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.

Estd. 2000

Department of Robotics and Automation
Question Bank - Academic Year (2021-22)

Course Code & Course Name : 19RAC12 &Microprocessor and Applications

Year/Sem : II/IV

Unit-I: 8085 Processor

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. Write an 8 bit addition program of 8085 processor.
5. Compare Microprocessor and Microcontroller.
6. What are the interrupts available in 8085 microprocessor?
7. Classify the flags available in 8085.
8. Name the buses present in 8085 processor.
9. List some of the logical instruction in 8085.
10. Clarify the term PC.

Part-B (16 Marks)

1.(i).	Illustrate the Logical instruction with suitable example	(8)
(ii).	Discuss the internal hardware architecture of 8085 with a neat diagram.	(8)
2.(i).	Show 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 8085 microprocessor.	(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 : 8051 Controller

Part-A (2 Marks)

1. What are the different addressing modes of 8051?
2. Define microcontroller.
3. State Indexing.
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. How the 8051 instructions are classified
8. What is meant by counting?
9. List the features of 8051 controller.
10. Clarify the term pipelining.

Part-B (16 Marks)

1. Draw the pin diagram of 8051 and explain the functions of various signals. (16)
2. Discuss about counting with flow chart and suitable program (16)
3. Briefly explain about the arithmetic and logical instructions of 8051 microcontroller. (16)
4. With neat architecture, explain about the 8051 microcontroller. (16)
5. Expound the I/O pins ports and circuit details of 8051 with its diagram. (16)

Unit-III : Programming and Advanced Controllers

Part-A (2 Marks)

1. Clarify the term subroutine.
2. Classify the subroutines.
3. Define looping.
4. Clarify the term indexing.
5. What is PIC Microcontroller
6. Write an 8 bit subtraction program using 8085 processor.
7. Justify the use of CALL and RET instructions.
8. State the advantage and disadvantages of PIC microcontroller
9. List out the features of PIC16C6X architecture.
10. Infer the term Power on reset & Brown out reset.

Part-B (16 Marks)

1.(i). Write an ALP to perform addition and subtraction on two 8- bit data using 8085. (8)

(ii). With neat architecture, explain about the PIC16C6X microcontroller. (8)

2.(i). Write an ALP to perform Ascending order operation on numerical values using 8085. (8)

(ii). Interpret the concept of Looping and counting with suitable example program. (8)

3.(i). Write an ALP to perform Multiplication and division on two 16- bit data using 8085. (8)

(ii). Disclose the PIC16C7X microcontroller with necessary diagram. (8)

4.(i). Write an ALP to perform Descending order operation on numerical values using 8085. (8)

(ii). Discover 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-IV : Programming and Interfacing of 8085&8051

Part-A (2 Marks)

1. State the need of 8259 PIC.
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).	Draw the block diagram of 8279 and explain the function of each.	(8)
(ii).	With the help of neat diagram, explain the pin functions of DMAC.	(8)
2.(i).	What is DMA? Explain the DMA based data transfer using DMA controller.	(8)
(ii).	Draw the block diagram of programmable Interrupt controller (8259) and explain its operations.	(8)
3.(i).	Draw the pin diagram of 8279 and explain the function of each pin in detail.	(8)
(ii).	Discuss the salient feature of 8259 and explain the Pin diagram of 8259-programmable interrupts controllers.	(8)
4.(i).	Expound the operation of 8255 PPI Port A programmed as input and output in Mode 1 with necessary handshaking signals	(8)
(ii).	Draw the block diagram of 8254 and explain its function.	(8)
5.(i).	Explain in detail with the modes of operation of 8255.	(8)
(ii).	With functional block diagram, infer the operation and programming of 8251 USART (Serial communication Interface) in detail.	(8)

Unit-V : Applications of Processors and Controllers

Part-A (2 Marks)

1. State the principle of micro controller based stepper motor control system.
2. What are the modes of washing machine control?
3. How key board debouncing is done by software?
4. Justify the need of driver circuit between the micro controller and the stepper motor.
5. Give out the function of servomotor.
6. How pulse is generated in 8051 microcontroller?
7. Definition of key bouncing.
8. Give out the various control knobs in washing machine control.
9. Infer the difference between two key lockout and N-key rollover modes in 8279.
10. Spell out the various display modes of keyboard/Display controller.

Part-B (16 Marks)

1.(i).	Explain the Servomotor control using 8051 controller.	(8)
(ii).	Illustrate the interfacing of keyboard/Display with 8051 microcontroller.	(8)
2.(i).	Construct an algorithm, to control the speed of the stepper motor using 8051 microcontroller.	(8)
(ii).	How do you interface 4X4 matrix keyboard using 8051 microcontroller? Explain.	(8)
3.(i).	Write a program, to rotate the stepper motor in both clockwise and anticlockwise direction using 8051 microcontroller.	(8)
(ii).	With a neat diagram, explain the application of 8051 microcontroller in washing machine.	(8)
4.(i).	Construct an algorithm, to control LED using 8051 microcontroller.	(8)
(ii).	Summarize the closed loop control of servo motor using microcontroller.	(8)
5.(i).	How to interface a 7 segment display using 8051 microcontroller? Explain.	(8)
(ii).	Write a program to generate pulses to drive the servo motor.	(8)

Course Faculty **HoD**