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**Total Marks:** 30 **Instructor:** Zakir Rahim

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**Q1. (a) Discuss the importance of system software and how it helps users? (5)**

Ans: System software are programs which hold instructions related with the working of the

hardware and software of the computer system. System Software behaves like an

incharge and performs the responsibility of overall supervision of input, processing

and output of data. In other words, it is a set of programs the purpose of which is to

increase the capabilities of the system and thus, make the use of computer more

effective . This part of the computer is the domain of computer manufacturer in which

a variety of functions are implanted quite economically. These software are also

called Firmware. It keeps track of all the peripherals equipment attached with the

computer, and monitors their activities. It is sthe necessary software the administer

and manage the compute resources and operations in the best possible way. System

Software are divided into two categorizes:

1. Operating System
2. Translators
3. **Operating System:**

Operating system (OS) is the most important type od ststem software and can be designed as a set of programs which coordinate and control compute operations. It is a program or a series of programs which provides communication between the user and the computer hardware. Main functions of an operating system are:

1. Job control.
2. Memory management.
3. Keep track of computer resources.
4. Multiprogramming.
5. Supervisor.
6. **Translators:**
7. A translator  is a generic term that can refer to anything that convert  code from one computer language into another.These include translations between high level and human relatable computer language such as  C++ and java, intermediate-level languages such as  java by code., Low level languages such as the assembly language and machine code, and between similar levels of language on different computing platforms as well as from any of the above to another.

**(b) Write a few advantages of open source software’s? (5)**

### Ans: Suppleness and Nimbleness

IT leaders must fundamentally provide flexibility and nimbleness for their enterprise. If you can’t compete on nimbleness, you’re going to get left behind by the competition. Open source enables technology nimbleness, typically offering multiple ways to solve problems. Open source helps keep your IT organization from getting blocked because a particular capability isn’t available from a seller. Instead of waiting for the seller to deliver that capability, you can create it yourself.

### Cost Effectiveness

### Open source is generally much more cost-effective than a proprietary solution. Not only are open source solutions typically much more inexpensive in an enterprise environment for equivalent or superior capability, but they also give enterprises the ability to start small and scale (more on that coming up). Given that enterprises are often budget challenged, it just makes financial sense to explore open source solutions.

### Ability to Start Small

### With open source, you can start small and quickly with community versions, and then migrate to a commercially-supported solution as your business requirements drive you there. If the project doesn’t require support, you can continue on the community version indefinitely. You have the option to try the various alternatives, pick the one that’s going to work, and then [scale up](https://enterprisersproject.com/article/2018/1/how-technology-changes-rules-doing-agile) with a commercial solution.

### Attract Better Talent

### Open source gives enterprises the ability to attract better [talent](https://enterprisersproject.com/tags/it-talent). Most professional technologists are well aware of open source and many believe it’s where the industry is headed. Many enjoy creating their own projects and having the ability to interact with others outside their enterprise to develop solutions. Giving developers flexibility and freedom can be an important tool in [attracting better talent](https://enterprisersproject.com/article/2018/6/open-source-jobs-report-3-hot-skill-areas-now).

### The Future

Open source is the future. Web, mobile, and cloud solutions are increasingly built predominantly on open source infrastructure. Some data and analytic solutions are only available in open source.

Q2. (a) Differentiate between Optical and magnetic storage? (5)

Ans: **Optical Storage Device**

1. Stores data as marbled image.
2. Optical storage devices offer smaller size.
3. Requires LASER light to read and write data onto the disc
4. Slower data read and write.
5. Data on the disk will not be damaged by magnetic fields.
6. Optical storages can be readable, writable and re-writable.
7. Optical storage devices require additional drives to function.
8. Easy and safe to take around.

**Magnetic Storage Devices**

1. Stores data in magnetic form
2. Magnetic storage devices offer much higher capacity
3. Doesn’t require LASER heads to read and write data
4. Faster data read and write.
5. Magnetic field can destroy the data stored on Magnetic storage devices
6. Magnetic storage devices are always readable and re-writable.
7. Almost all magnetic storage devices comes with built-in drives.
8. Not as safe as optical storage devices to take around

**(b) Discuss the importance of main memory? (5)**

Ans: **Importance of main memory:** .

Memory often is called RAM, for random access memory. Main memory is called RAM because you can randomly (as opposed to sequentially) access any location in memory. This designation is somewhat misleading and often misinterpreted. Read-only memory (ROM), for example, is also randomly accessible, yet is usually differentiated from the system RAM because it maintains data without power and can’t normally be written to. Although a hard disk can be used as virtual random access memory, we don’t consider that RAM either. A type of RAM called static RAM (SRAM) does not require the periodic refreshing. An important characteristic of RAM in general is that data is stored only as long as the memory has electrical power. When we talk about a computer’s memory, we usually mean the RAM or physical memory in the system, which is mainly the memory chips or modules the processor uses to store primary active programs and data.

Main memory temporarily stores programs when they are running, along with the data being used by those programs. RAM chips are sometimes termed volatile storage because when you turn off your computer or an electrical outage occurs, whatever is stored in RAM is lost unless you saved it to your hard drive.

Physically, the **main memory** in a system is a collection of chips or modules containing chips that are usually plugged into the motherboard. These chips or modules vary in their electrical and physical designs and must be compatible with the system into which they are being installed to function properly.

Q3. **Based on the discussion related to internet and its services, elaborate the effective use of internet in current health emergency and how different sectors of life are benefiting from it? (10)**

Ans: It's no secret that more and more the internet is becoming an essential part of

our everyday lives. But if you are new to the online experience, it may be a bit

Overwhelming. You may be wondering, "What exactly is the internet, and

how does it work?"

In the early days, most people just used the internet to search for information. Today's internet is a constantly developing tool, that not only contains an amazing variety of information, but also provides new ways of accessing, interacting and connecting with people and content. As a result, new terms are constantly appearing as new technologies are introduced. The first question comes in our mind is what actually internet is???

*The internet is the largest computer network in the world, connecting millions of computers. A network is a group of two or more computer systems linked together.*

**Services Provided By the Internet**

Services provided by the internet include:

• 1. Electronic Mail (e-mail)

• 2. World Wide Web

• 3. File Transfer Protocol (FTP)

• 4. Chat Rooms

• 5. Mailing list

• 6. Instant Messaging

• 7. News Groups

**Electronic Mail**

Electronic mail, commonly known as email or e-mail, is a

method of exchanging digital messages from an author to

one or more recipients. Modern email operates across the

Internet or other computer networks.

• Email servers accept, forward, deliver and store messages.

• An email message consists of three components, the

message envelope, the message header, and the message

body. The message header contains control information,

including attachment option, reason box, email address and

one or more recipient addresses. Message can consist of

attachments, graphic or video/audio clips.

E.g.: - e-mail addresses

• Samsung@gmail.com

• Apple@outlook.com

Some popular E-mail services providers are:

• 1. Gmail

• 2. Hotmail

• 3. Yahoo

• 4. MSN

**World Wide Web(WWW)**

Important features of the world wide web

(www) are listed below

• 1. Most important service provided by

Internet.

• 2. An internet-based hypermedia initiative for

global information sharing.

• 3. Developed in 1989 by Tim Berners-Lee of

the European Particle Physics Lab (CERN) in

Switzerland.

**Search Engines**

Search engines are used for searching

information on the Internet. Some of the

popular ones are:

• 1. Google

• 2. Yahoo

• 3. Bing

**File Transfer Protocol (FTP)**

File Transfer Protocol (FTP) is a standard

network protocol used to transfer files from

one host to another host over a TCP-based

network, such as the Internet.

• FTP users may authenticate themselves using

a clear-text sign-in protocol but can connect

anonymously if the server is configured to

allow it.

The first FTP client applications were interactive

command-line tools, implementing standard commands

and syntax.

**Mailing List**

A mailing list is a collection of names and addresses

used by an individual or an organization to send

material to multiple recipients. The term is often

extended to include the people subscribed to such

a list, so the group of subscribers is referred to as

"the mailing list", or simply "the list".

1. Group of e-mail address given a single name.

2. When a message is sent to the mailing list

everyone on the list receive the message.

3. To add your name to a mailing list you must

subscribe to it; to remove your name you must

unsubscribe.

**Instant Messaging**

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 alocal

area network.

1. Notifies you when one or more people are online allow

exchange of messages and files

2. It allows you to join a private chat rooms.

3. Real time conversation that takes place on a computer

5. Chat room is location on server that permits users to

discus topics of interest

6. Some are the text only others support voice and video

**News Groups**

A news group is called as forum, an on-line discussion group. On

the Internet, there are literally thousands of newsgroups covering

every conceivable interest. To view and post messages to a

newsgroup, you need a news reader, a program that runs on your

computer and connects you to a news server on the Internet.

1. Online area in which users conduct written discussion about a

particular subject.

2. Usenet (collection of all internet news groups).

3. News server (computer storing newsgroups messages).

4. Newsreader (program used to access newsgroups).

Articles (a previously entered message).

6. Posting (adding an article to the newspaper).

7. Message board (discussion board; easier to use).

8. Blog (short for the web log; regularly updated)

The Internet allows greater flexibility in working hours and

location, especially with the spread of unmetered highspeed

connections. The Internet can be accessed almost

anywhere by numerous means, including through mobile

Internet devices. Mobile phones, datacards, handheld game

consoles and cellular routers allow users to connect to the

Internet wirelessly.

For distance education, help with homework and other

assignments, self-guided learning, whiling away spare time,

or just looking up more detail on an interesting fact, it has

never been easier for people to access educational

information at any level from anywhere. The Internet in

general and the World Wide Web in particular are important

enablers of both formal and informal education.

Technology plays an important role in the healthcare industry, from the cutting edge medical imaging technology to the latest clinical laboratory diagnosis or even surgical robots, healthcare has been continuously embracing technology in its quest to provide quality patient care. The most significant impact so far is no doubt the integration of Internet technologies into the healthcare industry.Impact of the Internet in Healthcare The rapid proliferation of the Internet has transformed many aspects of society and various industries by enabling the widespread sharing of information and the creation of new business relationships, enabling direct interaction with customers as opposed to having work through traditional communication channels.Being a public, cooperative and self-sustaining facility, the Internet is utilize as a highly functional yet cost effective communication medium given that it spans across geographies, connecting billions of people worldwide almost instantly. The integration of the Internet in the business model of the banking and telecommunications industry has proven to be beneficial with the apparent increase in efficiency and effectiveness in delivering their services while lowering operating cost. Traditionally, the Internet has been used principally as a tool for commerce and as a cost-effective communication medium by the healthcare industry; this is set to change as with the steady adoption of the technology is changing the traditional paradigm between doctors and patients as well as healthcare delivery at the patient level. Technology Trends The move towards the electronic hospital in Asia Pacific has fuel the need to transform traditional healthcare delivery, in addition to the use of email for communication purposes, healthcare facilities have utilize the Internet in the following areas;

Delivery of Healthcare

Healthcare research

Financial and administrative transaction

Education administrative transaction

**INTERNET**