

Assignment 1
Basic components of IT

Answers :

1- The main components of a computer system are:

- A. People : They are the most important component of a computer because it is designed for them.
- B. Hardware : is a set of devices such as processor, monitor, keyboard, and printer. Together, they accept data and information, process them, and display them, they must be reliable and capable of handling the expected workload.
- C. Software : It is a set of programs that instruct the hardware to process data, and without it there is no use in a computer.
- D. Database : collection of related files, tables, relations, and so on, that stores data and allows the associations among them, without which a computer would not be able to store the data.
- E. Network : is a connection system that permits the sharing of resources and files by different computers quickly.
- F. Procedures : are the set of instructions about how to combine the above components in order to process information and generate the desired output.

2- Differentiate between Data, Information, Knowledge and wisdom :

- Data : It is the raw, unorganized data to convey any specific meaning .
- Information : Initial data after organizing and processing it .
- Knowledge : consists of data and/or Information that have been organized and processed to convey understanding .
- Wisdom : is the top of the DIKW hierarchy and to get there, we must answer questions such as 'why do something' and 'what is best'. In other words, wisdom is knowledge applied in action.

3- The differentiation between how data is organized in a Computer System (bit,..., Database) :

- Bit : It represents the smallest unit of data that a computer can process and accepts one of the following two values 0 or 1.
- Byte : It is a group of 8 bits that is a letter, number, or symbol.
- Field : A logical grouping of characters into a word, a group of words, or a complete number.

- Record : A logical group of related fields.
- File : A logical group of related records.
- Database : A logical group of related files.

4- The big data : is a data sets so massive, ranging from a petabyte to an exabyte - in other words, from billions to trillions of records, all from different sources.

5- The comparing between computer viruses and worms:

	Viruses	Worms
i	attaches itself to other software programs or data files in order to be executed (exe), usually without user knowledge or permission	They are independent computer programs that run automatically (without user intervention).
ii	typically spread by sending an e-mail attachment or copying an infected file.	copy themselves from one computer to other computers over a network.
iii		Worms because it is able to operate itself and propagate without user intervention. And because it is able to spread over the local network

6- The difference between a hacker and a cracker is :

- Hacker : It is an individual who intends unauthorized access to a computer system, with the intention of testing the protection.
- Cracker : is a hacker with criminal intent.

7- Three computer crimes (Denial-of-service (DoS) attack, identity theft, click fraud) :

- (DoS) attack : Hackers flood the server with several thousand fake connections or service requests to disable it.
- identity theft : an imposter obtains key pieces of personal information, such as social security id, or credit card numbers, to impersonate someone else. The information may be used to obtain credit in the name of the victim.
- Click fraud : occurs when an individual or computer program fraudulently clicks on an online ad without any intention of making a purchase.

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- Authentication : the ability to know that a person is who he claims to be.
- Examples of different authentication techniques :
 - Password
 - A token
 - A smart card
 - Biometric authentication

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- The hardware considerations :
 - 1- Performance
 - 2- Compatibility
 - 3- Modularity/Expandability
 - 4- Ergonomics
 - 5- Software availability
 - 6- Vendor
 - 7- Cost
- The software consideration :
 - 1- Efficiency
 - 2- Ease of use
 - 3- Documentation
 - 4- Hardware requirements
 - 5- Vendor
 - 6- Cost

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