1. What purpose does encryption on the internet serve? Why is it so important?

Encryption has the role of obscuring messages so that no third party has access to it as it travels through the network from the sender to the recipient. This is important because certain messages, data, or information, when in the wrong hands can have negative effects.

1. What is the difference between symmetric key system and an asymmetric key system?

The main difference between symmetric key system and an asymmetric key system is that opposed to one key used in the symmetric system, two keys are used in the asymmetric key system. The one key in the symmetric system is used to encode and decode, and such a key should only be known by the sender and recipient of the message. On the other hand, asymmetric system involves two keys for every party. One key is public, meaning everyone else in the network has access to that key, and one key is private, meaning only the holder of the key has access to it. For messages to be sent using the asymmetric system, the sender must encrypt the message using the public key of the receiver, then only the receiver can decode that message with their private key.

1. Why is the “one-way” property of encryption algorithms important?

The one-way property of encryption algorithms, meaning that the process of decrypting is different from the process of encrypting, and that decrypting without the proper information is harder than encrypting, is important because it guarantees a message will stay obscured while it travels through the network until it reaches the receiver.