1. What are the subsystems of the Neumann computer models? （6 points）

**The subsystems are the memory, arithmetic/logic unit, control unit, and input/output**

2. What are the functions of the three buses that connect the CPU with memory? （8 points）

**The data bus is used to transfer data to and from memory. The address bus allows**

**access to particular words in memory. The control bus is used to control the operations**

**of the CPU and memory.**

4. What is the components of an operating system? (8 points）

**The components of an operating system are: memory manager, process manager,**

**device manager, file manager, and the user interface**

5. Name the layers of the OSI(Open Systems Interconnection) model. (8 points)

**The seven layers of the OSI model are: physical, data link, network, transport, session,**

**presentation, and application**

6. What is meant by the software life cycle? (8 points)

**Software goes through a cycle of repeating phases until it becomes obsolete.**

2. Name five types of data that a computer can process. （6 points）

**Text, numbers, images, audio, and video**

4. Define the term ***overflow***.

**Overflow happens when the result of an arithmetic operation is outside the range**

**of possible values for the bit allocation being used.**

5. What is the USB controller? （6 points）

**The USB (universal serial bus) controller is a serial controller used to communicate**

**with slower devices. It also supplies power to the devices.**

6. What are the four phases in software development? （8 points）

**Analysis, design, implementation, and testing**

7. Name the layers of the TCP/IP protocol suite. （7 points）

**The layers of the TCP/IP protocol suite are: network, transport, and application.**

***8***. Define software engineering.

**Software engineering is the establishment and use of sound engineering methods**

**and principles to obtain reliable software that works on real machines.**

***9***. Name the logical binary operation.?

**The logical binary operations are: AND, OR, and XOR.**