Consolidated Sample Question Paper

A14-MICROPROCESSORS ARCHITECTURE AND PROGRAMMING

(Based on 2022, 2023, 2024 Degree Examinations)

This paper consolidates unique questions from the April 2022, April 2023, and April 2024 examinations. The year(s) in which each question appeared and the total number of times it appeared are indicated in brackets.

Section A

Short Answer Questions

1. What is a Microprocessor? (2024 - 1 time)
2. What do you mean by multiplexing of data bus? (2024 - 1 time)
3. What is the size of a register in 8085? Name the valid register pairs in 8085. (2024 - 1 time)
4. Differentiate between data bus and address bus. (2024 - 1 time)
5. What do you mean by maskable interrupts? (2024 - 1 time)
6. What are the software interrupts in 8085? (2024 - 1 time)
7. What is stack pointer? (2024 - 1 time)
8. What is the function of POP instruction? (2024 - 1 time)
9. What is the function/use of ALE signal in 8085? (2024, 2022 - 2 times)
10. Which logical instruction can be used for clearing the accumulator? (2024 - 1 time)
11. Give two differences between 8086 and 8088. (2024 - 1 time)
12. Differentiate between CMP and SUB instruction. (2024 - 1 time)
13. What do you mean by mode 0 operation of 8255? (2024 - 1 time)
14. What is the function of overflow flag in 8086? (2024 - 1 time)
15. What do you mean by maximum mode operation of 8086? (2024 - 1 time)
16. Name the 16 bit registers available in 8085. (2022 - 1 time)
17. What is the function of IO/M■ signal in the 8085? (2022 - 1 time)
18. Mention the purpose of SID and SOD lines. (2022 - 1 time)
19. What do you mean by memory mapping? (2022 - 1 time)
20. Differentiate between Instruction cycle, Machine cycle and T-states. (2022 - 1 time)
21. Explain the instruction DAA. (2022 - 1 time)
22. How many address lines are there in a 4096 x 8 EPROM CHIP? (2022 - 1 time)
23. What do you mean by priority in an interrupt? (2022 - 1 time)
24. What is the importance of IN and OUT instructions? (2022 - 1 time)
25. Explain the difference between a JMP instruction and CALL instruction. (2022 - 1 time)

26. What is PSW in 8085? (2022 - 1 time)
27. What is the purpose of restart instructions in 8085? (2022 - 1 time)
28. What are the modes of operations of 8254? (2022 - 1 time)
29. What are the different types of instructions in 8086? (2022 - 1 time)
30. List few applications of microprocessor-based system. (2023 - 1 time)
31. What is an Assembler? (2023 - 1 time)
32. What is the purpose of HOLD pin in 8085? (2023 - 1 time)
33. What is the clock frequency of 8085? (2023 - 1 time)
34. How is address de-multiplexing done in 8085? (2023 - 1 time)
35. What are the program control instructions available in 8085? (2023 - 1 time)
36. What is the primary difference between memory read and instruction fetch operations in 8085? (2023 - 1 time)
37. Predict the accumulator content while executing the following instructions: MOV A, M; XRA A. (2023 - 1 time)
38. Explain the various machine cycles associated with the execution of the instruction: OUT 80H. (2023 - 1 time)
39. What is a delay program and what are its uses? (2023 - 1 time)
40. List the four instructions which control the interrupt structure of the 8085 microprocessor. (2023 - 1 time)
41. What are the applications of 8255A PPI? (2023 - 1 time)
42. What are the modes of operation of 8237 IC? (2023 - 1 time)
43. Define Pipelining. (2023 - 1 time)
44. What is NMI? (2023 - 1 time)

Section B

Medium Answer Questions

1. What are different microprocessor initiated operations of 8085? (2024 - 1 time)
2. Describe the instruction format of 8085 based on the number of bytes used. (2024 - 1 time)
3. Draw the timing diagram of the instruction MVI B, data. (2024 - 1 time)
4. Write an 8085 assembly language program for block data transfer (i.e., transferring a set of data from one location to another location). (2024 - 1 time)
5. What are the functions of RIM and SIM instruction? (2024 - 1 time)
6. Explain how data transfer is performed using 8257 DMA controller. (2024 - 1 time)
7. Explain the BSR mode of 8255. (2024 - 1 time)
8. Explain the function of segment registers in 8086. (2024 - 1 time)
9. Explain how the memory is classified in computer architecture. (2022 - 1 time)
10. What are flags? Explain how flags are accessed in 8085. (2022 - 1 time)
11. Discuss the various machine cycles involved in 8085. (2022 - 1 time)
12. Draw the timing diagram associated with the instruction: MOV M,A (e.g., at an address A000h). (2022 - 1 time)

13. Write an 8085 assembly program to check the number of 1's in a byte taken into the accumulator from a memory location (e.g., 4000H). (2022 - 1 time)
14. What is stack? Explain how stack is used in 8085. (2022 - 1 time)
15. Draw the internal block diagram showing the various units in 8237 chip. (2022 - 1 time)
16. What are the different busses in 8086? Explain in brief. (2022 - 1 time)
17. Draw and explain the pin out of 8085 microprocessor. (2023 - 1 time)
18. Explain the role of accumulator in 8085. (2023 - 1 time)
19. Discuss the logical instructions in 8085. (2023 - 1 time)
20. Write an 8085 ALP to add the numbers stored in memory locations with a starting address (e.g., 5500H). (2023 - 1 time)
21. Draw and explain the timing diagram for executing the instruction: STA address (e.g., STA 526AH, given opcode 41FFH). (2023 - 1 time)
22. Explain the branching instructions in 8085. (2023 - 1 time)
23. Explain the various hardware interrupts in 8085. How are these interrupts serviced during a program? (2023 - 1 time)

Section C

Long Answer/Essay Questions

1. Explain the classification of instructions in 8085. (2024 - 1 time)
2. Describe in detail the interrupts of 8085 (including types, priority, and servicing). (2024 - 1 time)
3. With block diagram, explain the internal architecture and working of the Programmable Interval Timer, 8254. (2024, 2023 - 2 times)
4. With block diagram, explain the internal architecture of 8086. (2024 - 1 time)
5. Explain the bus organisation in 8085 microprocessor. Describe the flag registers associated with 8085. (2022 - 1 time)
6. Discuss the various mathematical and logical instructions used in 8085. (2022 - 1 time)
7. Explain the modes of operation in 8255A PPI. (2022 (Sec C), 2023 (Sec B) - 2 times)
8. Explain the addressing modes in 8086. (2022 - 1 time)
9. Discuss the register organisation in 8085. (2023 - 1 time)
10. Explain the various addressing modes in 8085 with proper examples. (2023 - 1 time)
11. Explain the internal organisation of registers in 8086. (2023 - 1 time)
