

B.Tech II Year 4th Semester

Year(2022)

Branch ECE

Subject : Microprocessor and Microcontroller

Final semester

Time : 3 Hour

M.M : 120

1. Answer the following questions.
 - a) How ALE is important for 8085 microprocessor operation.
 - b) Draw the register organization of 8086 microprocessor.
 - c) Write the difference between counter type and successive type A/D converter.
 - d) Write the structure of assembly language in 8051.
 - e) Define cache memory . Which semiconductor memory is used as cache memory?
2. Answer the following questions.
 - a) Explain the each bit of flags register for 8085 microprocessor using an example.
 - b) Describe the function of execution unit and bus interface unit of 8086 microprocessor?
 - c) Write the short note on programmable interval timer 8254 using proper diagram?
 - d) Describe the steps for assembling and running an 8051 program using flowchart.
 - e) Write the notes on enabling and disabling an interrupt also show the bits of interrupt enable register.
3. Part(a) is compulsory and attempt any one part from part(b) or part (c).
 - a) Explain the register bank of 8085 microprocessor. Also write the difference between program counter and stack pointer of 8085 microprocessor. (6)
 - b) Draw and explain the pin diagram of 8085 microprocessor. (12)

OR

 - c) Write a 8085 assembly language program to count continuously in hexadecimal from FFH to 00H in a system with a 0.5 μ s clock period. Use register C to setup a one millisecond delay between each count and display the numbers at one of the output ports.
4. Part(a) is compulsory and attempt any one part from part(b) or part (c).
 - a) Write a 8086 assembly language program to convert BCDA data into binary data. (6)
 - b) Explain briefly about the internal hardware architecture of 8086 microprocessor with a neat Diagram. (12)

OR

 - c) Discuss the maximum mode configuration of 8086 with neat diagram, Mention the functions of the various signals.
5. Part(a) is compulsory and attempt any one part from part(b) or part (c).
 - a) What is DMA ? Explain the DMA based data transfer using DMA controller. (6)
 - b) Draw and explain the circuit diagram of successive approximation A/D converter for 4 bit binary data. (12)

OR

 - c) With a neat functional block diagram , explain the functions of 8259 programmable interrupt controller.
6. Part(a) is compulsory and attempt any one part from part(b) or part (c).
 - a) Describe the program status word register of 8051 microcontroller. Show how register bank is change by RS1 and RS0 bit. (6)
 - b) Ten hex numbers are stored in RAM locations 40H onwards. Write a program to find the biggest number in the set. The biggest number should finally saved in 50H. (12)

OR

- c) Draw and explain the each bit of TMOS register for Timer 0 and Timer 1. How is the TMOD register modified to make each of the timers operate as counter? Also find the timer's clock frequency and its period for 8051 microcontroller systems at crystal frequency of 12MHz.
7. Part(a) is compulsory and attempt any one part from part(b) or part (c).
- a) Using a proper circuit diagram explain how RS232 is connected with 8051 microcontroller. (6)
- b) Draw and explain the circuit diagram for interfacing the keyboard to 8051 microcontroller. (12)
- OR
- c) Define interrupt in 8051 microcontroller. What are the multiple source of interrupt also explain maskable and non-maskable source of interrupt? Draw the interrupt vector table for the 8051 microcontroller.