8 Societal Impacts and Data Protection

Fastrack Revision

▶ **Digital Footprints:** A digital footprint is the record or trail left by the things one does online. The social media activity, the information on personal website, the browsing activities, online subscriptions, any photo galleries and videos uploaded by a user - essentially, any activity carried out on the internet makes the digital footprint of a user. Digital footprints are the records and traces individuals' activities as they use the internet. Digital footprints are permanently stored. It includes websites we visit, emails we send, and any information we submit online, etc., along with the computer's IP address, location, and other device specific details.

▶ **Types of Digital Footprints:** There are two kinds of digital footprints: Active digital footprints and Passive digital footprints.

  ➤ **Active Digital Footprints:** Active digital footprints which includes data that we intentionally submit online. This would include emails we write, or responses or posts we make on different websites or mobile Apps, etc.

  ➤ **Passive Digital Footprints:** The digital data trail we leave online unintentionally is called passive digital footprints. This includes the data generated, when we visit a website, use a mobile App, browse internet, etc.

▶ **Digital Society and Netizen:** Digital society reflects the growing trend of using digital technologies in all spheres of human activities. Anyone who uses digital technology along with internet is a digital citizen or a netizen. Being a good netizen means practicing safe, ethical and legal use of digital technology. A responsible netizen must abide by net etiquettes, communication etiquettes and social media etiquettes.

▶ **Net Etiquettes:** The word netiquette, derives from the combination of words -'net' (internet) and 'etiquette'. It refers to online manners while using internet or working online. One should be ethical, respectful and responsible while surfing the internet.

▶ **Be Ethical:**

  ➤ **No Copyright Violation:** We should not use copyrighted materials without the permission of the creator or owner. As an ethical digital citizen, we need to be careful while streaming audio or video or downloading images and files from the internet.

  ➤ **Share the Expertise:** It is good to share information and knowledge on internet so that others can access it. However, prior to sharing information, we need to be sure that we have sufficient knowledge on that topic. The information shared should be true and unambiguous.

▶ **Be Respectful:**

  ➤ **Respect Privacy:** As good digital citizens we have the right to privacy and the freedom of personal expression. At the same time, we have to understand that other digital citizens also have the same rights and freedoms.

  ➤ **Respect Diversity:** In a group or public forum, we should respect the diversity of the people in terms of knowledge, experience, culture and other aspects.

▶ **Be Responsible:**

  ➤ **Avoid Cyber Bullying:** Any insulting, degrading or intimidating online behaviour like repeated posting of rumours, giving threats online, posting the victim's personal information, sexual harassment or comments aimed to publicly ridicule a victim is termed as cyber bullying.

  ➤ **Don't Feed the Troll:** An internet troll is a person who deliberately sows discord on the internet by starting quarrels or upsetting people, by posting inflammatory or off topic messages in an online community, just for amusement.

▶ **Communication Etiquettes:** Digital communication includes email, texting, instant messaging, talking on the cell phone, audio or video conferencing, posting on forums, social networking sites, etc.

▶ **Be Precise:**

  ➤ **Respect Time:** We should not waste precious time in responding to unnecessary emails or comments unless they have some relevance for us.

  ➤ **Respect Data Limits:** For concerns related to data and bandwidth, very large attachments may be avoided. Rather send compressed files or link of the files through cloud shared storage like Google Drive, Microsoft OneDrive, etc.

  ➤ **Be Polite:** Whether the communication is synchronous (happening in real time like chat, audio/video calls) or asynchronous like email, forum post or comments, we should be polite and non-aggressive in our communication.

- ➤ **Be Credible:** We should be cautious while making a comment, replying or writing an email or forum post as such acts decide our credibility over a period of time.
- ▶ **Social Media Etiquettes:** Social media are websites or applications that enable their users to participate in social networking by creating and sharing content with others in the community. These platforms encourage users to share their thoughts and experiences through posts or pictures.
  - ➤ **Be Secure:**
    - • **Choose password wisely:** It is vital for social network users. News of breaching or leakage of user data from social network often attracts headlines. Never share personal credentials like username and password with others.
  - ➤ **Know who you befriend:** We need to be careful while befriending unknown people as their intentions possibly could be malicious and unsafe.
  - ➤ **Beware of fake information:** We should apply our knowledge and experience to validate such news, message or post.
  - ➤ **Be Reliable:**
    - • **Think before uploading:** We need to be cautious while uploading or sending sensitive or confidential files which have a bearing on our privacy.
- ▶ **Data Protection:** In this digital age, data or information protection is mainly about the privacy of data stored digitally. Elements of data that can cause substantial harm, embarrassment, inconvenience and unfairness to an individual, if breached or compromised, is called sensitive data.
- ▶ **Intellectual Property Right (IPR):** These are the rights of the owner of information to decide how much information is to be exchanged, shared or distributed. Also, it gives the owner a right to decide the price for doing so. Intellectual property is legally protected through copyrights, patents, trademarks, etc.
  - ➤ **Copyright:** Copyright grants legal rights to creators for their original works like writing, photograph, audio recordings, video, sculptures, architectural works, computer software, and other creative works like literary and artistic work.
  - ➤ **Patent:** A patent is usually granted for inventions. Unlike copyright, the inventor needs to apply (file) for patenting the invention. When a patent is granted, the owner gets an exclusive right to prevent others from using, selling,or distributing the protected invention.
  - ➤ **Trademark:** Trademark includes any visual symbol, word, name, design, slogan, label, etc., that distinguishes the brand or commercial enterprise, from other brands or commercial enterprises.
- ▶ **Licensing:** Licensing is the legal term used to describe the terms under which people are allowed to use the copyrighted material.
- ▶ **Violation of IPR:** Violation of intellectual property right may happen in one of the following ways:
  - ➤ **Plagiarism:** It means using other's work and not giving adequate citation for use.

- ➤ **Copyright Infringement:** It means using another person's work, without permission or without paying for it, if it is being sold.
- ➤ **Trademark Infringement:** It means unauthorised use of other's trademark on products and services. An owner of a trademark may commence legal proceedings against someone who infringes its registered trademark.
- ▶ **Public Access and Open Source Software:** Open source licenses help others to contribute to existing work or project without seeking special individual permission to do so. The **GNU General Public License (GPL)** and the **Creative Commons (CC)** are two popular categories of public licenses.
- ▶ **GPL:** It is the most widely used free software license which grants the recipients, rights to copy, modify and redistribute the software and that the same rights are preserved in all derivative works.
- ▶ **CC Licenses:** It is a set of copyright licenses that give the recipients, rights to copy, modify and redistribute the creative material, but giving the authors, the liberty to decide the conditions of licensing.
- ▶ **Cybercrime:** It is defined as a crime in which computer is the medium of crime (hacking, phishing, spamming), or the computer is used as a tool to commit crimes (extortion, data breaches, theft).
- ▶ **Hacking:** It is the act of unauthorised access to a computer, computer network or any digital system. Hackers usually have technical expertise of the hardware and software. They look for bugs to exploit and break into the system.
- ▶ **Ethical Hacker:** Hacking, when done with a positive intent, is called **ethical hacking**. Such ethical hackers are known as **white hat hackers**. They are specialists in exploring any vulnerability or loophole by during testing of the software.
- ▶ **Non-ethical Hacker:** A non-ethical hacker is the one who tries to gain unauthorised access to computers or networks in order to steal sensitive data with the intent to damage or bring down systems. They are called **black hat hackers** or **crackers**.
- ▶ **Phishing:** It is an unlawful activity where fake websites or emails that look original or authentic are presented to the user to fraudulently collect sensitive and personal details, particularly usernames, passwords, banking and credit card details.
- ▶ **Identity Theft:** Identity thieves increasingly use personal information stolen from computers or computer networks, to commit fraud by using the data gained unlawfully. Given below are a few examples:
  - ➤ **Financial Identity Theft:** When the stolen identity is used for financial gain.
  - ➤ **Criminal Identity Theft:** Criminals use a victim's stolen identity to avoid detection of their true identity.
  - ➤ **Medical Identity Theft:** Criminals can seek medical drugs or treatment using a stolen identity.

► **Ransomware:** This is another kind of cybercrime where the attacker gains access to the computer and blocks the user from accessing, usually by encrypting the data. The attacker blackmails the victim to pay for getting access to the data, or sometimes threatens to publish personal and sensitive information or photographs unless a ransom is paid.

► **Combatting and Preventing Cybercrime:** Following points can be considered as safety measures to reduce the risk of cybercrime:
  ➤ Take regular backup of important data.
  ➤ Use an antivirus software and keep it updated always.
  ➤ Avoid installing pirated software. Always download software from known and secure (HTTPS) sites.
  ➤ Always update the system software which include the internet browser and other application software.
  ➤ Do not visit or download anything from untrusted websites.

► **Digital Signatures:** They are the digital equivalent of a paper certificate. Digital signatures work on a unique digital ID issued by a Certificate Authority (CA) to the user. Signing a document digitally means attaching that user's identify, which can be used to authenticate.

► **Indian Information Technology Act (IT Act):** The Government of India's Information Technology Act, 2000 (also known as IT Act), amended in 2008, and provides guidelines to the user on the processing, storage and transmission of sensitive information.

► **E-waste Hazards and Management:** E-waste or Electronic waste includes electric or electronic gadgets and devices that are no longer in use. Hence, discarded computers, laptops, mobile phones, televisions, tablets, music systems, speakers, printers, scanners, etc. constitute e-waste when they are near or end of their useful life.

► **Leaching:** It is the process of removing a substance from another substance by passing water through it.

► **Management of E-waste:** E-waste management is the efficient disposal of E-waste. Some of the feasible methods of e-waste management are reduce, reuse and recycle:
  ➤ **Reduce:** We should try to reduce the generation of e-waste by purchasing the electronic or electrical devices only according to our need.
  ➤ **Reuse:** It is the process of reusing the electronic or electric waste after slight modification. The process of reselling old electronic goods at lower prices is called refurbishing.
  ➤ **Recycle:** Recycling is the process of conversion of electronic devices into something that can be used again and again in some or the other manner.

► **E-waste Management in India:** In India, the Environmental Protection Act, 1986, has been enacted to punish people responsible for causing any form of pollution by paying for the damage done to the natural environment.

Practice Exercise

Multiple Choice Questions

Q 1. A software that can be freely accessed and modified is called ....
  a. Synchronous software   b. Package software
  c. Open Source software   d. Middleware

Q 2. Data which has no restriction of usage and is freely available to everyone under Intellectual Property Rights is categorised as:
  a. open source   b. open data
  c. open content   d. open education

Q 3. Which of the following is an advantage of 'open source' software?
  a. You can edit the source code to customise it.
  b. You need to be an expert to edit code.
  c. You have to pay.
  d. Can sometimes be too generic for specialist purposes.

Q 4. Which of the following is an disadvantage of 'open source' software?
  a. High quality software with lots of features.
  b. Not as customisable.
  c. May not have been tested as much as proprietary software, so might have bugs.
  d. You can edit the source code to customise it.

Q 5. Which of the following is an advantage of 'proprietary' software?
  a. It is usually free.
  b. Thoroughly tested because people are paying to use it.
  c. Not as customisable.
  d. Can sometimes be too generic for specialist purposes.

Q 6. Which of the following is on disadvantage of 'proprietary' software?
  a. You need to be an expert to edit code.
  b. You have to pay for this type of software.
  c. It's licensed.
  d. It is launched after proper testing.

Q 7. The generally recognised term for the government protection afforded to intellectual property (written and electronic) is called ....
  a. Computer security law   b. Aggregate information
  c. Copyright law   d. Data security standards

Q 8. Which of the following would be a creative work protected by copyright?
  a. A list of all Indian President names
  b. A portrait of your family.
  c. A song you wrote.
  d. The name of your pet dog.

Q 9. The digital footprint that we leave online unintentionally is called: *[CBSE 2023]*
    a. Active digital footprint
    b. Passive digital footprint
    c. True digital footprint
    d. False digital footprint

Q 10. Which of the following is not done by cyber criminals?
    a. Unauthorised account access.
    b. Mass attack using Trojans as botnets.
    c. Email spoofing and spamming.
    d. Report vulnerability in any system.

Q 11. What is the name of the IT law that India is having in the Indian legislature?
    a. India's Technology (IT) Act. 2000
    b. India's Digital Information Technology (DIT) Act. 2000
    c. India's Information Technology (IT) Act. 2000
    d. The Technology Act. 2008

Q 12. What is meant by the term 'cybercrime'?
    a. Any crime that uses computers to jeopardise or attempt to jeopardise national security.
    b. The use of computer networks to commit financial or identity fraud.
    c. The theft of digital information.
    d. Any crime that involves computers and networks.

Q 13. E-waste is responsible for the degradation of our environment if not properly treated of disposed off. Some of the feasible methods of e-waste management are reduce, ... and recycle. *[CBSE 2023]*
    a. reuse   b. recheck
    c. resubmit   d. regular

Q 14. When e-waste such as electronic circuit boards are burnt for disposal, the elements contained in them create a harmful chemical called .... which causes skin diseases, allergies and an increased risk of lung cancer. *[CBSE SQP 2023-24]*
    a. Hydrogen   b. Beryllium
    c. Chlorine   d. Oxygen

Q 15. A software company purchases new computers every year and discards the old ones into the local dumping yard. Write the name of the most appropriate category of waste that the organisation is creating every year, out of the following options:
    a. business waste   b. commercial waste
    c. solid waste   d. e-waste

Q 16. The rights of the owner of information to decide how much information is to be shared/exchanged/distributed, are collectively known as .... (IPR).
    a. Intelligent Property Rights
    b. Intellectual Property Rights
    c. Interactive Property Rights
    d. Instance Property Rights

Q 17. Stealing someone else's intellectual work and representing it as own, is called ....
    a. Intellectual steal   b. Pluckism
    c. Plagiarism   d. Pickism

Q 18. Copyright, Patent and Trademark comes under: *[CBSE SQP 2023-24]*
    a. Intellectual Property Right
    b. Individual Property Right
    c. Industrial Property Right
    d. None of the above

Q 19. By restricting the server and encrypting the data, a software company's server is unethically accessed in order to obtain sensitive information. The attacker blackmails the company to pay money for getting access to the data, and threatens to publish sensitive information unless price is paid. This kind of attack is known as: *[CBSE SQP 2023-24]*
    a. Phishing   b. Identity Theft
    c. Plagiarism   d. Ransomware

Q 20. A .... is a unique data trace of a user's activities, actions, communications or transactions in digital media. *[CBSE SQP 2021, Term-1]*
    a. Digital Handprint   b. Digital Footprint
    c. Offline Footprint   d. Offline Handprint

Q 21. Which of the following is not a type of cybercrime? *[CBSE SQP 2021 Term-1]*
    a. Data theft
    b. Forgery of online documents
    c. Damage to data and systems
    d. Installing antivirus for protection

Q 22. 'F' in FOSS stands for: *[CBSE SQP 2021 Term-1]*
    a. Free   b. Forever
    c. Fire   d. Freezing

Q 23. IPR stands for: *[CBSE SQP 2021 Term-1]*
    a. Intelligent Property Rights
    b. Intellectual Property Reserve
    c. Intellectual Property Rights
    d. Intellectual Product Rights

Q 24. Which of the following is not a violation of IPR? *[CBSE SQP 2021 Term-1]*
    a. Plagiarism
    b. Copyright Infringement
    c. Patent
    d. Trademark Infringement

Q 25. .... is the practice of taking someone else's work or ideas and passing them off as one's own: *[CBSE SQP 2021 Term-1]*
    a. Plagiarism   b. Copyright
    c. Patent   d. All of these

Q 26. Following are the impact of e-waste on the environment. Choose the odd one out.
    a. Soil Pollution   b. Water Pollution
    c. Air Pollution   d. Sound Pollution

Q 27. Abdul deleted all his chats from all his social media accounts and he thinks that all his traces are deleted completely. Is he right in thinking so? *[CBSE SQP 2021 Term-1]*
    a. Yes   b. No
    c. May be   d. Not sure

Q 28. The legal and regulatory aspects of the internet refer to................... *[CBSE SQP 2021 Term-1]*
a. Cyber Space
b. Cyber crime
c. Criminal law
d. IT act

Q 29. .... is a cybercrime in which a target or targets are contacted by e-mail, telephone or text message by someone posing as a legitimate institution to lure individuals into providing sensitive data such as personally identifiable information, banking and credit card details and passwords.
a. Plagiarism
b. Phishing
c. Cyberstalking
d. Hacking

Q 30. Suhhani is confused about the free operating system available in the market. Few of her friends suggested a few operating systems. Help her in choosing free operating system for her device: *[CBSE SQP 2021 Term-1]*
a. Ubuntu
b. Windows
c. Mozilla Firefox
d. Blender

Q 31. Consider the following statements with reference to the use of e-mail:
Statement 1: Sending threatening messages to a classmate.
Statement 2: Inviting friends to participate in a school club or sports activity.
Statement 3: Asking your teacher for help on homework.
Statement 4: Responding to or forwarding spam emails.
Which of the above statements refer to appropriate use of e-mail? *[CBSE SQP 2021 Term-1]*
a. Statements 1 and 2
b. Statements 2 and 3
c. Statements 3 and 4
d. Statements 2 and 4

Q 32. Saharsh is a student of class-9 and he is a very frequent user of internet applications. One day he got an unpleasant message on his instant messenger. What do you think he should do? *[CBSE SQP 2021 Term-1]*
a. Ignore it and start chatting to someone else.
b. Reply back to them and find out what their problem is.
c. Shut down the computer and hope they'll leave him alone in future.
d. Go to his parents, teacher, or other trusted adult and let them know that he feels uncomfortable.

Q 33. Feasible method (s) to manage e-waste: *[CBSE SQP 2021 Term-1]*
a. reduce
b. reuse
c. recycle
d. All of these

Q 34. We should exhibit proper manners and etiquettes while being online. Choose the right net etiquette (s) from the following: *[CBSE SQP 2021 Term-1]*
a. Avoid Cyber Bullying
b. Respect Other's Privacy
c. No Copyright Violation
d. All of these

Q 35. Linux, MySQL and Mozilla Firefox software come under .... category. *[CBSE SQP 2021 Term-1]*
a. Proprietary
b. FOSS
c. Freeware
d. Shareware

Q 36. The digital trail which gets created as a person's internet usage using computers, smartphones, gaming consoles etc, is called ....
a. Internet data
b. Internet trail
c. Digital footprint
d. E-footprint

Q 37. .... is a non-profit organisation that aims to build a publicly accessible global platform where a range of creative and academic work is shared freely. *[CBSE SQP 2023-24]*
a. Creative Cost
b. Critical Commons
c. Creative Commons
d. Creative Common

Q 38. Legal term to describe the rights of a creator of original creative or artistic work is called ....
a. Copyright
b. Copyleft
c. GPL
d. None of these

Q 39. A worm is ....
a. a slimy pink thing that lives in dirt
b. pieces of malicious code that make copies of themselves and spread through computers without human interaction
c. an unsolicited e-mail message
d. None of the above

Q 40. If you receive an email claiming to need your username and/or password, what should you do?
a. Report it as phishing/spam through your email provider
b. Delete the message
c. Reply to the message with your email and password
d. None of the above

Q 41. What should your response be if you receive an email stating that you have won a lottery or received some inheritance from an unknown person?
a. Send them email asking for further procedure
b. Ignore it
c. Mark it as spam and block it
d. None of the above

Q 42. A computer .... is a malicious code which self-replicates by copying itself to other programs.
a. program
b. virus
c. application
d. worm

Q 43. Which of the following is a type of program that either pretends to have, or is described as having, a set of useful or desirable features but actually contains a damaging code?
a. Trojans
b. Viruses
c. Worm
d. Adware

Q 44. Which of the following is the type of software that has self-replicating software that causes damage to file and system?
a. Trojans
b. Viruses
c. Worm
d. Adware

Q 45. Which of the following tracks your internet browsing habits and sends you popups containing advertisements related to the sites and topics you've visited?
a. Trojans
b. Viruses
c. Worm
d. Adware

Q 46. Primary law in India for matters related to e-commerce and cyber crime is: *[CBSE 2023]*
a. IT Act 1995
b. IT Act 2000
c. IT Act 1998
d. IT Act 2010

Q 47. With the outset of COVID-19 schools started online classes, but due to continuous online classes students health issues also started. Health practitioner advised the parents to follow a few health tips. Which of the following health tip should not be suggested? [CBSE 2021 Term-1]
   a. The sitting posture should be correct.
   b. Breaks should be taken in between the online classes.
   c. To protect the eyes the gadgets should be placed above eye level.
   d. Wash the eyes regularly.

Q 48. The following is automatically granted to the creator or owner of any invention: [CBSE 2021 Term-1]
   a. patent   b. trademark
   c. copyright   d. license

Q 49. Himanshi sets up her own company to sell her own range of clothes on instagram. What type of intellectual property can she use to show that the clothes are made by his company? [CBSE 2021 Term-1]
   a. Patents   b. Design
   c. Copyright   d. Trademark

Q 50. Ramandeep is a young woman with great aspirations and has a good team of like-minded people. She along with her team members started a company to sell handicrafts online and also designed a logo for their company. What type of intellectual property does this logo represent? [CBSE 2023]
   a. Patents   b. Copyright
   c. Design   d. Trademark

Q 51. E-waste is becoming one of the fastest growing environmental hazards in the world today. If it is not properly treated or disposed of it can cause serious health hazards, therefore the .... has issued a formal set of guidelines for proper handling and disposal of e-waste. [CBSE 2021 Term-1]
   a. Central Pollution Control Board (CPCB)
   b. Department of Information Technology (DIT)
   c. Waste from Electrical and Electronic Equipment (WEEE)
   d. Information Communication Technology (ICT)

Q 52. Priya is a student of class 10 and she is a very frequent user of internet applications. One day she got an unpleasant message on her instant messenger. What do you think she should do? [CBSE 2021 Term-1]
   a. Start chatting with an unknown person.
   b. Talk to her parent/teacher or other trusted adult and let them know that she is feeling uncomfortable.
   c. Ignore the conversation.
   d. She should delete the chat so that no one comes to know.

Q 53. The primary law in India dealing with cybercrime and electronic commerce is: [CBSE 2021 Term-1]
   a. India's Technology (IT) Act, 2008
   b. India's Digital Information Technology (DIT) Act, 2000
   c. India's Information technology (IT) Act, 2000
   d. The Technology Act, 2008

Q 54. Consider the following statements with reference to Trademark and Hacking.
Statement 1 : Trademark is a document that provides legally binding guidelines for the use and distribution of software.
Statement 2 : Hacking is the act of unauthorised access to a computer network or any digital system. [CBSE 2021 Term-1]
   a. Statement 1 is true, but Statement 2 is false.
   b. Statement 1 is false, but Statement 2 is true.
   c. Both the Statements are True.
   d. Both the Statements are False.

Q 55. There is only 1 day left for Ravisha to submit her Science project. Therefore, she performed the following activities to complete her task. Which of the following activities can be considered as plagiarism? [CBSE 2021 Term-1]
   a. Downloaded the images that were marked as CC and pasted in her project file.
   b. Copied the content from some website and pasted in her file.
   c. Copied the content from the website and gave references about the same in the project.
   d. Downloaded and installed the open source software for typing the synopsis.

Q 56. A contract between the creator and the user to allow the user use his/her work with some price is: [CBSE 2021 Term-1]
   a. agreement   b. copyright
   c. license   d. patent

Q 57. Companies get their Trademark registered to protect? [CBSE 2021 Term-1]
   a. logos, names and brands
   b. word, phrase, or symbol
   c. slogans, stylised fonts, and colours
   d. company furniture, worker, brands

Q 58. Rohit forgot his laptop in his car and when he came back he found his laptop was missing. This act is: [CBSE 2021 Term-1]
   a. cyber crime   b. phishing
   c. theft   d. plagiarism

Q 59. The rights of the owner of information to decide how much information is to be shared/exchanged/distributed are collectively known as .... [CBSE 2021 Term-1]
   a. Intelligent Portable Rights
   b. Intellectual Property Rights
   c. Interactive Property Rights
   d. Instance Portability Rights

Q 60. Abhilasha forgot to sign out from her gmail id and Aditi used Abhilasha's gmail id to send mail. This act of Aditi is considered as: [CBSE 2021 Term-1]
   a. plagiarism   b. identify theft
   c. phishing   d. piracy

Q 61. The trail that is automatically created when a person uses the internet on any digital devices like Laptops, smart phones, tablets, etc is called: *[CBSE 2021 Term-1]*
- a. cyberbullying
- b. phishing
- c. digital Footprint
- d. digital Activity

Q 62. Which of the following is a type of cybercrime where objectionable and demeaning comments are posted on social media platform about a person, such that he/she is mentally harassed? *[CBSE 2023]*
- a. Phishing
- b. Hacking
- c. Cyber bullying
- d. Identity Theft

Fill in the Blanks Type Questions ↘

Q 63. OSS stands for ....

Q 64. Any fraudulent business practice that extracts money from an unsuspecting, ignorant person is called a ....

Q 65. .... is stealing someone else's intellectual work and representing it as your own without giving credit.

Q 66. Any work/information that exists in digital form either on internet or on an electronic device, is known as .... property.

Q 67. Discarded electrical or electronic devices are known as ....

Q 68. The least restrictive open source license is .... license.

Q 69. The original code written by programmers for a software is known as ....

Q 70. .... means no price is to be paid for the software.

Assertion & Reason Type Questions ↘

Directions (Q. Nos. 71-78): *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 Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
- c. Assertion (A) is true, but Reason (R) is false.
- d. Assertion (A) is false, but Reason (R) is true.

Q 71. Assertion (A): Encryption is a secure technique to protect data being transmitted over a network.
Reason (R): The sender of the information encrypts the data using a secret code and the specified receiver only can decrypt the data using the same or different secret code.

Q 72. Assertion (A): A digital signature is a form of electronic signature that authenticates a document or transaction through encryption and password.
Reason (R): Security certificate is also a unique digital identification that is used to verify the identity of an individual website or user.

Q 73. Assertion (A): Session Electronic Transaction is a secure protocol developed by MasterCard and Visa, in collaboration.

Reason (R): The term ethics generally refers to a set of moral principles that govern the behaviour of an individual or a group of individuals.

Q 74. Assertion (A): Plagiarism, Cyber bullying, Hacking, Phishing, Spamming, Software piracy, Intellectual property rights are some common issues that are governed by computer ethics.
Reason (R): Patent refers to the creations of the mind, which have both a moral and a commercial value.

Q 75. Assertion (A): Patent is a legal document that gives the inventor sole rights to make, sell or use an invention.
Reason (R): Intellectual Property (IP) is a right that is granted by law to the creator or inventor for his original work.

Q 76. Assertion (A): A logo or symbol that is printed on business items to make it exclusive, is known as a trademark. A trademark is valid for seven years and can be renewed after that.
Reason (R): Copyright covers literary and artistic establishments such as books, plays, novels, articles, music compositions and much more.

Q 77. Assertion (A): In Minimal plagiarism the original work is edited, reframed and reproduced. It is very common in the education field.
Reason (R): Direct or complete plagiarism is the verbatim transcription of a section of someone else's work, without making any changes in the original work.

Q 78. Assertion (A): Digital assets that users create, and which exist in any kind of digital form, for example, online or on storage media, constitute the digital property of users.
Reason (R): The owners are the ones who only can decide in what form the assets can be sold, reused, modified, repurposed or applied in any other media other than what the assets were originally meant for.

Answers

1. (c)	2. (b)	3. (a)	4. (c)	5. (b)
6. (b)	7. (c)	8. (c)	9. (b)	10. (d)
11. (c)	12. (d)	13. (a)	14. (b)	15. (d)
16. (b)	17. (c)	18. (a)	19. (d)	20. (b)
21. (d)	22. (a)	23. (c)	24. (c)	25. (a)
26. (d)	27. (b)	28. (d)	29. (b)	30. (a)
31. (b)	32. (d)	33. (d)	34. (d)	35. (b)
36. (c)	37. (c)	38. (a)	39. (b)	40. (a)
41. (c)	42. (d)	43. (a)	44. (c)	45. (d)
46. (b)	47. (c)	48. (c)	49. (d)	50. (d)
51. (a)	52. (b)	53. (c)	54. (b)	55. (b)
56. (c)	57. (a)	58. (c)	59. (b)	60. (b)
61. (c)	62. (c)			

63. Open Source Software
64. Scam
65. Plagiarism
66. digital
67. e-waste
68. MIT
69. Source code
70. Freeware

71. (a)	72. (b)	73. (d)	74.(c)	75. (c)
76. (d)	77. (b)	78. (b)		

Case Study Based Questions ↘

Case Study 1

Smridh has recently changed his school so he is not aware of the people, but someone is posting negative, demeaning comments on his social media profile. He is also getting repeated mails from unknown people. Everytime he goes online, he finds someone chasing him online.

Q 1. Smridh is a victim of ....
- a. eavesdropping
- b. stolen identity
- c. phishing
- d. cyber stalking

Q 2. The action that Smridh should take:
- a. he should only share with his friends.
- b. he should not share with anyone as it can cause serious problem.
- c. he should immediately report to the police.
- d. he should bring to the notice of his parents and school authorities.

Q 3. .... is a set of moral principles that governs the behaviour of a group or individual and regulates the use of computers.
- a. Copyright
- b. Computer ethics
- c. Property rights
- d. Privacy law

Q 4. Smridh needs to protect his personal information or data from unintentional and intentional attacks and disclosure which is termed as ....
- a. Digital right
- b. Copyright
- c. Privacy
- d. Intellectual property

Q 5. The act of fraudulently acquiring someone's personal and private information, such as online account names, login information and passwords is called as ....
- a. Phishing
- b. Fraud
- c. Scam
- d. Plagiarism

Answers

1. (d) 2. (d) 3. (b) 4. (c) 5. (a)

Case Study 2

The school offers WiFi to the students of Class XII. For communication, the network security-staff of the school is having a registered URL "schoolwifi.edu". On 17th September 2017, emails were received by all the students regarding expiry of their passwords. Instructions were also given renew their password within 24 hours by clicking on particular URL provided. On the bases of the above case study, answer the questions given below:

Q 1. Specify which type of cybercrime is it?
- a. Spamming
- b. Phishing
- c. Identity theft
- d. Hacking

Q 2. URL stands for ....
- a. Universal Resource Loader
- b. Uniform Resource Locator
- c. United Research Loader
- d. Uniform Resource Loader

Q 3. Unsolicited commercial email is known as:
- a. malware
- b. virus
- c. spam
- d. spyware

Q 4. WiFi stands for ....
- a. Wireless Internet Frequent Interface
- b. Wireless Functioning
- c. Wireless Fidelity
- d. Wire Free Internet

Q 5. Ideally, what characters should be used in a password to make it strong?
- a. Letters and numbers only
- b. Mixed Case (Upper and Lower)
- c. Special characters
- d. All of the above

Answers

1. (b) 2. (b) 3. (c) 4. (c) 5. (d)

Case Study 3

Sumit has to prepare a project on "Swachh Bharat Shreshtha Bharat". He decides to get information from the internet. He downloads three web pages (web page 1, web page 2, web page 3) containing information on the given topic.

(i) He read a paragraph on from web page 1 and rephrased it in his own words. He finally pasted the rephrased paragraph in his project.

(ii) He downloaded three images of from web page 2. He made a collage for his project using these images.

(iii) He also downloaded an icon from web page 3 and pasted it on the front page of his project report.

Q 1. Step (i) an example of ....
- a. plagiarism
- b. paraphrasing
- c. copyright infringement
- d. intellectual property right

Q 2. Step (ii) an act of ....
- a. plagiarism
- b. copyright infringement
- c. intellectual property right
- d. digital footprints

Q 3. Step (iii) an act of ....
- a. plagiarism
- b. paraphrasing
- c. copyright infringement
- d. intellectual property right

Q 4. A website is a collection of ....
- a. web servers
- b. web pages
- c. browsers
- d. hyperlinks

Q 5. The process of getting web pages, images and files from a web server to local computer is called:
a. FTP
b. uploading
c. downloading
d. remote access

Answers

1. (b) 2. (a) 3. (c) 4. (b) 5. (c)

Case Study 4

Cyber ethics in E-Commerce: The branch of ICT that allows selling or buying things online, is known as e-commerce. The process of buying and selling of products or services over electronic systems and using communication technology like internet is defined as e-commerce. It is generally regarded as the sales and commercial function of e-business. Now, many businesses are running online with the help of the internet, and a substantial increase has been observed in the level of trade and business conducted electronically.

E-commerce not only covers buying or selling, rather a wide variety of commerce including electronic funds transfer, supply chain management, internet marketing, online transaction processing, Electronic Data Interchange (EDI), etc.

Q 1. Which of the following describes e-commerce?
a. Doing business electronically
b. Buying goods only
c. Sale of goods only
d. All of the above

Q 2. E-Commerce stands for:
a. electronic Commerce
b. electronic Data Exchange
c. electric Data Exchange
d. electronic Commercialisation

Q 3. Legal recognition for transactions are carried out by:
a. electronic data interchange
b. electronic data exchange
c. electronic data transfer
d. electrical data interchange

Q 4. Which of the following is related to cyberethics?
a. Ethics in the online environment
b. Online gaming
c. Ethics at school
d. Telecommunications

Q 5. Selling or buying stuff online, is known as ....
a. E-commerce
b. Plagiarism
c. Digital property
d. Authenticity

Answers

1. (a) 2. (a) 3. (a) 4. (a) 5. (a)

Case Study 5

Requirements for Safe E-Commerce Transactions: In addition to the benefits gained from the e-commerce branch of ICT, there are many security concerns and other issues that prevent people to take its maximum benefits. Security is an essential part of any electronic transaction that takes place over the internet. Clients will lose their faith in e-business if its security is compromised. At the time of buying some objects online, we are generally asked to enter our personal information such as name, delivery address (house address), credit card or debit card details, etc. Information should not be hampered or changed during its transmission over the network.

Information should be encrypted and decrypted only by the authorised user. As e-commerce is a crucial branch of ICT, the information required for completing a transaction should be available on time. Delay in the availability of information may incur loss in business. Authenticity is an important requisite of e-commerce. Only authorised persons should be allowed to gain access to information. Otherwise, unauthorised persons may steal and misuse the information.

Q 1. Unauthorised user cannot read the data in the .... security aspect.
a. confidentiality
b. integrity
c. authorisation
d. non-repudiation

Q 2. In ...., data is transferred in coded form.
a. encryption
b. decryption
c. firewall
d. digital certification

Q 3. To convert cipher text to plain text is called ....
a. firewall
b. digital certificate
c. decryption
d. virus

Q 4. Which of the following is a fundamental requisite to ensure safety of personal information?
a. Confidentiality
b. Encryption
c. Integrity
d. Authenticity

Q 5. What is a form of electronic signature called?
a. Certificate
b. Encryption
c. Password
d. Digital signature

Answers

1. (a) 2. (a) 3. (c) 4. (a) 5. (d)

Case Study 6

Cyberethics is a branch of applied ethics that examines moral, legal, and social issues at the intersection of computer/information and communication technologies. This field is sometimes also referred to by phrases such as internet ethics, computer ethics, and information ethics. The expression "internet ethics" is somewhat narrow in scope and thus unable to capture the range of cyber-related ethical issues that arise independently of the internet and networked computer per se. Because "computer ethics" connotes ethical issues affecting either computer professionals or computing machines, it also can easily fail to include a cluster of relevant issues that fall under the heading "cyberethics".

Q 1. What do you know about computer viruses?
Q 2. Name any two popular opensource licences.
Q 3. Define free software licence.
Q 4. What do you know about software copyright law?
Q 5. What do you understand by 'intellectual property rights'?

Answers

1. Computer viruses are generally developed with a definite intention to change computer files or cause inconvenience and annoyance to computer users.

2. The two popular Opensource License are:
   (i) GNU General Public Licence (GPL)
   (ii) GNU Library or 'Lesser' General Public Licence (LGPL)

3. A free software licence is a notice that grants the receiver of software wide-ranging rights to use, modify or redistribute that particular software.

4. Computer software is covered by the laws, which covers a wide range of intellectual property such as music, literature and software. The main provisions of the act is to make illegal to:(i) Copy software, (ii) Run pirated software, (iii) Transmit software over a telecommunication line, thereby creating a copy.

5. Intellectual property rights are the rights given to people for the original creations of their minds. They usually give the creator an exclusive rights over the use of his/her creation for a certain period of time.

Very Short Answer Type Questions ↘

Q 1. What is digital footprint?
Ans. Digital footprints are the records and traces individuals' activities as they use the Internet. Digital footprints are permanently stored.

Q 2. What is digital property?
Ans. Digital property (or digital assets) refers to any information about you or created by you that exists in digital form, either online or on an electronic storage device.

Q 3. What are open source based software?
Ans. Open source software, which refers to software whose source code is available to customers and it can be modified and redistributed without any limitation.

Q 4. What is public domain software? Name some common public domain software licenses.
Ans. Public domain software is free and can be used without restrictions. e.g., LINUX, Apache, Firefox.

Q 5. Define Phishing.
Ans. Phishing is the practice of attempting to acquire sensitive information from individuals over the Internet, by means of deception.

Q 6. Define the term scams.
Ans. Any fraudulent business practice that extracts money from an unsuspecting, ignorant person is called a scam.

Knowledge BOOSTER

The internet has become a primary source of scams. Scams committed over the internet are called online scams.

Q 7. What do you mean by hacking?
Ans. Hacking refers to gaining unauthorised access to a network or computer or digital files, with an intention to steal or manipulate data or information or to install malware.

Q 8. Define spoofing.
Ans. It refers to a fraudulent or malicious practice in which communication is sent from an unknown source disguised as a trusted source known to the receiver.

Q 9. What is cybercrime?
Ans. Any criminal offense that is facilitated by, or involves the use of, electronic communications or information systems, including any electronic device, computer, or the internet is referred to as cybercrime.

Q 10. What is copyright?
Ans. A copyright is a legal term to describe the rights of the creator of an original creative work such as a literary work, an artistic work, a design, song, movie or software, etc.

Q 11. What are netiquettes?
Ans. The word netiquette, derives from the combination of words-'net' (internet) and 'etiquette'. It refers to online manners while using internet or working online.

Q 12. Who are hackers?
Ans. A hacker is someone who gains unauthorised access to your network or computer or digital files, with an intention to steal or manipulate data or information or to install malware.

Q 13. Rishika found a crumpled paper under her desk. She picked it up and opened it. It contained some text which was struck off thrice. But she could still figure out easily that the struck off text was the email ID and password of Garvit, her classmate. What is ethically correct for Rishika to do?
   (i) Inform Garvit so that he may change his password.
   (ii) Give the password of Garvit's e-mail ID to all other classmates.
   (iii) Use Garvit's password to access his account.
Ans. (i) Inform Garvit so that he may change his password.

Q 14. Suhana is down with fever. So, she decided not to go to school tomorrow. Next day, in the evening she called up her classmate, Shaurya and enquired about the computer class. She also requested him to explain the concept. Shaurya said, "Mam taught us how to use tuples in python". Further, he generously said, "Give me sometime, I will email you the material which will help you to understand tuples in python". Shaurya quickly downloaded a 2-minute clip from the internet explaining the concept of tuples in python.
Using video editor, he added the text "Prepared by

Shaurya" in the downloaded video clip. Then, he emailed the modified video clip to Suhana. This act of Shaurya is an example of:

(i) Fair use   (ii) Hacking
(iii) Copyright infringement   (iv) Cybercrime

Ans. (iii) Copyright Infringement

Q 15. After practicals, Atharv left the computer laboratory but forgot to sign off from his email account. Later, his classmate Revaan started using the same computer. He is now logged in as Atharv. He sends inflammatory email messages to few of his classmates using Atharv's email account. Revaan's activity is an example of which of the following cybercrime? Justify your answer.

(i) Hacking   (ii) Identity theft
(iii) Cyber bullying   (iv) Plagiarism

Ans. (ii) Identity theft
Identity theft means obtaining someone's credentials to commit some online fraud.

Q 16. After a fight with your friend, you did the following activities. Which of these activities is not an example of cyber bullying?
(i) You sent an email to your friend with a message saying that "I am sorry".
(ii) You sent a message to your friend saying "Do not call or talk to me".
(iii) You created an embarrassing picture of your friend and uploaded on your account on a social networking site.

Ans. (i) You sent an email to your friend with a message saying that "I am sorry".

Q 17. You got the SMS from your bank querying a recent transaction. Answer the following:
(i) Will you SMS your pin number to the given contact number?
(ii) Will you call the bank help line number to recheck the validity of the SMS received?

Ans. (i) No, without any confirmation that the SMS has been made securely from the bank, pin number should not be shared.
(ii) Yes, for checking the validity of the message received, bank help line number may be contacted.

Short Answer Type-I Questions

Q 1. What is digital footprint?
Ans. A digital footprint is the record or trail left by the things one does online. The social media activity, the information on personal website, the browsing activities, online subscriptions, any photo galleries and videos uploaded by a user — essentially, any activity carried out on the internet makes the digital footprint of a user.

Q 2. Differentiate between the active digital footprint and passive digital footprints. *[CBSE SQP 2023-24]*
Ans. **Active Digital Footprints:** Active digital footprints include data that we intentionally submit online. This would include emails we write, or responses or posts we make on different websites or mobile Apps, etc.
Passive Digital Footprints: The digital data trail we leave online unintentionally is called passive digital footprints. This includes the data generated when we visit a website, use a mobile App, browse Internet, etc.

Q 3. What are intellectual property rights?
Ans. Intellectual property rights are the rights of the owner of information to decide how much information is to be exchanged, shared or distributed. Also it gives the owner a right to decide the price for doing (exchanging/sharing/distributing) so.

Q 4. Explain plagiarism with an example. *[CBSE 2023]*
Ans. Plagiarism is the act of using or stealing someone else's intellectual work, ideas, etc. and passing it as our own work. In other words, plagiarism is a failure in giving credit to its source.
Plagiarism is a fraud and violation of intellectual property rights. Since, intellectual property holds a legal entity status, violating its owner's right is a legally punishable offence.
For example, if we get someone else to write an essay or assignment for us or if we find a text online and submit it as our own work, we are committing global plagiarism.

Q 5. What is digital property? Give some examples of digital properties.
Ans. Digital property (or digital assets) refers to any information about you or created by you that exists in digital form, either online or on an electronic storage device.
Examples of digital property include: any online personal accounts (email/social media accounts/ shopping accounts/video gaming accounts, online storage accounts) and personal websites and blogs; domain names registered in your name; intellectual properties, etc.

Q 6. Expand the following terms: (i) OSS, (ii) SDLC, (iii) GNU, (iv) FLOSS.
Ans. (i) **OSS:** Open Source Software
(ii) **SDLC:** System Development Life Cycle
(iii) **GNU:** GNU's Not Unix
(iv) **FLOSS:** Free Libre/Livre and Open Source Software

Q 7. Compare freeware and shareware.
Ans. **Freeware** is a computer software that is available for use at no cost or for an optional fee. Freeware is generally proprietary software available at zero price and is not free software. The author usually restricts one or more rights to copy, distribute and make derivative works of the software.
Shareware is usually offered as a trial version with certain features only available after the license is purchased, or as a full version, but for a trial period. Once the trial period has passed, the program may stop running until a license is purchased. Shareware is often offered without support, updates, or help menus, which only become available with the purchase of a license. The words "free trial" or "trial version" are indicative of shareware.

Q 8. Differentiate between open source and open data.
[CBSE SQP 2019]

Ans. The term '**open source**' is applicable to software, which means source code of a software is freely available and user can make changes in it and reuse it.

The term '**open data**' is applicable to data that is freely available for everyone to use without any licensing or copyright requirements.

Q 9. Nivedita has recently shifted to new city and new school. She does not know many people in her new city and school. But all of a sudden, someone is posting negative, demeaning comments on her social networking profile, school site's forum, etc. She is also getting repeated mails from unknown people. Everytime she goes online, she finds someone chasing her online.

(i) What is this happening to Nivedita?

(ii) What action should she taken to stop them?

Ans. (i) Nivedita has become a victim of cyber bullying and cyber stalking.

(ii) She must immediately bring it into the notice of her parents and school authorities. And she must report this cybercrime to local police with the help of her parents.

Q 10. Describe following Cybercrimes:

(i) Cyber Bullying   (ii) Cyber Stalking

Ans. (i) **Cyber Bullying** refers to act of online harassment of someone by using online tools such as internet, email, instant messages, chat rooms or social networking sites, etc. Cyber trolling, which means posting of sarcastic, demeaning or insulting comments about someone, is also considered form of cyber bullying.

(ii) **Cyber Stalking** refers to online stalking where someone uses internet, chat rooms, social networking sites, emails, etc., to stalk his/her victim. Cyber stalker follows the victim online everywhere and keeps posting/sending something which are unsolicited.

Q 11. What can be done to reduce the risk of identity theft? Write any two ways.   *[CBSE SQP 2019]*

Or

List two measures against online identity theft.

Ans. (i) Use unique IDs to protect your devices and accounts.

(ii) Using biometric protection.

Q 12. Write names of any two common types of intellectual property rights which are protected by the law.

Ans. (i) Rights upon musical, literary and artistic works.

(ii) Rights upon discoveries and inventions.

(iii) Words, phrases, symbols and designs.

(iv) Copyright, trademarks, patents, industrial design rights and trade secrets.   *(Any two)*

Q 13. Describe why authentication is important for file protection.

Ans. Authentication is the process of determining whether someone is a legal user. It is the process of identifying an individual, usually based on a username and password. Authentication merely ensures that the individual is who he or she claims to be, but says nothing about the access rights of the individual. It is used a primary step for file protection from unauthorised users.

Q 14. What is anti-virus software?

Ans. There are a number of malicious software ('malware') programs that can cause damage to computers. These include viruses, worms, Trojan horses (Trojans), malware, spyware, etc.

Anti-virus software is designed to detect and block attacks from malware. This software when loaded, resides in memory and checks every operation if it is malicious or not. If it finds any suspicious activity, it blocks that operation and saves our computer.

Q 15. Nowadays all of us frequently use social media to connect with our friends. Give any two netiquettes that we should follow while communicating on social media.   *[CBSE 2023]*

Ans. While communicating on social media, we should follow the following netiquettes:

(i) We should not waste precious time in responding to unnecessary emails or comments unless they have some relevance for us.

(ii) We should be cautions while making a comment, replying or writing an email or forum post as such acts decide our credibility over a period of time.

Q 16. What measures should you take to keep data secure?

Ans. Measures that can be taken to keep data secure include:

(i) Making regular backups of files (backup copies should be stored in fireproof safes or in another building).

(ii) Protecting against viruses by running anti-virus software.

(iii) Using a system of strong passwords so that access to data is restricted.

(iv) Safe storage of important files stored on removable disks, *e.g.*, locked away in a safe location.

Q 17. Sourabh has to prepare a project on "Digital India Initiatives". He decides to get information from the internet. He downloads three web pages (web page 1, web page 2, web page 3) containing information on Digital India Initiatives. Which of the following steps taken by Sourabh is an example of plagiarism or copyright infringement? Give justification in support of your answer.

(i) He read a paragraph on "Digital India Initiatives" from web page 1 and rephrased it in his own words. He finally pasted the rephrased paragraph in his project.

(ii) He downloaded three images of "Digital India Initiatives" from web page 2. He made a collage for his project using these images.

(iii) He downloaded "Digital India Initiative" icon from web page 3 and pasted it on the front page of his project report.

Ans. (ii) and (iii).

Plagiarism means using someone else's work without giving adequate citation for use and presenting as your own work.

Copyright infringement means using copyright-protected material without obtaining copyright holder's permission or without paying for it, if it is being sold.

Q 18. Match the following:

Column A	Column B
(a) Plagiarism	1. Fakers, by offering special rewards or money prize asked for personal information, such as bank account information.
(b) Hacking	2. Copy and paste information from the internet into your report and then organise it.
(c) Credit card fraud	3. The trail that is created when a person uses the internet.
(d) Digital foot-print	4. Breaking into computers to read private emails and other files.

Ans. (a) → 2 ; (b) → 4 ; (c) → 1; (d) → 3

Q 19. How would you recognise if one of your friends is being cyber bullied?
(i) Cite the online activities which would help you detect that your friend is being cyber bullied?
(ii) What provisions are in IT Act 2000, (amended in 2008) to combat such situations?

Ans. (i) Repeated posting of rumours, giving threats online, posting the victim's personal information, sexual harassment or comments aimed to publicly ridicule a victim.
(ii) The act provides legal framework for electronic governance by giving recognition to electronic records and digital signatures. The act outlines cybercrimes and penalties for them.

Q 20. If you plan to use a short text from an article on the web, what steps must you take in order to credit the sources used?

Ans. (i) Determine if you need the permission to use the desired piece of work.
(ii) Identify the owner of the article.
(iii) Identify the rights needed to use it.
(iv) Contact the owner and negotiate whether payment is required.
(v) Get your permission agreement in writing.

Q 21. What is identity theft? Give am example.

Or

What do you mean by identity theft? Explain with the help of an example. [CBSE SQP 2020-21]

Ans. Identity theft occurs when someone uses another person's personal identifying information and pretends to be that person in order to commit fraud or to gain other financial benefits.

Q 22. Cite examples depicting that you were a victim off allowing cybercrime. Also, cite provisions in IT Act to deal with such a cybercrime:
(i) Identity theft
(ii) Credit card account theft

Ans. (i) Someone got hold of login and password of our social network site and used it to troll or cyber bully someone using stolen credentials.
(ii) Someone did fraud shopping after stealing our credit card.

Short Answer Type-II Questions

Q 1. Why should intellectual property rights be protected?

Ans. The intellectual property rights must be protected because protecting them:
(i) encourages individuals and businesses to create new software and new software applications, as well as improving existing applications.
(ii) ensures new ideas and technologies are widely distributed.
(iii) promotes investment in the national economy. The imposter can steal and use identifying information such as full name, home address, email address, online login and passwords, driver's license number, passport number or bank account number, etc. Once thieves access this information, they may use it to commit identity theft.

For example, using stolen credit card information, identity thief may go on shopping spree or using stolen online identity, they may send fraudulent mails or even ask for some money in the name of help (on behalf of stolen identity).

Q 2. Describe the terms free software and open source software. Write examples of one proprietary and one OSS software.

Ans. **Free software** is the software free of cost, which can be copied, modified and redistributed as well but whose source code is not available. **Open source software**, on the other hand, is the software, whose source code is available and which can be copied, modified and redistributed as well. There may or may not be charges payable for open source software.

Proprietary Software: Microsoft Windows 8.
Open Source Software: Linux

Q 3. Mr. Jayanto Das is confused between shareware and open source software. Mention at least two points of differences to help him understand the same.

Ans. **Shareware** is software, which is made available with the right to redistribute copies, but it is available for limited time, often after a certain period of time, then a license fee should be paid. Shareware is not the same thing as Free and Open Source Software (FOSS) for two main reasons:

(i) the source code is not available and,

(ii) modifications to the software are not allowed.

OSS refers to **Open Source Software**, which refers to software whose source code is available to customers and it can be modified and redistributed without any limitation. An OSS may come free of cost or with a payment of nominal charges that its developers may charge in the name of development, support of software.

Q 4. Would you suggest Open Source Software (OSS) for an organisation or sector where the performance is the factor of utmost importance, such as military? You must be aware that military has different software needs than the commercial sector because of its unique mission and environment. While commercial sector chooses software on the basis of factors like:

application choice, ease of use, service and support, price, reliability and performance, the military does the same depending upon factors like: reliability, long-term supportability, security, scalability and performance of the software.

Keeping in mind the above scenario, answer the above question with a proper justification.

Give example of a software, if you are recommending one.

Ans. The open source software comes with characteristics like; availability of open source, no license restriction on type of usage, freedom to modify, redistribute, etc. But all these characteristics are not enough to be suggested as a preferred software. Not all the OSS provide long-term support or are secure-enough or scalable. Therefore, we can not blindly recommend any OSS software. The same applies to proprietary software as well.

Therefore, we can recommend only those software to military that have solid support-base in the form of community-development groups etc. and that have features like security, scalability and performance along with it. Thus, the OSS software suite like LAMP (Linux, Apache, MySQL, PhP) that has all the above mentioned features can be recommended to military.

Q 5. What is GPL software license? How is it different from LGPL software license?

Ans. **GPL:** The General Public License (GPL) is probably one of the most commonly used licenses for opensource projects. The GPL grants and guarantees a wide range of rights to developers who work on open-source projects. Basically, it allows users to legally copy, distribute and modify software.

LGPL: The Lesser General Public License (LGPL). It offers lesser rights to a work than the standard GPL license. The LGPL is used to license free software so that it can be incorporated into both free software and proprietary software.

The LGPL and GPL licenses differ with one major exception: with LGPL the requirement that you have to release software extensions in open GPL has been removed.

Q 6. List a table of differences between free software and open source software.

Ans. Difference between free software and open source software

S. No.	Free Software	Open Source Software
1.	Freedom to run program for any purpose.	It has distribution of license.
2.	Freedom to study about program.	Availability of source code.
3.	Freedom to distribute copies of software.	Free distribution.
4.	Freedom to modify/improve program and release improvements to public.	Integrity of authors source code.

Q 7. What are the freedoms that a free software must provide?

Ans. According to the free software definition, free software must fulfill four freedoms:

(i) The freedom to run the program, for any purpose.

(ii) The freedom to study how the program works, and adapt it to your needs. Access to the source code is a precondition for this.

(iii) The freedom to redistribute copies.

(iv) The freedom to improve the program, and release your improvements to the public, so that the whole community benefits. Access to the source code is a precondition for this.

Q 8. Richa, recently started using her social media account. Within a few days, she befriends many people she knows and some that she does not know. After some time, she starts getting negative comments on her posts. She also finds that her pictures are being shared online without her permission.

Based on the given information, answer the questions given below:

(i) Identify the type of cybercrime she is a victim of.

(ii) Under which act, she can lodge a complaint to the relevant authorities?

(iii) Suggest her any two precautionary measures which she should take in future while being online to avoid any such situations.

[CBSE SQP 2023-24]

Ans. (i) She is victim of Cyber Bullying.

(ii) Information Technology Act, 2000 (also known as IT Act).

(iii) The two precautionary measures are:

(a) Need to be careful while befriending unknown people on the Internet.

(b) Never share personal credentials like username and password with others.

Q 9. Manohar received an email from a company, named Makemoney Pvt. Ltd., claiming that Manohar has won ₹ 20 lakhs in a survey done online. In order to claim the prize money, he was required to answer few security questions such as his Name, Account number, PAN card details, Phone number and OTP for verification purposes. For this, he had to click on the link provided in the email.

Answer the following questions:

(i) Should Manohar give the required details to the company?

(ii) What is the activity depicted above?

(iii) What should he do with this email? *[CBSE 2023]*

Ans. (i) No, Manohar shouldn't give the required details to the company. This may be a scam and an attempt to steal his personal and financial information.

(ii) The activity depicted is a phishing scam in which scammers impersonate a company or an organisation in order to trick people into giving away their sensitive information.

(iii) Manohar should delete this email and not click on any such links or provide any personal information.

Q 10. Viruses, pharming and phishing are all examples of potential internet security issues. Explain what is meant by each of these three terms.

Ans. **Virus** refers to a computer program/software that replicates/copies itself. It can delete or alter files/data stored on a computer and can even make the computer "crash"/run slow.

Pharming is a way to trick unsuspecting user by inserting malicious code/software installed on a user's hard drive/actual web server. This code redirects user to a fake website (without his/her knowledge). Pharming takes place generally to obtain personal/financial information/data.

Phishing is another way to trick unsuspecting user where legitimate-looking emails are sent to a user. As soon as recipient opens/clicks on link in the email/attachment, the user is directed to a fake website (without his/her knowledge). Like Pharming, Phishing also takes place generally to obtain personal/financial information/data.

Q 11. What is internet addiction? What are some symptoms of the internet addiction?

Ans. **Internet Addiction:** When a person can't find a balance between their time online and their time offline, it considerably affects their mental health, this condition is called Internet addiction or Internet Addiction Disorder (IAD).

Some symptoms of the internet addiction like:

(i) **Mental and Emotional Symptoms:** Anger, depression, relief, mood swings, anxiety, fear, irritability, sadness, loneliness, boredom, restlessness, procrastination.

(ii) **Physical Symptoms:** An upset stomach, eating irregularities, (such as skipping meals), severe headaches, backaches, dry eyes, ignoring personal hygiene and sleep disturbance.

Q 12. What do you understand by the term Hacking? Write any two measures that one should take to avoid being the victim of hacking. *[CBSE 2023]*

Ans. Hacking refers to gaining unauthorised access to a network or computer or digital files with an intention to steal or manipulate data or information or to install malware.

One should take the following measures to avoid being the victim of hacking:

(i) Don't reuse the same password on multiple logins. Once hackers get one password, they will try it on everything else they can connect us to.

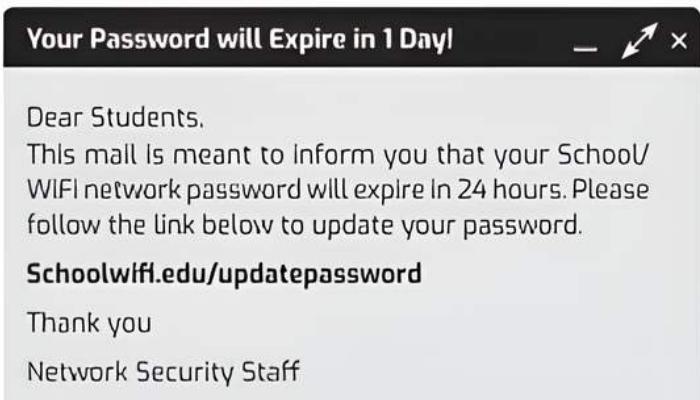(ii) Use auto-updates to get the latest patches for apps, software and operating systems.

Q 13. Preeti celebrated her birthday with her family. She was excited to share the moments with her friend Himanshu. She uploaded selected images of her birthday party on a social networking site so that Himanshu can see them. After few days, Preeti had a fight with Himanshu. Next morning, she deleted her birthday photographs from that social networking site, so that Himanshu cannot access them. Later in the evening, to her surprise, she saw that one of the images which she had already deleted from the social networking site was available with their common friend Gayatri. She hurriedly enquired Gayatri "Where did you get this picture from?". Gayatri replied "Himanshu forwarded this image few minutes back".

Help Preeti to get answers for the following questions. Give justification for your answers so that Preeti can understand it clearly.

(i) How could Himanshu access an image which Preeti had already deleted?

(ii) Can anybody else also access these deleted images?

(iii) Had these images not been deleted from my digital footprint?

Ans. (i) Images loaded on a social networking site can be saved/downloaded or even screenshots may be taken.

(ii) Yes, from the digital footprint, government and other agencies can obtain these legally, if needed.

(iii) Images deleted from a social website always remain part of a digital footprint.

Q 14. The school offers Wireless Facility (WiFi) to the Computer Science students of Class XI. For communication, the network security staff of the school have a registered URL schoolwifi.edu. On 17 September 2017, the following email was mass distributed to all the Computer Science students of class XI. The email claimed that the password of the students was about to expire. Instructions were given to go to URL to renew their password within 24 hours.

Your Password will Expire in 1 Day!   — ⤢ ✕

Dear Students,
This mail is meant to inform you that your School/WIFI network password will expire in 24 hours. Please follow the link below to update your password.

Schoolwifi.edu/updatepassword

Thank you

Network Security Staff

(i) Do you find any discrepancy in this email?

(ii) What will happen if the student will click on the given URL?

(iii) Is the email an example of cybercrime? If yes, then specify which type of cybercrime is it. Justify your answer.

Ans. (i) Yes, there is an extra 'i' in the URL of the email.

(ii) It is a phishing site which will steal the students' data.

(iii) It is an example of phishing where using a similar looking URL and site, people are fooled.

Q 15. Mention any three health hazards associated with inappropriate and excessive use of gadgets.

[CBSE SQP 2023-24]

Ans. Simran needs to be made aware of the following consequences due to inappropriate and excessive use of gadgets:

(i) Eye strain

(ii) Painful muscles and joints

(iii) Poor memory

(iv) Lack of sleep

(v) Back pain and neck pain   (Any three)

? Long Answer
Type Questions

Q 1. Write the differences between the following:

(i) Copyright and Patent

(ii) Plagiarism and Copyright infringement

(iii) Non-ethical hacking and Ethical hacking

(iv) Active and Passive footprints

(v) Free software and Free and open source software

Ans. (i) **Copyright:** A copyright is a collection of rights automatically vested to someone who has created an original work. The copyright owner has the authority to keep or to transfer the rights to use/distribute, individually to one or more people, or to transfer them collectively to one or more people.

Patent: A patent is a grant of exclusive right to the inventor by the government. Patents give the holder a right to exclude others from making, selling, using or importing a particular product or service, in exchange for full public disclosure of their invention.

(ii) **Plagiarism:** Plagiarism is stealing someone else's intellectual work and representing it as your own work without citing the source of information.

Copyright Infringement: Copyright infringement is the use or production of copyright protected material without the permission of the copyright holder.

(iii) **Ethical Hacking:** It is done on behalf of a company, which wants to find out the loopholes in the system in context to security. **Unethical Hacking,** on the other hand, is done in order to harm or cause loss to an individual or a company.

(iv) **An Active Digital Footprint:** Includes data that you intentionally submit online, *e.g.,* sending an email, sending messages online, posting a social media post, replying to post or commenting online etc.

A Passive Digital Footprint: Gets created through your data trail that you unintentionally leave online. For example, when you visit a website, the web server may log your IP address, which identifies your internet service provider and your approximate location.

(v) **Free Software:** It is the software free of cost, which can be copied, modified and redistributed as well but whose source code is not available.

An open source software which is available free of cost is **free and open source software.**

Q 2. Internet Security is a major issue for many people. The following is a list of four typical security issues:

(i) Pharming (ii) Phishing (iii) Spyware (iv) Viruses

For each one, describe the security issue and suggest a way of protecting against it.

Also define Indian Information Technology Act (IT Act).

Ans.

Security Issue	Description of Security Issue	Method of Protection
Pharming	It is actually a code installed on the hard drive of a user's computer or on actual web server; code redirects user to a bogus/fake website without user knowing.	• Use filters to authenticate website. • User should be alert and look for pharming clues which indicate being directed to a bogus site.
Phishing	In phishing, creator sends legitimate looking (fake) email in the hope of gaining personal/financial information; fake email replicates a well known company *e.g.*, a bank.	• ISPs can filter/block out phishing emails. • User should be aware of opening links in emails.
Spyware	It is a type of software that gathers information by monitoring key presses on a user's keyboard or activity and relays the information back to person who sent the spyware.	• Use dropdown boxes. • User should be alert and look for clues when using their computer.
Viruses	It refers to program or coding that replicates itself/corrupts the system/alters or deletes data.	• Use anti-virus software. • Do not use disks/software from unknown sources. • Do not open emails from unknown senders.

Indian Information Technology Act (IT Act): The Government of India's The Information Technology Act, 2000 (also known as IT Act), amended in 2008, and provides guidelines to the user on the processing, storage and transmission of sensitive information.

Q 3. Expand the terms: FLOSS, FSF, GNU, GPL, OSS.

Ans. FLOSS: Free Libre and Open Source Software or to Free Livre and Open Source Software. The term FLOSS is used to refer to a software which is both free softwares as well as open source software. Here the words libre (a Spanish word) and livre (a Portuguese word) mean freedom.

FSF: Free Software Foundation. FSF is a non-profit organisation created for the purpose of supporting free software movement. Now a days, it also works on legal and structural issues for the free software community.

GNU: GNU's Not Unix. GNU project emphasises on freedom. The GNU project was initiated by Richard M. Stallman with an objective to create an operating system. With time, GNU project expanded and now it is not limited to only an operating system. Now, it offers a wide range of software, including application apart from operating system.

GPL: GNU General Public Licence (GPL) is probably one of the most commonly used licenses for open-source projects. The GPL grants and guarantees a wide range of rights to developers who work on open-source project. Basically, it allows users to legally copy, distribute and modify software.

OSS: Open Source Software, which refers to software whose source code is available to customers and it can be modified and redistributed without any limitation. An OSS may come free of cost or with a payment of nominal charges that its developers may charge in the name of development, support of software.

💡 **TiP**
Learn the abbreviations properly along with their purpose and usage.

✐ Chapter Test

Multiple Choice Questions

Q 1. The attack that focuses on capturing small packets from the network transmitted by other computers and reading the data content in search of any type of information is ....

a. phishing b. eavesdropping
c. scams d. PC intrusion

Q 2. Which of the following is/are source of spreading viruses from one computer to another?

a. E-mail b. Infected data
c. Infected programs d. All of these

Q 3. .... are the attempts by individuals to obtain confidential information from you through an original looking site and URL.

a. Phishing scams b. Spoofing
c. Eavesdropping d. Pharming

Q 4. .... is an attempt where a hacker tries to divert network traffic to a bogus site.

a. Phishing scams
b. Spoofing
c. Eavesdropping
d. Pharming attack

Q 5. A research student is expected to write a thesis on a topic. The student browses internet for the topic and luckily finds it on the internet. He copies and submits the entire thesis as his own research work. Which of the following activities appropriately categorises the act of the writer?

    a. Spamming   b. Phishing

    c. Plagiarism   d. Trojan

Fill in the Blanks

Q 6. A .... is a small piece of data sent from a website and stored in a user's web browser (in a text file) while a user is browsing a website.

Q 7. .... is a system designed to prevent unauthorised access to or from a private network.

Q 8. A mail or message sent to a large number of people indiscriminately without their consent is called ....   *[CBSE SQP 2020-21]*

Assertion & 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 Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

    b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).

    c. Assertion (A) is true, but Reason (R) is false.

    d. Assertion (A) is false, but Reason (R) is true.

Q 9. Assertion (A): There are many anti-hacking software and technologies available which can be used to protect digital assets such as proprietary software, applications, tools, etc.

Reason (R): These anti-hacking tools prevent attackers from controlling or accessing your software, and therefore, help in protecting digital assets.

Q 10. Assertion (A): A software licence is a document that provides legally binding guidelines for the use and distribution of software.

Reason (R): Open source software licence is a notice that grants the receiver of software wide-ranging rights to use, modify or redistribute that particular software.

Q 11. Assertion (A): Digital unite refers to a society where everyone would be skilled and equipped to take advantages of various ICT services.

Reason (R): The licence must discriminate against any person or group of persons.

Case Study Based Questions

Q 12. Some More Ethics in Computing: The term ethics generally refers to a set of moral principles that govern the behaviour of an individual or a group of individuals. In the same manner, ethics in computing or computer ethics is a set of moral principles which regulate and govern the use of computing and internet technology. Plagiarism, Cyber bullying, Hacking, Phishing, Spamming, Software piracy, Intellectual property rights are some common issues that are governed by computer ethics. For example, one can easily copy the content available online, but computer ethics suggest that it is not a right practice.

    (i) The term .... refers to the creations of mind, which have both a moral and a commercial value.

        a. patent   b. copyright

        c. intellectual property   d. trademark

    (ii) .... is a legal document that gives the inventor sole rights to make, sell or use an invention.

        a. Trademark   b. Patent

        c. Copyright   d. Intellectual property

    (iii) A logo or symbol that is printed on business items to make it exclusive, is known as ....

        a. Patent   b. Copyright

        c. Trademark   d. Intellectual property

    (iv) .... is a right that is granted by law to the creator or inventor for his original work.

        a. Copyright

        b. Trademark

        c. Intellectual property

        d. None of the above

    (v) .... may be defined as the act of taking another person writing, conversation, song and passing it off as your own, without citing or crediting original author.

        a. Plagiarism   b. Copyright

        c. Trademark   d. Patent

Q 13. Cyber ethics is the study of ethics pertaining to computers, covering user behaviour and what computers are programmed to do, and how this affects individuals and society. For years, various governments have enacted regulations while organisations have explained policies about cyber ethics.

With the increase of young children using the internet, it is now very essential than ever to tell children about how to properly operate the internet and its dangers. It is especially hard to talk to teens

because they do not want to be lectured about what is right and wrong. They seem to think they have it all sorts out. That is why is it is important to instill appropriate cyber etiquette at an early age but if you haven't there is still time to tell to your child.

(i) What do you understand by the word privacy?

(ii) What do you understand by malicious code?

(iii) Name the types of malicious code?

(iv) What is worm?

(v) What is trojan?

Very Short Answer Type Questions

Q 14. When you search online for pictures, how will you find pictures that are available in the free public domain. How can those pictures be used in your project without copyright violations?

Q 15. In the computer science class, Sunil and Jagdish were assigned the following task by their teacher:

(i) Sunil was asked to find information about "India, a Nuclear power". He was asked to use Google Chrome browser and prepare his report using Google Docs.

(ii) Jagdish was asked to find information about "Digital India". He was asked to use Maxilla Firefox browser and prepare his report using Libre Office Writer. What is the difference between technologies used by Sunil and Jagdish?

Short Answer Type-I Questions

Q 16. Sumit got good marks in all the subjects. His father gifted him a laptop. He would like to make Sumit aware of health hazards associated with inappropriate and excessive use of laptop. Help his father to list the points which he should discuss with Sumit.

Q 17. As a citizen of India, what advise you should give to others for e-waste disposal?

Or

How should one dispose off the e-waste?

Short Answer Type-II Questions

Q 18. List down the steps you need to take in order to ensure:

(i) Your computer is in good working condition for a longer time.

(ii) Smart and safe internet surfing.

Q 19. What is data privacy? Websites that you visit collect what type of information about you?

Long Answer Type Questions

Q 20. Compare and Contrast:

(i) Free software and Open source software

(ii) OSS and FLOSS

(iii) Proprietary software and Free software

(iv) Freeware and Shareware

(v) Freeware and Free Software

Q 21. What are some health concerns related to the excessive use of technology?