Subject code: PC234EC Semester: 2nd

Subject name: Computer Organisation & Architecture ACY: 2020-2021

Assignment Questions

1. Explain the concept of computer generations and how computer architecture has evolved over time.
2. Discuss the importance of fixed-point representation of numbers in computer systems. Provide examples to illustrate its use.
3. Define digital arithmetic algorithms and elaborate on the applications of Booth's algorithm in the context of multiplication.
4. Define instruction codes and explain their role in computer systems. How do they contribute to the execution of instructions?
5. Discuss the concept of stored program organization in computers. How does it facilitate the execution of programs in a computer system?
6. Explain the common bus system in the context of computer architecture. What advantages does a common bus system offer in terms of data transfer?
7. Explain the concept of general register organization in computer architecture. How does it enhance the efficiency of data manipulation in a CPU?
8. Discuss the features of CISC (Complex Instruction Set Computing) and RISC (Reduced Instruction Set Computing) architectures. Provide a comparison of their characteristics and advantages.
9. Describe the different instruction formats used in computer systems. How do instruction formats contribute to efficient data transfer and manipulation?
10. Define the I/O interface and its significance in computer systems. How does it facilitate communication between the CPU and external devices?
11. Compare and contrast the I/O bus with the memory bus. Highlight the key differences in their structures and functionalities.
12. Explain the principles of asynchronous data transfer, including strobe control and handshaking. How do these mechanisms ensure reliable communication between devices?
13. Define memory hierarchy and explain its significance in computer systems. How does the memory hierarchy contribute to efficient data storage and retrieval?
14. Discuss the concepts of primary memory and auxiliary memory. What are their respective roles in the overall memory hierarchy of a computer system?
15. Explore cache memory and its mapping functions. How do cache mapping techniques optimize data access and improve system performance in a memory hierarchy?