

Here are the unique questions left after removing the common ones:

1. **Explain the assembly language programming process and discuss Register Transfer Language.**
2. **Describe the basic computer design and the role of each component, including the accumulator unit.**
3. **Discuss the design of a control unit using microprogramming and provide an example.**
4. **What is a bus? Explain the different types of bus architectures that are used in computer systems.**
5. **Explain the difference between RISC and CISC architectures, and provide examples of each.**
6. **What is an interrupt and how does it affect the operation of a computer system?**
7. **Explain the difference between direct and indirect addressing modes.**
8. **What are micro-operations? Discuss the various types of micro-operations.**
9. **Discuss the various types of memory organization techniques. Which technique do you think is the most efficient and why?**
10. **Discuss the role of a cache memory in a computer system. How does it help in improving the performance of the system?**
11. **Compare and contrast synchronous and asynchronous data transfer. Which one do you think is better and why?**
12. **Explain microprogram instruction format with a suitable example.**
13. **List out any five registers of the CPU with their core functionalities.**
14. **Draw the block diagram of DMA and explain.**
15. **Represent 10 and -10 using 2's complement.**
16. **What is pipelining? Explain the various stages involved in the instruction cycle.**
17. **Write micro-operations needed to execute the following instructions:**
 - ADD
 - Load and store
18. **Write one, two, and three address instructions program for the following arithmetic expression:**
 - $Z = (A + B) * (C - D / E) + F / G$
19. **Write a program to evaluate the following arithmetic statement:**
 - $X = C + D * (A - B) * (F / E + H)$
20. **Write any assembly-level program for the addition of three numbers.**
21. **Convert the given decimal number to binary and then into hexadecimal:**

- (a) 1026
 - (b) 223
22. Discuss the various addressing modes that are used in computer systems. Provide examples of instructions that use each of these addressing modes.
23. What does this micro-operation mean?
- a) $R2 = R1$
 - b) $R1 = A + B$
 - c) $A = \text{shl } A$
 - d) $R = R1 + R2$
 - e) $PC = PC + 1$
24. Explain the concept of register transfer language. How does it help in designing digital systems?
25. Discuss the functions of the arithmetic logical shift unit in a computer system.
26. How does the memory hierarchy help in improving the performance of a system? Explain the role of each level of the memory hierarchy.
27. Compare and contrast RISC and CISC architectures. Which architecture do you think is better and why?
28. What is an interrupt? Explain the interrupt cycle in detail.
29. Explain the design of a basic computer system with a neat block diagram.
30. Discuss the role of control memory in microprogrammed control organization.
31. Compare and contrast synchronous and asynchronous data transfer. Which one do you think is better and why?
32. Write micro-operations needed to execute the following instructions:
- ADD
 - LDA (Load accumulator)
33. List any five registers of a basic computer with their functionalities.
34. Represent 12 and -12 using 2's complement.
35. Explain micro-program instruction format with a suitable example.
36. Write micro-operations needed to execute the following instructions:
- ADD
 - LDA
37. Write a three-address and one-address instruction program for the following arithmetic expression:

$$\circ \quad Z = (A + B) * (C - D / E) + F / G$$

Let's identify and remove the repeated questions and then list the unique questions:

Unique Questions Left

1. Explain the assembly language programming process and discuss Register Transfer Language.
2. Describe the basic computer design and the role of each component, including the accumulator unit.
3. Discuss the design of a control unit using microprogramming and provide an example.
4. What is a bus? Explain the different types of bus architectures that are used in computer systems.
5. Explain the difference between RISC and CISC architectures, and provide examples of each.
6. What is an interrupt and how does it affect the operation of a computer system?
7. Explain the difference between direct and indirect addressing modes.
8. Discuss the role of a cache memory in a computer system. How does it help in improving the performance of the system?
9. Compare and contrast synchronous and asynchronous data transfer. Which one do you think is better and why?
10. Explain microprogram instruction format with a suitable example.
11. List out any five registers of the CPU with their core functionalities.
12. Draw the block diagram of DMA and explain.
13. Represent 10 and -10 using 2's complement.
14. What is pipelining? Explain the various stages involved in the instruction cycle.
15. Write micro-operations needed to execute the following instructions:
 - ADD
 - Load and store
16. Write one, two, and three address instructions program for the following arithmetic expression: $Z = (A + B) \times (C - \frac{D}{E}) + \frac{F}{G}$.
17. Write a program to evaluate the following arithmetic statement: $X = C + D \times (A - B) \times \left(\frac{F}{E} + H \right)$.
18. Write any assembly level program for the addition of three numbers.
19. Convert the given decimal number to binary and then into hexadecimal:
 - (a) 1026
 - (b) 223

20. Discuss the various addressing modes that are used in computer systems. Provide examples of instructions that use each of these addressing modes.

21. What does this micro-operation mean:

- a) $R2 \leftarrow R1$
- b) $R1 \leftarrow A + B$
- c) $A \leftarrow \text{shr } A$
- d) $R \leftarrow R1 + R2$
- e) $PC \leftarrow PC + 1$

22. Explain the concept of register transfer language. How does it help in designing digital systems?

23. Discuss the functions of the arithmetic logical shift unit in a computer system.

24. How does the memory hierarchy help in improving the performance of a system? Explain the role of each level of the memory hierarchy.

25. Explain the various stages involved in the instruction cycle.

26. Write microoperations needed to execute the following instructions: ADD, LDA.

27. Write a program to evaluate the following arithmetic statement: $X = A + B \times (C - D) \times \left(\frac{E}{F} + G \right)$.

28. Convert the given decimal number to binary and binary to decimal:

- (a) 265
- (b) 1100110

29. What is the purpose of address sequencing in a microprogrammed control unit?

Now you have the unique questions left after removing the common ones. If you need further explanations or detailed answers for any of these questions, feel free to ask!