ANNA UNIVERSITY MICROPROCESSOR AND MICROCONTROLLER QUESTION BANK

MICROPROCESSOR AND MICROCONTROLLER

UNIT-1

PART-A (2 MARKS)

1. How many memory locations are available in 8086 microprocessor?
2. What are the flags available in 8086 microprocessor?
3. What are the general purpose registers in 8086?
4. What are the functional units in 8086?
5. What is the purpose of BIU?
6. What is the purpose of EU?
7. What is the purpose of segment register?
8. What are the segment registers in 8086?
9. What is the function of IP?
10. What is the function of control unit?
11. What is the use of base pointer register?
12. Mention the index registers of 8086.
13. What are the flags in 8086? What are the various interrupts in 8086?
14. What is meant by Maskable interrupts?
15. What is Non-Maskable interrupts?
16. Which interrupts are generally used for critical events
17. Give examples for Maskable interrupts?
18. Give example for Non-Maskable interrupts?
19. What is the Maximum clock frequency in 8086?
20. What are the various segment registers in 8086?
21. Which Stack is used in 8086
22. What are the address lines for the software interrupts?
23. What are the address lines for the hardware interrupts? -
24. Which Segment is used to store interrupt and subroutine return address registers?
25. Which Flags can be set or reset by the programmer and also used to control the operation of the processor?

PART-B (16 MARKS)

1. Draw the block diagram of 8086 mp and explain? (12)
2. Explain the architecture of Intel 8086 with the help of a block diagram? (12)
3. Describe the sequence of event that may occur during the different T state in the opcode fetch machine cycle of 8086? (8)
4. List out the maskable and non maskable interrupts available in 8086? (6)
5. Explain the Maximum mode of operation of 8086. (12)
6. Write short notes on addressing memory. (4)
7. Explain the minimum mode of operation of 8086. (12)
8. Write notes on addressing input and output devices? (4)
9. Design an 8086 based system in minimum mode containing 64kb of EPROM and64kb of RAM (12)
10. Give the functions of NMI, BHE and TEST pins of 8086? (4)
11. Explain the various multiprocessor configurations. (16)
12. Discuss in detail the various signal of 8086. (10)
13. Explain in detail about 8086 memory banks and associated signals for byte andword operations. (6)

UNIT-II

PART-A (2 MARKS)

1. What is SIM and RIM instructions?
2. Which is the tool used to connect the user and the computer?
3. What is the position of the Stack Pointer after the PUSH instruction?

4. What is the position of the Stack Pointer after the POP instruction?
5. Logic calculations are done in which type of registers?
6. What are the different functional units in 8086?
7. Give examples for Micro controllerWhat is meant by cross-compiler?
8. What is the purpose of CLK signal in an 8086 system?
9. Differentiate the operating modes of 8086 processor?
10. What is a segment override prefix? Give an example.
11. What is the use of LATCH signal on the data lines?
12. What is the need for MN/MX pin in 8086 system?
13. What is the purpose of QUEUE in 8086 processor?
14. Give the operation of CBW and TEST instructions of 8086?
15. List few string instructions of 8086?
16. What is the use of LOCK prefix?
17. What is the purpose of REP prefix?
18. What are assembler directives?
19. What are the advantages of ALP?
20. Define a MACRO?
21. What is MACRO expansion?
22. What are the types of Multiprocessor configuration?
23. What is Co-processor?

PART-B (16MARKS)

1. Write an assembly language program to add two 2-digits BCD Number? (4)
2. Explain the instruction set of 8086? (10)
3. Write notes on status flag? (6)
4. Explain the similarities diff b/w subtract and compare instructions in 8086
5. Write an assembly language program to convert on array of ASCII code to correspondingbinary (hex) value. The ASCII array is stored starting from 4200H.The first element of thenumber of elements in the array. (8)
6. Explain addressing modes of 8086? (10)
7. Write an ALP to Add two 8 bit numbers? (4)
8. How do the instructions of 8086 is classified based on their function and word length?Give an example? (8)
9. Explain the 8086 Bit Manipulation instructions with an example for each. (6)
10. Write an 8086 program to convert BCD Data to Binary Data. (8)
Explain the Relative addressing mode and the Implied addressing mode with its syntax. Use an example. (8)

UNIT-III

PART-A (2 MARKS)

1. Name the two modes of operation of DMA controller?
2. List the operating modes of 8253 timer.

3. Give the control word format of timer?
4. What is the use of USART?
5. Compare serial and parallel communication.
6. What is the use of Keyboard and display controller?
7. What are the functions performed by 8279?
8. What is PPI?
9. Give the control word format for I/O mode of 8255?
10. Give the BSR mode format of 8255.
11. What is the need for interrupt controller?
12. What are the registers present in 8259?
13. What are the applications of 8253?
14. Define interrupts.
15. Define DMA process.
16. Give the status word format of 8257.
17. What are the types of serial data communication?
18. What is baud rate?
19. What is USART?
20. What are the features of 8279?
21. List some of the features of INTEL 8259 (Programmable Interrupt Controller)

22. What are the control words of 8251A and what are its functions ?
23. What are the display modes supported by the 8279 chip?
24. Name any two coprocessors and their use.
25. Give the format of program clock word of 8279 and mention its purpose.
26. Mention any two coprocessors and their use.
27. What is 2 key lockout and n key roolover?
28. Name the two types of CRT display systems.
29. What do you mean by leading edge and trailing edge problems in hexadecimal keyboards?
30. State any two main functions of a CRT controller.

PART-B (16 MARKS)

1. Draw the Block diagram and explain the operations of 8251 serial communication interface. (16)
2. Draw the Block diagram of 8279 and explain the functions of each block. (16)
3. Draw the block diagram of programmable interrupt controller and explain its operations.(16)
4. Discuss in detail about the operation of timer along with its various modes. (16)
5. Draw the Block diagram of DMA controller and explain its operations.
6. Explain the 8279 keyboard and display controller with a neat sketch.
7. Describe the architecture and working of 8253 timer

UNIT –IV

PART-A (2 MARKS)

1. What is Micro controller?
2. What is the difference between microprocessor & micro controller?
3. List the addressing modes of 8051?
4. Explain the instructions used to access external RAM.
5. List the features of 8051 microcontroller?
6. Explain the interrupts of 8051 microcontroller?
7. What is the function of program counter in 8051?
8. Write about the jump statement?
9. Write about CALL statement in 8051?
10. Explain the operating mode0 of 8051 serial ports?
11. Explain the operating mode2 of 8051 serial ports?
12. Explain the mode3 of 8051 serial ports?

PART B (16 MARKS)

1. With neat sketch explain the architecture of 8051 microcontroller. (16)
2. Draw the Pin Diagram of 8051 and explain the function of various
3. signals. (16)
4. List the various Instruction available in 8051 microcontroller. (16)
5. Explain the memory structure of 8051 (16)
6. Explain the I/O port structure of 8051. (16)
7. Draw the pin configuration of 8051, Explain each pin.
8. Explain the instruction set of 8051. (16)
9. MICROPROCESSOR AND MICROCONTROLLER
10. Draw the format of SCON register. Explain different bits in it. (16)
11. Write an assembly language program to find “Fibonacci Series” of “N” given term. (16)
12. Write an assembly language program for stepper motor control.

UNIT –V

PART-A (2 MARKS)

1. How is the microcontroller used for the traffic light control application? Differentiate microprocessor from microcontroller in system design.
2. What are the design considerations for washing machine control?
3. What are the advantages of 8051 microcontroller in washing machine control?
4. How is stepper motor interfaced with microcontroller?
5. What is I2C?

PART B (16 MARKS)

1. Explain how microcontrollers and microprocessors can be used for the washing machine control application. Use sketches.
2. Explain with a neat sketch how microcontrollers and microprocessors can be used for the stepper motor control application.
3. Explain in the detail the process involved in the design of traffic light controller with