What is the difference between uploading and downloading?**

**Ans.** When we send some files from our computer to a remote server, it is considered as uploading. For example, when we send an attachment through an e-mail, or when we upload images, audio and video files on a social networking website, we are actually uploading the files.

Downloading is the process of copying a file from one computer to another across the Internet. For example, when we download a free antivirus program from a website, it means we are copying it from the web server to our computer. This allows us to install and use the program on our machine. We can even download, run or view files that come as attachments into our mails.

**Q 7. Differentiate between SSH and Telnet.**

**Ans.** The differences between SSH and Telnet are:

(i) SSH offers security mechanism that protects the user against anyone with malicious intent while Telnet has no security measures.

(ii) SSH uses public key to authenticate the source of the data while Telnet does not use any authentication.

(iii) SSH adds a bit more overhead to the bandwidth as compared to Telnet.

**TIP**

*Mention the differences in points or in tabular form.*

**Q 8. Differentiate between a web address and an e-mail address. Write an example of each to illustrate the difference.**

**Ans.** A web address is a unique address of a website.

An e-mail address is the unique address of a recipient or a sender of a mail over a computer network.

An e-mail address always contains the 'at sign' @, but a web address never does.

**For example:** xyz@gmail.com

www.google.com

**Q 9. Expand the terms SMS and MMS in the context of mobile technologies. Differentiate between SMS and MMS in the context of Mobile Technologies.**

*(CBSE, SQP 2021-22, Term-2)*

**Ans.** **SMS:** Short Message Service (SMS) is only capable of sending text from one mobile to another.

**MMS:** Multimedia Message Service (MMS) can send multimedia content—pictures video and audio in addition to text.

**Q 10. Answer the following questions:**

**(i) What is LAN?**

**(ii) What do you understand by MAC address?**

**(iii) What is web hosting?**

**Ans.** (i) **A Local Area Network (LAN)** is a group of computer and peripheral devices which are connected in a limited area such as school, laboratory, home and office building. It is a widely useful network for sharing resources like files, printers, games and other application. LAN is owned and controlled by a single person or an organisation.

(ii) Each NIC (Network Interface Card) has a universally unique address assigned to it by its manufacturer. This address is known as the **MAC (Media Access Control)** address of the card. It means that a machine with a NIC can be identified uniquely through its NIC's MAC address. MAC address of an NIC is permanent and does never change.

(iii) A web hosting service is a type of Internet hosting service that allows individuals and organisations to make their websites accessible via the World Wide Web.

**Q 11. Expand the following in the context of Internet protocols:** *(CBSE SQP 2021 Term-2)*

**(i) SMTP**

**(ii) POP3**

**Write the difference between SMTP and POP3.**

**Ans.** **SMTP:** Simple Mail Transfer Protocol (SMTP) transfers the mail from a sender's computer to the mailbox present on the receiver's mail server.

**POP3:** Post Office Protocol version 3. (POP3) allows us to retrieve and organise mails from the mailbox on the receiver mail server to the receiver's computer.

**Q 12. What is e-governance? Explain any two merits of e-governance.**

**Ans.** E-governance can be defined as the usage of Information and Communication Technology (ICT) by the government to provide and facilitate government services, exchange of information, communication transactions and integration of various standalone systems and services.

**Merits (Any two):**

(i) Improves delivery and efficiency of government services.

(ii) Improved government interactions with business and industry.

(iii) Citizen empowerment through access to information.

(iv) More efficient government management.

(v) Less corruption in the administration.

(vi) Increased transparency in administration.

(vii) Greater convenience to citizens and businesses.

(viii) Cost reductions and revenue growth.

(ix) Increased legitimacy of government.

(x) Flatterns organisational structure (less hierarchic).

(xi) Reduces paperwork and red-tapism in the administrative process which result in better planning and coordination between different levels of government.

(xii) Improved relations between the public authorities and civil society.

(xiii) Restructuring of administrative processes.

## ? Long Answer Type Questions

**Q 1. What is the Internet? Discuss the history of Internet in details. Write a few disadvantages of the Internet.**

**Ans.** The Internet is the world's largest computer network. It covers and connects billions of computers and other communication devices all over the globe. All the computers and other devices are connected by cables or telecommunication lines. Different types of cables such as fiber optical cables, coaxial cables, copper wires are used for connecting computers to form the Internet.

**History of Internet:** The first step towards today's Internet was taken by the US Department of Defence, in 1969, when they developed a network called ARPANET (Advanced Research Project Agency Network). ARPANET initially aimed to connect computers at different universities and the US Department of Defence in a way that network could even survive a nuclear attack.

Initially, it was mandatory for a university to sign a contract with US Department of defence to be a part of the ARPANET and start using it. To overcome the issue, the US National Science Foundation (NSF) formed a common network called CSNET in 1970. CSNET allowed dial-up connections and since its idea was really simple, it gained a lot of popularity. By 1980, almost 200 computers were connected through CSNET.

**Disadvantages:**

(i) A lot of incorrect information is also available on the Internet. Anyone can post anything, which can be misleading.

(ii) There are chances that we may use the Internet for different activities such as surfing, without realising the time that we may be wasting.

(iii) Criminals can use it to steal and misuse personal information such as credit cards and bank details.

**Q 2. Define the following terms:**

**(i) Home page** **(ii) HTTP**

**(iii) Surfing** **(iv) Web server**

**(v) Website**

**Ans.** (i) The first page of a website is known as the **home page.** It usually contains an introduction about the website and links to other pages of the website.

(ii) **Hypertext Transfer Protocol (HTTP)** is the underlying foundation of the World Wide Web. This protocol defines how messages are formatted and transmitted over the web. With every web transaction, HTTP is invoked. Whenever a request is send for a web page, or even when we click on a hyperlink or submit an online form, the HTTP is invoked. For example, when we enter a URL in a browser, this actually sends an HTTP command to the web server directing it to fetch and transmit the requested web page. It is actually the set of rules for transferring files (text, graphic images, sound, video and other multimedia files) on the World Wide Web. As soon as an Internet user opens the web browser to browse a web page, the user is indirectly making the use of HTTP.

(iii) The task of browsing the Internet and visiting different websites for finding information is known as **surfing.**

(iv) A web server is a computer that stores all the web documents and sends them to the clients when requested. It uses HTTP (Hypertext Transfer Protocol). It accepts the clients's request for websites/web pages and responds back to the clients by forwarding the requested documents.

(v) Website is a compilation of the information spread over the World Wide Web and is just like a book that contain multiple pages linked to each other. If we open a website on a specific topic, it will have web pages linked to each other based on that topic only.

**Q 3. Read the case study given below and answer the following questions:**

**Mr. Harish, an accountant, works in an IT firm and due to the pandemic, has been asked to work from home. He has set up his online office at his home. He has purchased a laptop, web camera and other accessories. Now he has started working from home and performs his various duties online.**

(i) **Mr. Harish wants to hold an online meeting with the company's client such that he can interact as well as see them. Which web service should he avail?**

(ii) **Mr. Harish wants to hold an online meeting with the company's client such that he can interact as well as see them. Which web service should he avail?**

(iii) **The company's financial head needs to send some high security documents to Mr. Harish. He uses an application which supports the ..... protocol.**

(iv) **In order to gather some information on latest accounting trends, Mr. Harish has to do some research. He can do this by locating sites online using a .....**

(v) **Joseph, the company secretary sends a link to Mr. Harish which contains important company files. What should he do in order to access the files.?**

**Ans.** (i) Video conferencing such as Skype, Zoom, etc.

(ii) SMTP (Simple Mail Transfer Protocol) and POP (Post Office Protocol).

(iii) SSH (Secure Shell).

(iv) Search engine / web browser.

(v) Download the files from the link.

**Q 4. Answer the following questions:**

**(i) Write the web extension given to websites of the following types of organisation:**

**(a) Educational**

**(b) Government**

**(ii) Differentiate between HTTP and HTTPS.**

**(iii) What do you understand by SSH?**

**(iv) What do you understand by Internet Protocol Address (IP Address)?**

**(v) What is Intranet?**

**Ans.** (i) (a) edu. (b) gov.

(ii) **Hypertext Transfer Protocol (HTTP):** It defines how messages are formatted and transmitted over the web.

**Hypertext Transfer Protocol Secure (HTTPS):** It is an extension of Hypertext Transfer Protocol (HTTP). It is for secure communication over a computer network and is widely used on the Internet.

(iii) **The Secure Shell (SSH)** protocol is a method for **secure remote login** from one computer to another. It protects the security and integrity of communication with strong encryption.

(iv) It is the unique identifier for each connected device on a network. It is usually mounted on the **LAN card** or **Ethernet card** of a computer or of a device. The IP addresses are managed by **IETF (Internet Engineering Task Force)**.

(v) An intranet is a network that exists exclusively within an organisation and that is based on Internet technology.

**Q 5. Explain Telnet with its advantages. Also enlist the difference between FTP and Telnet.**

**Ans.** Telnet is a network protocol which allows the user to get connected to other hosts via remote login. Telnet remote login is widely used for file sharing. Telnet allows the users to get access to any remote host machine through remote login.

**Advantages of Telnet:** The user can make changes related to system which is not possible in any other method. All type of resources can be shared.

**Difference between FTP and Telnet**

| S.No. | Telnet | FTP |
|---|---|---|
| (i) | Telnet stands for TELE communication NETwork. | FTP stands for File Transfer Protocol. |
| (ii) | It is used for chat operations. | It is used for downloading the files. |
| (iii) | The port number in which Telnet works is 23. | The port number in which FTP works is 20 and 21 |
| (iv) | Remote login is necessary in Telnet. | Remote login is not necessary in FTP. |
| (v) | It is a connection oriented protocol. | It is also a connection oriented protocol. |

**Q 6. What is URL? What is the difference between absolute URL and relative URL?**

**Ans.** The full form of URL is Uniform Resource Locator. It is a web addressing scheme that gives the exact location of a document on WWW.

**Absolute URL:**

(i) An absolute URL is a fully qualified URL which specifies the exact location of a resource that is residing on Internet.

(ii) An absolute URL is independent.

(iii) An absolute URL are not easily portable.

**Relative URL:**

(i) A relative URL is a partially qualified URL which specifies the partial location of a resource that is residing on the Internet.

(ii) A relative URL is dependent.

(iii) A relative URL are easily portable.

# CHAPTER TEST

## Multiple Choice Questions

**Q 1. Which is the communication protocol for the Internet?**

a. FTP b. HTTP
c. HTML d. TCP/IP

**Q 2. What is the full form of ISP?**

a. Internet Server Provider
b. Internet Service Provider
c. Internet Service Protocol
d. None of the above

**Q 3. Which voluntary group is concerned with the evolution of Internet Architecture and the smooth operation of the Internet and is open to any interested individual?**

a. IETF b. IANA
c. IAB d. None of these

**Q 4. The rate of data transfer in case of internet connections is called .....**

a. Backbone b. Gateway
c. Bandwidth d. Server

**Q 5. Which device connects two or more dissimilar devices?**

a. Modem b. Backbone
c. Gateway d. All of these

## Fill in the Blanks

**Q 6. The communication between the client node and server node takes place using the .....**

**Q 7. In HTTPS, the communication protocol is .....**

**Q 8. Ravi was trying to log-in to his net-banking account. He noticed that the URL of the net-banking start with 'https'. The 's' in 'https' stands for .....**

*(CBSE Sample Paper 2020-21)*

## Assertion and Reason Type Questions

**Directions (Q. Nos. 9-11):** *In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option.*

a. Both (A) and (R) are true and (R) is the correct explanation of (A).
b. Both (A) and (R) are true but (R) is not correct explanation of (A).
c. (A) is true, but (R) is false.
d. (A) is false, but (R) is true.

**Q 9. Assertion (A): When you send some files from your computer to a remote server, it is considered as uploading.**

**Reason (R): ZIP is a common file format used to compress and combine files to make them download more quickly.**

**Q 10. Assertion (A): Uploading is the process of copying a file from one computer to another across the Internet.**

**Reason (R): IP or Internet Protocol address is the unique identifier for each connected device on a network.**

**Q 11. Assertion (A): SFTP stands for Secure File Transfer Protocol. It is a secure version of File Transfer Protocol (FTP), which facilitates data access and data transfer over a Secure Shell (SSH) data stream.**

**Reason (R): Lynx web browser is especially meant for the CUI-based (Character User Interface) operating system such as Unix. It contains features to access web pages.**

## Case Study Based Questions

**Q 12.** ***Read the given passage carefully and answer the following questions:***

**E-mail:** An e-mail is a service of sending or receiving emails or messages in the form of text, audio, video, etc., over the Internet. Various service providers are providing e-mail services to users. The most popular service providers in India are Gmail, Yahoo, Hotmail, Rediff, etc.

An e-mail address for an email account is a unique ID. This e-mail ID is used to send and receive mails over the Internet. Each e-mail address has two primary components: username and domain name. The username comes first, followed by the (@) symbol and then the domain name.

**(i) Unsolicited e-mail advertising is known as .....**

a. Newsgroup b. Junk ads
c. Spam d. None of these

**(ii) Which of the following is the correct format of e-mail address?**

a. name@website@info
b. name@website.info
c. www.nameofwebsite.com
d. name.website.com

**(iii) MIME stands for:**

a. Multipurpose Internet Mail Extensions
b. Multipurpose Internet Mail Email
c. Multipurpose Internet Mail End
d. Multipurpose Internet Mail Extra

**(iv) Mail access starts with client when user needs to download e-mail from the .....**

a. mail box b. mail server

c. IP server d. Internet

**(v) When sender and receiver of an e-mail are on same system, we need only two .....**

a. IP b. domain

c. servers d. user agents

**(vi) NVT stands for:**

a. Network Virtual Transmission

b. Network Virtual Test

c. Network Virtual Terminal

d. Network Virtual Tell

**(vii) E-mail was invented in .....**

a. Spain b. India

c. America d. Canada

**Q 13.** ***Read the given passage carefully and answer the following questions:***

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

TCP defines how applications can create channels of communication across a network. It also manages how a message is assembled into smaller packets before they are then transmitted over the Internet and reassembled in the right order at the destination address.

IP defines how to address and route each packet to make sure it reaches the right destination. Each gateway computer on the network checks this IP address to determine where to forward the message. TCP/IP uses the client-server model of communication in which a user or machine (a client) is provided a service (like sending a webpage) by another computer (a server) in the network. Collectively, the TCP/IP suite of protocols is classified as stateless, which means each client request is considered new because it is unrelated to previous requests. Being stateless frees up network paths so they can be used continuously.

**(i) Name the protocols which are used in the Internet.**

**(ii) Which protocol assigns IP address to the client connected to the Internet?**

**(iii) What are Internet protocols?**

**(iv) What is the full form of TCP/IP?**

**(v) Define TCP/IP.**

**(vi) TCP/IP uses the ..... of communication in which a user or machine (a client) is provided a service (like sending a webpage) by another computer (a server) in the network.**

**(vii) What do you mean by the term gateway?**

## Very Short Answer Type Questions

**Q 14. Define browser. Name two popular browsers.**

**Q 15. What is the other name for letter addressing system? Give one example of letter addressing system.**

**Q 16. What is hypertext?**

**Q 17. What is WWW?**

## Short Answer Type-I Questions

**Q 18. What is MODEM?**

**Q 19. Explain number addressing system and letter addressing schemes.**

## Short Answer Type-II Questions

**Q 20. Define home page. Give two advantages of home page.**

**Q 21. Many organisations use both Internet and Intranet. Give some differences between Intranet and Internet.**

## Long Answer Type Questions

**Q 22. Why Internet is called 'Network of Networks'?**

**Q 23. Define the following terms:**

**(i) Home Page** **(ii) HTTP**

**(iii) Surfing** **(iv) Web server**

**(v) Website**