

## Unit 17 Information and Communication Technology

**\*1. What is difference between data and information? (ALP)**

Data	Information
Data is collection of facts. It is raw material of information.	Computer processes data and converts it into useful information. Data after process is called information.

**\*\*2. Define the following (i) Information Technology (ii) Telecommunication (ALP)**

**Information Technology (IT):** The scientific method used to store information, to arrange it for proper use and to communicate it to others is called information technology.

**Telecommunication:** The method that is used to communicate information to far off places instantly is called telecommunication.

**\*\*3. Define Information and Communication Technology (ICT). (ALP)**

Information and Communication Technology (ICT) is defined as the scientific methods and means to store, process and transmit vast amounts of information in seconds with the help of electronic equipments.

**\*\*4. What are the components of computer based information system? Clearly indicate the function of each component. (ALP)**

There are five parts that must come together in order to produce a Computer-Based Information System (CBIS). These are called the components of information technology.

**(i) Hardware (ii) Software (iii) Data (iv) Procedure (v) People**

**Hardware:** The term hardware refers to machinery. This includes the central processing unit (CPU), and all of its support equipment.

**Software:** The term software refers to computer programs and the manuals that support them.

**Data:** Data are facts and figures that are used by programs to produce useful information.

**Procedure:** These are set of instructions and rules to design and use information system. These are written in manuals and documents for use.

**People:** Every CBIS needs people if it is to be useful, who influence the success or failure of information systems. People design and operate the software, they feed input data.

**5. What is meant by flow of information?**

Flow of information means the transfer of information from one place to another through different electronic and optical equipments.

**6. Why satellite communication system is based on microwaves instead of radio waves?**

Radiowaves are continuously refracted by different layers in the Earth's atmosphere. This leads to weaken the signal, making it difficult to be received over long distances. Unlike radiowaves, microwaves are not refracted. They are used for satellite communication.

**\*7. What are the key components of a communication system?**

There are three essential parts of any communication system:

(i) Transmitter

(ii) Transmission channel

(iii) Receiver

**Transmitter:** The transmitter processes the input signal.

**Transmission channel:** The transmission channel is the medium which sends the signal from source to destination. It may be a pair of wires, a coaxial cable, a radiowave or optical fibre cable. So, the signal power progressively decreases with increasing distance.

**Receiver:** The receiver takes the output signal from the transmission channel and delivers it to the transducer after processing it. The receiver may amplify the input signal to compensate for transmission loss.

**8. What do you know about telephone?**

Alexander Graham Bell in 1876 made a simple telephone model to send voice in the form of electrical signal from one place to another. Modern telephone also uses diaphragms to turn voices into electrical signal that are transmitted over phone lines.

**\*9. What are the main parts of telephone?**

Telephone system has two parts:

(i) The Mouthpiece

(ii) The Earpiece

**10. What is the function of mouth piece and earpiece?**

**Mouthpiece:** When compressional waves of voice strike with diaphragm, the diaphragm also vibrates which compress the carbon granules and electrical signals produced. These electrical signals flow through wire in the form of electrical current.

**Earpiece:** Receiver received electrical signal which flow through the electromagnet produces a varying field cause the vibration in metal diaphragm. This vibration of diaphragm produces sound waves.

**\*\*11. What is meant by fax machine?**

Telefacsimile's or Fax machines are must for many businesses around the world. A fax machine basically scans a page to convert its text and graphic into electronic signals and transmits it to another fax machine through telephone line. The receiving machine converts the signals and uses a printer (usually built in) to create the copy of the message that was sent.

**\*12. What is difference between cell phone and photo phone?**

**Cell Phone:** Radio technology is applied in mobile phone. It is a type of radio having two way communications. A cell phone carries a radio transmitter and a receiver inside it. It sends and receives the message in the form of radiowaves.

**Photo Phone:** Photo phone is a modern version of cell phone in which user can see the picture of each other.

**13. BSc and MSC stand for which words?**

BSc means Base Station while MSC stands for Mobile Switching Center.

**14. What is meant by radio waves?**

Radio waves are electromagnetic waves, which travels with speed of light.

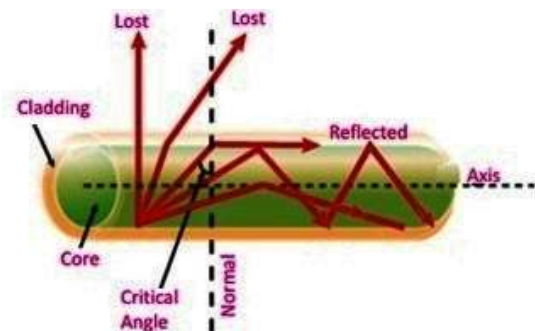
**\*\*15. What is meant by optical fibre? (ALP)**

An optical fibre cable is a bundle of glass fibres with thickness of a human hair through which light can be travelled.

**\*\*16. How light signals can be sent through optical fibre?**

Light that enters the core at one end of the optical fibre goes straight and hits the inner wall (the cladding) of fibre optics.

- If the angle of incidence with cladding is less than the critical angle, some of the light will escape the fibre optics and is lost.
- If the angle of incidence is greater than the critical angle, light is totally reflected into the fibre optics. Then the totally reflected beam of light travels in a straight line until it hits the inner wall again, and so on.



**\*\*17. Define computer.**

Computer is machine that can be programmed to accept the data (input) process it (processing) to give useful information (output) and store it (storage) for future. **OR**

Computer is an electronic computing machine used for adding, subtracting or multiplying.

**\*18. Define CPU. Why it is called brain of computer?**

The most important piece of hardware is the central processing unit (CPU) that contains a tiny rectangular chip called microprocessor.

CPU is the “brain” of computer because it translates instructions and performs calculations.

**\*\*19. What is difference between hardware and software?**

Hardware	Software
Hardware refers to the parts of a computer that you can see and touch.	Software refers to the instructions, or programs, that tell the hardware what to do.
For example, CPU, monitor, keyboard, mouse, printer, etc.	For example, MS Office, Google Chrome, Paint, etc.

**\*\*20. Define operating system. Also give examples.**

The operating system (OS) is software that manages your computer and the devices connected to it.

Two well-known operating systems are Windows and Linux operating system.

**21. Write down uses of computer.**

- Computer plays an important role in our daily life.
- (i) In offices, computers are used for preparing letters, documents and reports.
  - (ii) In hotels, computers are used for advance booking of rooms, preparing bills and providing enquiry services.
  - (iii) In railways, computers are used for rail reservation, printing of tickets and preparation of reservation charts.
  - (iv) Doctors use computers for diagnosing illness and treatment of diseases.
  - (v) Architects use them for building designing and city planning.
  - (vi) In meteorology department, computers are used for weather forecasting.

**22. How laptops are important for us?**

Now usual desktop computers have been replaced by laptops to a great extent. Laptops are more compact and hence are portable.

### 23. Define super computer.

The most powerful and swift computer which can send an information in one thousand billionth part of a second is called super computer. It contains many processors.

### 24. What is meant by storage device? Give examples.

A storage device is a device designed to store information in computer. For example, audio, video tape, CD, Hard Disk etc.

### \*\*25. Define primary memory and secondary memory.

**Primary Memory:** It is based on electronics and consists of integrated circuits (ICs). Random access memory (RAM), is used in computer as temporary memory. RAM vanishes when the computer is switched off.

**Secondary Memory:** The data storage devices are generally the secondary memory of the computer. It is used to store the data permanently in the computer.

### \*\*26. What is difference between RAM and ROM?

**RAM:** RAM means Random Access Memory. It is volatile (غیر مستحکم) memory, which is used in computer as temporary memory. RAM vanishes when the computer is switched off.

**ROM:** ROM means Read Only Memory, which starts the computer. ROM is non-volatile; even after you turn off your computer, the contents of ROM will remain.

### 27. Write the name of information storage devices.

(i) Primary Memory (ii) Secondary Memory (iii) Audio and Video Cassettes (iv) Magnetic Disks (v) Hard Disk (vi) Compact Disc (CDs) (vii) Flash Drive

### 28. What is compact disc?

This is based on laser technology. It is a molded plastic disc on which digital data is stored in the form of microscopic reflecting and non-reflecting spots which are called "pits" and "lands" respectively.

### 29. What is hard disk?

A hard disk is a rigid, magnetically sensitive disk that spins rapidly and continuously inside the computer chassis or in a separate box connected to the computer housing.

### \*30. What is floppy disc?

A floppy disc is a small magnetically sensitive, flexible plastic wafer housed in a plastic case.

### 31. Which is more reliable floppy disk or hard disk?

Hard disk is more reliable as compared to Floppy Disk. Because a floppy has a storage capacity between 1 to 3 MB. A hard disk can store thousands of megabytes

information. Information can be transferred quickly by hard disk than with a floppy.

### \*32. What is flash drive?

A flash drive is a small storage device that can be used to transport files from one computer to another.

It is also an electronic based device and consists of data storage ICs.

### \*\*33. What do understand by the term word processing and data managing?

**Word Processing:** Word processing is such a use of computer through which we can write a letter, prepare reports and books. By means of this, we can develop any document and see it on the screen after typing.

**Data managing:** To collect information for a special purpose and to store it in a computer in a file form, which may help at times when needed, is called data managing.

### \*\*34. Define internet. (ALP)

Internet is a network of large number of computers which is major source of information and world communication. **OR**

When many computer networks of the world were connected together, with the objective of communicating with each other, Internet was formed. In other words, we can say that Internet is a network of networks, which spreads all across the globe.

### \*35. What are the main services used on the internet? (ALP)

The main services used on the internet include:

- (i) **Web browsing:** This function allows users to view web pages.
- (ii) **E-mail:** E-mail allows people to send and receive text messages.

### \*\*36. Define browser. Also write its examples. (ALP)

A browser is an application which provides a window to the Web.

For example, Internet Explorer, The World, Opera, Safari, Mozilla Firefox, Chrome, etc. are the most popular browsers.

All browsers are designed to display the pages of information located at Web sites around the world.

### \*\*37. What is meant by Electronic Mail? (ALP)

One of the most widely used application of internet is electronic mail (or e-mail), which provides very fast delivery of messages to any enabled site on the Internet. Communication through e-mail is more quick and reliable.

**\*38. What are the advantages of e-mail? (ALP)**

Some advantages of e-mail are as follows:

- **Fast Communication:** We can send messages anywhere in the world instantly.
- **Cost Free Service:** If we have an internet access, then we can avail the e-mail service free of cost.
- **Simple to Use:** After initial set up of e-mail account, it is easy to use.
- **More Efficient:** We can send our message to many friends or people only in one action.
- **Versatile:** Pictures or other files can also be sent through e-mail. Internet has proved to be very beneficial to us.

**39. What are the main uses of internet? (ALP)**

Here is the list of use of internet.

- (i) Faster Communication
- (ii) Big Source of Information
- (iii) Source of Entertainment
- (iv) Access to Social Media
- (v) Access to Online Services
- (vi) E-commerce
- (vii) E-Learning

**40. What are the Risks of ICT to society and the environment?**

Blind faith in modern technology may be dangerous in many cases. Some of them given below:

- (i) Over use of computer is dangerous for our health.
- (ii) Computer crimes are also very common these days. Computer crime is defined as any crime accomplished through knowledge or use of computer technology.
- (iii) There is also a word theft. Theft is the most common form of crime. Computers are used to steal money, goods, information and computer resources.
- (iv) Piracy is another issue of importance which is common on computer. It is the illegal duplication of copyright material like books, papers and software etc.
- (v) Hacking is still another illegal activity which is committed on computers. It is an unauthorized access to computer systems of other persons. Computer hackers can damage some organizations by stealing their credit cards and valuable information.

**41. How risks of ICT can be controlled?**

- (i) One way to reduce the risk of security breaches (خلاف ورزی) is to make sure that only authorized person have access to computer.
- (ii) We may be granted access to computer based on some passwords. We can use a key, an ID number, a lock combination etc.

**42. What is meant by ATM?**

ATM stands for Automated Teller Machine. We can use ATM to draw money at any time we want.

**43. Discuss the role of information technology in school education.**

The role of IT in school education cannot be ignored. In fact, use of computer in school education has made it easier for teachers to impart knowledge and for students to acquire it. Today teachers are using multimedia in classrooms to make the teaching and learning process more effective. The use of audio-video visuals in class room teaching invites greatest interests for students.

**Important Long Questions**

- (1) Write a note on CBIS.
- (2) Explain briefly transmission of radio waves in space.
- (3) Explain the phenomena of transmission of electrical signals through wires.
- (4) What is meant by computer? What is role of computer in everyday life?
- (5) What is difference between primary and secondary memory?
- (6) Explain in detail about compact disk and flash drive.
- (7) Differentiate between magnetic disk and hard disk.
- (8) Explain transmission of light signals through optical fiber.
- (9) What is electronic mail? Write its advantages.
- (10) What is internet? Explain in detail.
- (11) What do you understand by term word processing and data managing?
- (12) What are the Risks of ICT to society and the environment?