**Assignment 2**

**Pre-book**

1. Explain the difference between software and hardware

Hardware is physical, software is something in memory.

2. Explain the difference between web server, database server, mail sever, application server, and file server

* web servers present data
* database servers store, organize, and retrieve data
* mail server stores, organizes, receives, and sends email
* application server hosts an application that client applications connect to
* file servers allow remote filesystem access

3. What is Linux and how does it differ from Windows?

The Linux kernel is open source and modular. Windows is not modular, and is much more restrictive when it comes to customization / specialization. \*nix operating systems have a tendency to less “user friendly” than Windows operating systems, but in a way that allows for greater control over the system and applications running on it. As a general rule, the more customization an application (in this case, the “operating system”) has, the less user friendly the application is.

In any case, the main differences between Linux and Windows, in general, come down to file permissions, the extensive use of the multi-user environment paradigm in Linux, compatible filesystem formats, executable file formats, and the general extensibility of the operating system for interfacing with other devices.

4. Know two types of web servers and how they differ?

Apache, and IIS. Apache is open source, thus peer reviewed. Apache has a huge “marketshare” on web serving. IIS is Microsoft's proprietary web service software. Not being open source, it's less configurable by its very nature. Also, not being open source, bugs and bug fixing is much, much less transparent. Thus security might be a concern, and thus it's lower “marketshare.”

5. What does ACID stand for in regard to database servers?

* A – Atomic – transaction failure results in no change
* C – Consistent – By the end of any transaction, all rules are enforced, and in distributed databases, all copies of data are the same.
* I – Isolated – transactions are “atomic” in the same use of the word in the context of multi-threading, i.e. concurrent transactions are not affecting the same data
* D – Durable – Failure is difficult, and in the event of failure, recovery to a sane state is always possible

6. List at least 3 different database servers.

* MySQL
* Oracle
* PostgreSQL
* SQLite
* MS SQL Server
* Microsoft Access

7. What is a scripting language and give an example of one?

In general, a script is a short program designed to do one function and one function only. A scripting language is a language that can be used to write a script. Scripting languages include, but are not limited to, Javascript, python, bash, batch, php

8. What is an FTP server used for and give an example of one that is graphical and one that is command line?

FTP servers provide remote filesystem access. Filezilla is a graphical FTP client, and also has a server version. vsftpd is a command line ftp client / server for \*nix operating systems.

**Introduction**

1. What is PHP, where is it put in the document and how is it interpreted?

PHP is a server-side scripting language designed for the web. It is embedded into a web page and interpreted by the web server. It can create HTML or some other action.

I assume it's interpreted the same way most other interpreted languages are interpreted, a virtual machine in the web server translates the source into something that it can act on, and then acts on it.

2. What is MySQL and how is it used?

It is an open source database server. It's used to enable efficient storage and retrieval of data.

3. What are the strengths of PHP

It looks to be a full scale programming language. It claims to be fast. It has easy interfacing with database servers, good built in libraries, and is based on C. Those are the main features that stand out to me. It has more features, but those are the ones I would care about when choosing a scripting language.