

**Class – 10**  
**Computer**

**LESSON I**  
**SOCIETAL IMPACTS OF IT**

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**E. Answer the following :**

1. What is a virus ? Write its types.

The full form of VIRUS is Vital Information Resources Under Seize. A computer virus is a program or a set of programs that disrupts the normal functioning of a computer. A virus infects or destroys data. It enters into a computer without the permission or knowledge of the user.

Viruses can be classified into two major categories :

- **Boot Viruses :** These viruses infect the boot records or master boot records. They change the location of the boot record that is responsible for loading the Operating System in memory by copying it elsewhere. Example : Disk Killer.
- **Program File Viruses :** These viruses infect executable files or programs such as those with extension like .com, .exe, .ovl, .sys etc. These programs get loaded in the memory during execution. The virus becomes active in the memory by replicating itself and infecting files on the disk. Example : Sunday, Cascade etc.

2. What is the function of an Antivirus software ?

Antivirus software performs the following tasks in a computer :

- Scan the computer files to look for known viruses from virus dictionary.
- Identify suspicious behavior from any computer program, which might indicate infection.
- Scan the incoming e-mails, which might contain virus in attachment.

3. What is a firewall?

Firewalls are software or hardware tools that protect a server, a network or an individual PC from almost every attack by viruses and hackers.

4. Define Spam.

Spam are unwanted bulk e-mails that come from strange sources. Spam are generally sent in large number for commercial advertising. In spamming, millions of copies of same message are sent to e-mail users worldwide.

5. Compare hackers and crackers.

Hackers and crackers both are technical people who explore computers, and access data and applications without owner's permission. But hackers do it for both ethical and non-ethical purposes, whereas crackers are always destructive.

6. Define Recovery Utilities.

These Utilities are used to restore data from logical damage. These utilities recover every readable bit from the surface and also recover logical file structure of storage media. They play a very important role to get back original data. Example: PhotoRec, Recuva etc.

7. What are the various security provisions in E-Commerce ?

The various security provisions in E-Commerce are :

- Privacy (Using Encryption) : Data privacy may get lost while transmitting data from one site to another. To avoid this, Encryption is used. Encryption is the process of transforming data into an unreadable code. On the other side, Decryption is performed. Decryption is meant to make the encrypted information readable again.
- Passwords and Pin Numbers : To protect data and important information, unique passwords and PIN numbers are given to every user. Using them, user can protect data from unauthorized access.

8. What do you understand by the term Worm ?

A Worm is similar to a virus in design. A worm spreads from computer to computer. It has the capability to travel without any human action. It has the capability to replicate itself on a system.. A computer can send out hundreds and thousands of copies of itself, creating a huge devastating effect.

9. Describe the term Trojan Horse.

The Trojan Horse, at first glance appears to be a useful software, but it actually damages the computer once it is installed. Users on the receiving end of a Trojan Horse are usually tricked into opening them because they appear to be receiving useful software files or software from a genuine source. When a Trojan is activated on a computer, the results can vary. Some Trojans are designed to be more irritating than malicious or they can cause serious damage by deleting files and destroying information on a system.

10. List the problems that can be caused by a virus in a computer.

A virus can cause many problems in a computer, such as :

- Decreasing the speed of a computer by decreasing the memory.
- Causing strange patterns or movements on the screen.
- Displaying unusual messages on the screen.
- Increasing the use of disk space and causing growth in file size as the virus attaches itself to many files.
- Frequent hanging of the system.
- Showing abnormal write protect error.
- Displaying a change in data against the filename in the directory, when a virus modifies the file.
- Reformatting the hard disk.
- Deleting or damaging files.

11. What do you understand by Data backup? Explain any two techniques of Data backup.

Data backup is the process of making duplicate copies of data, which can be used to restore the original data in case of any data loss event. Backups are helpful to restore data after any disaster, or to restore files that have been accidentally deleted or corrupted.

Online Backup System : Typically built for a client software program, that run on a given schedule. It may be a small interval, an hour, one day or more. Such a program collects, compresses, and encrypts data, uses the Internet and transfers the data to remote servers. These servers are specially designed to provide backup services.

Offline Backup System : In this direct human involvement is required. In this type of backup there is no automatic system but users themselves attach a storage media to a computer and copy files. This copy of data is called a dump.

## LESSON II

### ALGORITHM AND FLOWCHART

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E. Answer the following :

1. What is an algorithm? Write the characteristics of an algorithm.

Algorithm is a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer. The characteristics of an algorithm are :

- Each instruction should be written in a simple and precise manner so that everyone can understand.
- The steps of algorithm should finally be executable by the computer.
- Each instruction should be executed within a reasonable time.
- It should involve finite number of steps to reach to a solution.
- After the instructions are executed, the user must get the desired result.

2. Why is it advisable to plan the logic of a program before writing it? Explain the role of an algorithm in problem solving.

If a programmer forgets to place some instructions, or writes the instructions in a wrong sequence, or does not know how to perform process manually, then a computer will produce the wrong result. In order to ensure that the program instructions are appropriate for the problem, it is advisable to plan the logic of a program before writing it.

An algorithm can perform the following tasks to solve the problem:

- A problem can be solved by using a computer only if an algorithm can be written for it.
- While writing an algorithm we can identify :
  - The step by step procedure.
  - The major decision points.
  - The variables necessary to solve the problem.
- The problem is reduced to a series of a smaller problems of more manageable size.
- Decision making becomes a more rational process.
- Every step has got its own logical sequence, which can easily be debugged.
- It has got a finite procedure that can be executed within a fixed period of time.

3. Explain the various types of constructs used in developing an algorithm.

There are 3 types of constructs :

- Sequence : It is a series of steps or statements that are executed in the sequence they are written.
- Decision : Defines one or more course of action depending on the evaluation of a condition. A condition is an expression that is either true or false.
- Repetition : This construct allows one or more statements to be repeated as long as a given condition is true.

4. What do you understand by a flowchart? Name the various symbols used while drawing a flowchart.

A flowchart is a pictorial representation of steps or an algorithm used to solve a particular problem. The various symbols used while drawing a flowchart are :

Start/Stop Box, Input/Output Box, Processing Box, Decision/ Condition Box, Flow Lines and Connectors.

5. Write the advantages of a flowchart.

- Communication : Provides better communication. It is easier for the programmer to explain the logic of a program.
- Effective Analysis : Helps programmer to analyze the problem in detail.
- Proper Documentation : It is a good program documentation, which is needed for various purposes to solve the problems.
- Effective Coding : Acts as a roadmap for the programmers. It gives clear idea to the programmers to write a program.
- Proper Debugging : Using a flowchart, we can systematically detect , locate and remove mistakes from a program.
- Efficient Program Maintenance : The maintenance of operating a program becomes easy with help of a flowchart. It helps the programmer to put efforts more efficiently on that part.

