



MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)
Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.

Department of Artificial Intelligent and Data Science Question Bank - Academic Year (2021-22)

Course Code & Course Name : 19ADC03 & PROCESSOR ARCHITECTURE
Name of the Faculty : Mrs.P.Subhasundari
Year/Sem/Sec : II/III AI&DS

Unit-I: INTRODUCTION TO 80X86 PROCESSORS

Part-A (2 Marks)

1. Define ALE.
2. Demonstrate the use of stack pointer.
3. Give out the function of program counter in 8085 microprocessor?
4. Why data bus is bidirectional?
5. Label out the machine cycle of 8085 microprocessor.
6. What are the interrupts available in 8085 microprocessor?
7. Define the software and hardware interrupts.
8. Illustrate the function of HOLD and HLDA.
9. List some of the logical instruction in 8085.
10. Name the vectored and non vectored interrupts of 8085.

Part-B (16 Marks)

- 1.(i). Elucidate the functional block diagram of processor. (8)
(ii). Discuss the internal hardware architecture of 8085 with a neat diagram. (8)
- 2.(i). Draw the pin diagram of 8085 and explain the functions of various signals. (8)
(ii). Describe with suitable examples the data transfer instructions of 8085 microprocessor. (8)
- 3.(i). Explain the various addressing modes of 8085 microprocessor with suitable examples (8)
(ii). Illustrate the data arithmetic instruction with suitable example. (8)
- 4.(i). Draw and explain the timing diagram of memory right operation. (8)
(ii). Interpret the bit manipulation and logical instruction set of 8085 microprocessor. (8)
- 5.(i). Demonstrate the types of interrupts in detail with suitable sketches. (8)
(ii). Decipher the memory organization of 8085 processor. (8)

Unit-II : ASSEMBLY LANGUAGE PROGRAMMING

Part-A (2 Marks)

1. Distinguish the PUSH and POP instructions.
2. Point out the basic modes of operation of 8255.
3. Mention the salient features of INTEL 8259 programmable interrupt controller.
4. List out the operating modes of 8254 timer.
5. What is meant by cascading in 8259?
6. List some of the features of 8237 DMA.
7. Clarify the term hand shake port.
8. Define baud rate.
9. What are the functions of DMA controller?
10. State the function of DSR and DTR pins in 8251.

Part-B (16 Marks)

- 1.(i). Explain the memory segmentation of 8086 μ P. (8)
(ii). Write a short note on memory of 8086 microprocessor. (8)
- 2.(i). Explain the physical memory organization in an 8086 μ P. (8)
(ii). Mention the features of Pentium processor (8)
- 3.(i). List the major features of the 80386 processor. (8)
(ii). List the features of 80286 processor. (8)
- 4.(i). Write an ALP to perform Descending order operation on numerical values using 8085. (8)
(ii). Draw the subroutine with flowchart and example program. (8)
- 5.(i). Write an ALP to sum of series in 8085. (8)
(ii). Explain Indexing and Loop structure with flowchart and example program. (8)

Unit-III : MEMORY MANAGEMENT

Part-A (2 Marks)

1. What is address translation page fault routine, page fault and demand paging?
2. What is associate memory?
3. Define Seek time and latency time.
4. What is TLB?
5. Define Magneto Optical disk.
6. Define Virtual memory.
7. What are the enhancements used in the memory management?
8. Define set associative cache.
9. What is meant by block replacement?
10. List the advantages of write through cache.

Part-B (16 Marks)

- 1.(i). Illustrate the characteristics of some common memory technologies.
(ii). Describe in detail about associative memory.
- 2.(i). Discuss the concept of Memory interleaving and give its advantages.
(ii). Discuss the different mapping techniques used in cache memories and their relative merits and demerits.
- 3.(i). Comparing paging and segmentation mechanisms for implementing the virtual memory.
(ii). What do you mean by virtual memory? Discuss how paging helps in implementing virtual memory.
- 4.(i). Discuss any six ways of improving the cache performance.
(ii). Explain the virtual memory translation and TLB with necessary diagram.
- 5.(i). Explain the organization of magnetic disk and magnetic tape in detail
(ii). Illustrate the characteristics of some common memory technologies.

Unit-IV : MULTITASKING, INTERRUPTS, EXCEPTIONS AND I/O

Part-A (2 Marks)

1. Define Virtual memory.
2. What are the enhancements used in the memory management?
3. Define the term LRU and LFU.
4. Define memory cycle time.
5. What is static memories?
6. What is locality of reference?
7. Define set associative cache.
8. What is meant by block replacement?
9. List the advantages of write through cache.
10. Give formula to calculate average memory access time.

Part-B (16 Marks)

- 1.(i). Explain with the block diagram the DMA transfer in a computer system. (8)
- (ii). Describe in detail about paging Organization. (8)
- 2.(i). Describe the data transfer method using DMA. (8)
- (ii). Write short notes on the following (8)
- 3.(i). Define Interrupt and classify the interrupts. (8)
- (ii). Explain multiple interrupts (8)
- 4.(i). Discuss the design of a typical input or output interface. (8)
- (ii). What are interrupts? How are they handled? (8)
- 5.(i). Give comparison between memory mapped I/O and I/O mapped I/O. (8)
- (ii). What is address translation page fault routine, page fault and demand paging? (8)

Unit-V : MICROCONTROLLER

Part-A (2 Marks)

1. What are the different addressing modes of 8051?
2. State the purpose and importance of NOP operation.
3. Mention the function of rotate instruction. Give an example.
4. What is the purpose of timing diagram in 8051 controller?
5. Give the function of CMP instructions.
6. List the interrupt of 8051 controller.
7. Mention the purpose of SID and SOD lines.
8. Define stack and stack related instructions.
9. List the features of 8051 controller.
10. Clarify the term pipelining.

Part-B (16 Marks)

- 1.(i). Draw the pin diagram of 8051 and explain the functions of various signals.
(ii). With the help of neat diagram, explain the memory organization of 8051 controller.
- 2.(i). Briefly explain about the arithmetic and logical instructions of 8051 microcontroller.
(ii). With neat architecture, explain about the 8051 microcontroller.
- 3.(i). Expound the I/O pins ports and circuit details of 8051 with its diagram.
(ii). Elucidate the register banks and special function register of 8051.
- 4.(i). Decipher the vectored interrupts of 8051 microcontroller.
(ii). Illustrate the interrupt structure of 8051 in detail.
- 5.(i). Draw the data memory organization of 8051 microcontroller and explain.
(ii). Explain the different operating modes of timer in 8051 controller.

Course Faculty

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