Final exam

Q1: What is normalization?

Ans:Normalization is the process of organizing data in a database. This includes creating tables and establishing relationships between those tables according to rules designed both to protect the data and to make the database more flexible by eliminating redundancy and inconsistent dependency.

Q2: What is 1NF? Explain with examples.

Ans:First normal form (1NF) is a property of a relation in a relational database. A relation is in first normal form if and only if the domain of each attribute contains only atomic (indivisible) values, and the value of each attribute contains only a single value from that domain.For example, in the table shown below, the values in the [Color] column in the first row can be divided into "red" and "green", hence [TABLE_PRODUCT] is not in 1NF. A repeating group means that a table contains two or more columns that are closely related.

Q3: What is 3NF? Explain with examples.

Ans:Third normal form (3NF) is a database schema design approach for relational databases which uses normalizing principles to reduce the duplication of data, avoid data anomalies, ensure referential integrity, and simplify data management. For example,A relation is in third normal form if it is in 2NF and no non key attribute is transitively dependent on the primary key. ... The table in this example is in 1NF

and in 2NF. But there is a transitive dependency between Bank_Code_No and Bank, because Bank_Code_No is not the primary key of this relation.

Q4: What is BCNF? Explain with examples.

Ans:Boyce–Codd normal form (or BCNF or 3.5NF) is a normal form used in database normalization. It is a slightly stronger version of the third normal form (3NF). If a relational schema is in BCNF then all redundancy based on functional dependency has been removed, although other types of redundancy may still exist.For example,BCNF is an extension to Third Normal Form (3NF) and is slightly stronger than 3NF. A relation R is in BCNF, if P -> Q is a trivial functional dependency and P is a superkey for R.

Q5: What is Operating system? Give examples?

Ans:An operating system (OS) is system software that manages computer hardware, software resources, and provides common services for computer programs. ... Other specialized classes of operating systems, such as embedded and real-time systems, exist for many applications.Examples of Operating Systems,Some examples include versions of Microsoft Windows (like Windows 10, Windows 8, Windows 7, Windows Vista, and Windows XP), Apple's macOS (formerly OS X), Chrome OS, BlackBerry Tablet OS, and flavors of Linux, an open-source operating system.

Q6: What is Linux operating system? Why it is considered as better alternative than windows?

Ans:Linux is an open source operating system (OS). An operating system is the software that directly manages a system's hardware and

resources, like CPU, memory, and storage. The OS sits between applications and hardware and makes the connections between all of your software and the physical resources that do the work.Linux offers great speed and security, on the other hand, Windows offers great ease of use, so that even non-tech-savvy people can work easily on personal computers. Linux is employed by many corporate organizations as servers and OS for security purpose while Windows is mostly employed by business users and gamers.

Q7: What is trojen horse?

Ans:A Trojan horse, or Trojan, is a type of malicious code or software that looks legitimate but can take control of your computer. A Trojan is designed to damage, disrupt, steal, or in general inflict some other harmful action on your data or network. A Trojan acts like a bona fide application or file to trick you.

Q8: What is MD5 hash and exlpain its significance using a practcal example?

Ans:MD5 processes a variable-length message into a fixed-length output of 128 bits. The input message is broken up into chunks of 512-bit blocks (sixteen 32-bit words); the message is padded so that its length is divisible by 512. The padding works as follows: first a single bit, 1, is appended to the end of the message.Its main purpose is to verify that a file has been unaltered. Instead of confirming that two sets of data are identical by comparing the raw data, MD5 does this by producing a checksum on both sets and then comparing the checksums to verify that they're the same.

Q9: What is dark web?

Ans:The dark web refers to encrypted online content that is not indexed by conventional search engines. ... Most deep web content consists of private files hosted on Dropbox and its competitors or subscriber-only databases rather than anything illegal. Specific browsers, such as Tor Browser, are required to reach the dark web.

Q10: How can be we access dark web?

Ans:The dark web can only be visited with special web browsers such as the Tor-browser. Through the Tor-browser you can visit .onion web addresses (URLs). With browsers like Google Chrome, Microsoft Edge, and Mozilla Firefox you cannot visit these dark web websites.

Q11: What is black and white hat hackers?

Ans:Some hackers are criminals and use their computer skills to harm or damage computer systems. These people are called black hat hackers. White hat hackers, on the other hand, use their computer skills to perform ethical hacking.

Q12: Which operating systems are used for hacking and penetration testing?

Ans:Linux Hacking:

Linux is an extremely popular operating system for hackers. There are two main reasons behind this.

Q13: Why windows are more prone to viruses?

Ans:Since Windows is by far the most prevalent operating system, just the sheer number of devices ensures that Windows users will end up getting more viruses. Now that Macs are selling pretty well, the number

of incidents of viruses and malware has gone up too. OS X is inherently not any more secure than Windows.

Q15: What is open source softwares?

Ans: A software for which the original source code is made freely available and may be redistributed and modified according to the requirement of the user. As the source code of an open source program can be modified by anyone without any licence to do the same, this is also free to download.

Q16: Why windows Vista was a big failure?

Ans:Microsoft either forgot or disregarded that fact when it released Windows Vista, because, despite a long beta period, a lot of existing software and hardware were not compatible with Vista when it was released in January 2007. ... In other words, Vista broke a lot of the things that users were used to doing in XP.