# CHAPTER 6
# COMPUTER SECURITY AND ETHICS

## SHORT AND LONG QUESTIONS

**Q.1 Define cybercrime.**

**Ans: Cybercrime:**

Cybercrime refers to any crime that is committed by means of computer and Internet technology by having unlawful access to others' computers.

Many governments have passed cybercrime bill that carry fines and prison sentences for cybercriminals.

**Q.2 Describe some commonly committed cybercrimes.**

**Ans: Commonly committed cybercrimes:**

The following are the commonly committed cybercrimes.

i. Computers have been involved in crimes such as fraud, kidnapping, murder and crimes related with stealing money from bank and credit card company.

ii. Criminals use Internet to steal personal information of other users and commit various types of cybercrimes. Personal information includes username, password, credit card number, bank account number, etc.

iii. Downloading illegal software, music files and videos are also cybercrimes.

iv. Internet harassment or cyber bullying is also a serious crime committed by cybercriminals. Internet harassment includes sending threatening e-mail, spreading rumors or virus, making defamatory comments, sending pornography or other bad material.

v. Making negative comments about an individual on Internet can damage reputation or cause physical or mental harm to the victim.

**Q.3 What are computer viruses?**

**Ans: Computer Viruses:**

Some computer experts create malware such as virus, spyware, worm etc. and spread through Internet. It is very importance to understand how malware spreads and how to protect computer from them.

It is very difficult to list all the symptoms of infected computers. The reason for this is that there are hundreds and thousands of malicious programs and new ones are created every day. Sometime, some infected computers do not show any symptom and the user thinks that his computer is not infected.





### For Your Information

Firewall is a software or piece of hardware used to prevent unauthorized Internet users from accessing computer systems that are connected to Internet.

### Tip

To create a strong password, you should combine upper-case and lower-case letters, numbers and special symbols.

**Q.4 Describe the term multimodal authentication.**

**Ans: Multimodal Authentication:**

Multimodal authentication means combination of two or more types of authentication methods. Normally, authentication methods use a single source of information for authentication such as features of face, fingerprint, hand geometry, access cards, etc. Multimodal authentication uses multiple sources of information for identification.

**For example**, fingerprint and face recognition can be combined for a multimodal biometric authentication system. As another example, a multimodal authentication can combine access card and PIN to open security gate.

**Q.5 Describe computer ethics in information accuracy, information ownership, intellectual property rights, software piracy and information privacy.**

**Ans: Areas of Computer Ethics:**

The following are main areas of computer ethics.

- Information accuracy
- Information ownership/Intellectual rights
- Intellectual Property
- Software piracy
- Information privacy
- Internet and Privacy

**Information Accuracy:**

Information stored on computers must be accurate, up-to-date and complete. If wrong information is entered in computer, it can be very harmful. People may suffer because of inaccurate information stored on computer. For example, a credit card holder may be wrongly blacklisted if wrong information is entered into the computer.

**Information Ownership/Intellectual Rights:**

Information ownership or intellectual rights mean persons who create ideas in any form are the actual owners. Ideas may be in the form of poems, plays, novels, films, drawings, paintings, software, etc. Intellectual rights protect creative work from unauthorized use by other people and allow creators to benefit financially from their work.

**Intellectual Property:**

Intellectual property means the legal rights of an individual or a corporation that result from intellectual activity in literary, artistic, scientific and industrial fields. Countries have law to protect intellectual property to foster innovation and promote creativity.





**Software Piracy:**

Software piracy means making illegal copies of software for use or sale for financial benefit. When computer users buy licensed software, they have the right to use it on a single computer. Software Copyright Law does not allow to make illegal copies of software and install it on other computers or sell it. It allows software developers to benefit financially from their work.

**Information Privacy:**

Information privacy refers to an individual's right to the privacy of personal information. In modern information age, people are concerned that computers may be taking away their privacy. The Data Protection Act (Law) protects the rights of the individuals against misuse of personal information by organizations. Organizations that hold the information should not allow unauthorized people to have access to information or disclose it to anyone outside the organization.

**Internet and Privacy:**

People who use Internet are worried that it may be eroding their privacy. Internet users post their personal information such as full name, date of birth, place of residence, phone numbers, pictures, videos etc. on the Web and it stays there. Internet users enter personal information in websites to sign up or register for services without realizing that this may lead to invasions of privacy. This information can be accessed by hackers and used for harmful purpose. This poses a serious threat to privacy as unauthorized people can access personal information of individuals. Therefore, people are concerned about invasion of computer and Internet technology into people's privacy.

## KEY POINTS

- Computer security refers to protecting computer hardware, software and information stored on computer from threats.
- A crime that is committed by means of computer and Internet technology is known is cybercrime.
- A person who illegally breaks into others' computer systems is known as hacker.
- A person who uses special tools for breaking into computer systems is known as cracker.
- Malware means malicious software. It comprises of barmful software such as virus, worm, spyware etc. that are threats to all computer users.
- Malware spreads through infected flash drives, CDs, pirated software, Internet, e-mail attachments and devices that are plugged into computer's USB ports.
- Authentication means identifying a person based on a method such as Username and Password, Personal Identification Number, Access Card or Biometrics.
- Authorization verifies that an authenticated person has permission to access computer system and use it.





- Personal Identification Number (PIN) is a confidential numeric password used to authenticate a user to get access to computer system.
- Access cards are very similar in appearance to credit cards. They are used to open security gates, parking barrier and doors of hotel rooms.
- Biometrics is a method based on measurement of features of face, fingerprint, hand geometry, signature and voice for authentication of individuals.
- Multimodal authentication combines two or more types of authentication methods such as face and fingerprint for identification of individuals.
- Computer ethics is concerned with the moral guidelines for the ethical use of computer technology. It specifies what is right and what is wrong when using computers.
- Information ownership or intellectual rights mean a person who creates an idea in any form is the actual owner. Intellectual rights protect creative work from unauthorized users and allows creator to benefit financially.
- Software piracy means making illegal copies of computer software for use or sale for financial benefit.

## EXERCISE

**Q1. Select the best answer for the following MCQs.**

**i. What is a person who illegally breaks into others' computer systems called?**
A. Computer engineer B. System programmer
C. Hacker D. Cracker

**ii. What is a person who uses special tools for breaking into computer systems called?**
A. Computer engineer B. System programmer
C. Hacker D. Cracker

**iii. Which malware spreads automatically in computer networks and replicates itself?**
A. Virus B. Worm
C. Adware D. Spyware

**iv. Which of the following malware displays advertisements on the screen?**
A. Virus B. Worm
C. Adware D. Trojan

**v. Which of the following authentication method is used for opening security gates?**
A. Username and password B. Personal Identification Number
C. Access card D. Biometrics

**vi. Which of the following authentication method is most reliable?**
A. Username and password B. Personal Identification Number
C. Access card D. Biometrics

- Personal Identification Number (PIN) is a combination numeric password.
- Passwords are used to protect computer systems from unauthorized access.
- Access cards are very similar to passwords in purpose and function.
- Biometrics is a method of identifying people based on their physical characteristics such as fingerprint, retina or iris, voice, face, or hand geometry.
- Biometrics is a method based on measurement of features of the individual such as fingerprints, retina or iris, voice, face, or hand geometry.

**Exercise 1:** Fill in the blanks with appropriate words from the given options: computer systems, access cards, PIN, password, biometrics, Personal Identification Number, Biometrics

1. Personal Identification Number (PIN) is a combination numeric password.
2. Passwords are used to protect computer systems from unauthorized access.
3. Access cards are very similar to passwords in purpose and function.
4. Biometrics is a method based on measurement of features of the individual such as fingerprints, retina or iris, voice, face, or hand geometry.

**Exercise 2:** Tick the correct answer for the following MCQs:

**Q1. Which of the following authentication method is used for authentication of individuals such as face, fingerprint and voice?**
- Biometrics
- Personal Identification Number
- Access card
- Password

**Q2. What is biometrics?**
- Computer security
- Authentication
- Identification
- Measurement of features of the individual such as fingerprints, retina or iris, voice, face, or hand geometry

**Q3. Which of the following authentication method is based on measurement of features of the individual such as fingerprints, retina or iris, voice, face, or hand geometry?**
- Biometrics
- Access card
- Password
- Personal Identification Number

**Q4. Which of the following authentication method is used for opening into computer systems?**
- Biometrics
- Access card
- Password
- Personal Identification Number

**Q5. Which of the following authentication method is very similar to access card in purpose and function?**
- Biometrics
- Password
- Personal Identification Number
- Access card

**Q6. Which of the following authentication method is used for opening into computer systems?**
- Biometrics
- Password
- Personal Identification Number
- Access card

**Q7. Which of the following authentication method is used for opening security gates?**
- Biometrics
- Password
- Personal Identification Number
- Access card

**Q8. Which of the following authentication method is very similar to access card in purpose and function?**
- Biometrics
- Password
- Personal Identification Number
- Access card

**Q9. Which of the following authentication method is used for opening security gates?**
- Biometrics
- Password
- Personal Identification Number
- Access card

**Q10. Which of the following authentication method is most reliable?**
- Biometrics
- Password
- Personal Identification Number
- Access card

| | | | |
|---|---|---|---|
| Q1. a | Q2. b | Q3. a | Q4. b |
| Q5. d | Q6. b | Q7. a | Q8. d |
| Q9. a | Q10. a | | |

**Write descriptive answers:**

**Q1. Define cybercrime.**
**Answer:**
Cybercrime refers to any crime that is committed by means of computer and network or against computer and network.

**Q2. What is the importance of computer security?**
**Answer:**
Computer security refers to protecting computer hardware, software, and information from unauthorized access.

**Importance of Computer Security:**
- Computer security is used to protect information with each other at communicate over internet. You can utilize a secure computer with which it can utilize secure connection.
- Computer security is vital to maintain the computer users to protect their information from unauthorized access. Computer security is used to make sure that it should, efficient and functional.
- Computer security is used to protect computer machine.

**Q3. Define cyber bullying.**
**Answer:**
Cyber bullying is a term used to describe when computer systems is known as harassing a person.
- Cyber bullying is a term used to describe when someone uses computer systems for sending and verifying information.
- Cyber bullying is a term used to describe when someone harasses. They try to get insult and delete or send account information so that they can use money.





- Hackers have in-depth knowledge of network programming and can create and maintain software for others to break into networks and create viruses.

**Example:**
- For example, a hacker intercepts software or uses a Bluetooth or Wi-Fi connection at the airport to access other's software or run it free of the software company. Hackers are also known as crackers, and they are known for their hacking skills. Hacking is a thrilling pleasure that some of them do.

**Cybercrime:**
- Cybercrime is a computer use that breaks into computer systems without permission and causes harm to computer systems, data, and computer users.

**Example:**
- Most of the crimes that have professional criminals use to hack computer systems but they have knowledge about using hacking tools.
- Cybercrime is a term used to describe when someone uses computer systems for illegal purposes. Cybercrime is a term used to describe when someone uses computer systems for illegal purposes.

**Example:**
- For example, a woman can check her illegal or stealing card's computer through internet. A hacker is software which hacks people's software or data. Hackers are known as crackers, and they are known for their hacking skills. It is not good recognized in the crackers's computer. Now, he can easily hack the Facebook account.

**Q1. Describe any five examples of malware.**
**Answer:** Malware is short for malicious software.
- A list of common symptoms of infected computers is given below.
- Computer slows down when it is not processing a large amount of data.
- Different types of error messages appear on the screen.
- Programs take longer than usual to start.
- Programs do not run or is prone to crash.
- Hard disk is busy for no reason.
- Hard disk is busy when it is loaded on the hard disk.
- Folders are deleted or changed.
- Hard disk is busy when it is not processing any program.
- Hard disk is busy when it is not processing any program.
- Disk space is reduced for no reason.
- Unfamiliar software appears on the desktop.

**Q2. Differentiate between authentication and authorization.**
**Answer:**
- Authentication is a process of verifying a user's identity. A method such as password is a common way to verify an authentication method. Biometrics is a method based on measurement of features of the individual such as fingerprints, retina or iris, voice, face, or hand geometry.
- Authentication means to give someone permission to do something.





**Exercise:**
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- Downloading files illegally have a risk of viruses and Spyware Protect computer systems from virus attacks.
- Unauthorized access to computer systems and data accessed from a remote location. Computer systems are used for financial transactions, electronic funds transfer, payroll, inventory, installation support, maintenance tasks, and other information storing purposes.
- Computer systems are used to control the flow of assets, control the flow of information, and other information storing purposes. The increase capacity of computer systems.

**Write types of computer crime and the impact of computer crime on the society.**
**Answer:** Computer crime is a crime that involves computers.

- Computer users can use Computer to harm other people.
- Computer users can use Computer to hinder other computer systems.
- Computer users can use Computer to destroy other computer.
- Computer users can read documents and e-mails of other users without their permission.
- Computer users can use Computer to make illegal copies of copyright material.
- Computer users who have special computer knowledge and ability will use Computer to steal money from other people's accounts.
- Computer users can commit any type of crime with the help of computer.
- Computer users can not respect the privacy of others.
- **Users are those people who authorization of people is required.**
- Computer users can use Computer to hinder other people's use of computer systems, e-mail account, bank account and other services available on computer.
- Computer users can use Computer to hinder other people's use of computer and software and access control system. Computer users can use Computer to hinder other people's use of computer and software and access control system.
- Computer users can use Computer to spam security gates to others where passwords and access are required and security gates are used to control access to computer systems and other information.
- Spyware provides highly sensitive identification and personal verification information. Spyware provides highly sensitive identification and personal verification information.
- Computer users can use Computer to steal personal identification number (PIN), Access card, password, biometrics information.

**Q1. Write long answers of the following questions.**
**Write types of computer crime.**
**Answer:**
- Computer crime is a crime that involves computers and is a kind of harmful act that are threats to all computer users. Malware is created for attack on privacy, security, and financial benefits.





**Types of malware:**
- Different types of malware are:
  - Computer viruses
  - Worms
  - Trojans
  - Spyware
  - Adware
  - Rootkits
  - Spam
  - Phishing
  - Spoofing
  - Denial of service attacks

- Malware is a type of software that spreads by inserting a copy of itself into other programs.
- Most of the viruses are attached to executable files.
- Computer viruses can be in the form of executable files.
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**Examples of viruses:**
- Computer viruses are the computer and some can even stop its operation.

Virus Detected !
Infection in progress!!!