Midterm Exam Questions

1. Describe a scenario where the bus speed could become a bottleneck in a computer system. What are some possible solutions?
2. Describe the Von Neumann architecture and explain how it influences modern computer systems.
3. Compare and contrast the functions of system software and application software, providing examples of each.
4. You are tasked with installing a new operating system on a computer. List the steps you would take to ensure the operating system is installed correctly.
5. Explain the concept of the Turing machine and its significance in computer science.
6. A computer is running slowly even though the CPU usage is low. What other hardware components could be causing the issue, and how would you diagnose them?
7. Perform (1011) - (111100) using 1's and 2's complement.
8. Convert the binary number (101101) to decimal.
9. Perform the binary subtraction of 10011 from 1101 using borrowing.
10. Perform the binary division 10110 ÷11.