Course Code: 18EC0420 **R18**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
PUTTUR (AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code: Microprocessors and Microcontrollers (18EC0420) **Course &Branch**: B.Tech – EEE

Year & Sem: III-B.Tech & I-Sem **Regulation:** R18

UNIT –I
MICROPROCESSORS, MICROCOMPUTERS AND ASSEMBLY LANGUAGE

1	a) List out some examples of high level languages.	[L1][CO1]	**[2M]**
	b) Define machine language.	[L1][CO1]	**[2M]**
	c) List out the MPU performs primary four operations.	[L1][CO1]	**[2M]**
	d) Calculate the address lines required for an 8 KB memory chip.	[L1][CO1]	**[2M]**
	e)Give the importance of the input and output devices.	[L1][CO1]	**[2M]**
2	a) Define microprocessor. Explain the brief history of evolutionofμP. b) Draw the block diagram of microcomputer and explain function of each block.	[L1][CO1] [L2][CO1]	**[5M]** **[5M]**
3	Define instruction and explain different type's instructions supported by μP.	[L1][CO1]	**[10M]**
4	a) What is the need of memory? And classify different types of memory. b)Compare RAM and ROM memories.	[L1][CO1] [L1][CO1]	**[5M]** **[5M]**
5	With a neat sketch explain the operation of Microprocessor Controlled Temperature System (MCTS)	[L1][CO1]	**[10M]**
6	a) Write short notes on input devices. b) Briefly explain different computer languages.	[L1][CO1] [L1][CO1]	**[4M]** **[6M]**
7	a) Write short notes on output devices. b) Compare static RAM and Dynamic RAM	[L1][CO1] [L1][CO1]	**[5M]** **[5M]**
8	With a neat sketch explain any example of a microcomputer system.	[L1][CO1]	**[10M]**
9	Explain how computers are classified from large computers to single chip microcontrollers.	[L1][CO1]	**[10M]**
10	a) Differentiate between μP & μC. b) Explain the terms i) SSI ii) MSI iii) LSI iv) VLSI v) ULSI	[L1][CO1] [L1][CO1]	**[5M]** **[5M]**
11	a) Draw and explain the basic architecture of a microprocessor. b) Define theterms: i) BIT, ii) NIBBLE, iii) BYTE &iv)WORD	[L1][CO1] [L1][CO1]	**[6M]** **[4M]**

UNIT –II
8085 MICROPROCESSOR ARCHITECTURE

Course Code: 18EC0420 **R18**

1	a) How many lines used for data bus and address bus of 8085 microprocessor?	[L1][CO1]	**[2M]**
	b) Give the function of timing and control unit of 8085 microprocessor.	[L1][CO1]	**[2M]**
	c) Find the content of the Accumulator after executing MOV A, B if A=02 H, B=00 H.	[L1][CO1]	**[2M]**
	d) Define machine cycle and instruction cycle.	[L1][CO1]	**[2M]**
	e) Give the significance of instruction decoder.	[L1][CO1]	**[2M]**
2	a)List out the important features of 8085 microprocessor. b)Sketch neat block diagram of 8085 microprocessor.	[L2][CO2] [L1][CO1]	**[5M]** **[5M]**
3	a) Explain the requirement of a program counter, stack pointer & ALU in 8085µP. b) Draw and define the flags in 8085µp.	[L1][CO1] [L2][CO2]	**[5M]** **[5M]**
4	a) Draw the pin diagram of 8085 µP. b) Define the following pins: i) READY ii) ALE iii) RESET OUT iv) HOLD & HLDA.	[L2][CO2] [L1][CO1]	**[5M]** **[5M]**
5	a) Explain briefly the control & status signals in 8085µP. b)Define and explain the different types of interrupts available in 8085 µP.	[L2][CO2] [L2][CO2]	**[5M]** **[5M]**
6	Explain in detail how a data flow from memory to Microprocessor Unit.	[L2][CO2]	**[10M]**
7	a) Explain the concept of De-multiplexing the Bus AD7-AD0. b)Classify the register set in 8085µP.	[L2][CO2] [L2][CO2]	**[6M]** **[4M]**
8	Explain the following instructions of 8085 microprocessor with an example. a) Datatransferinstructions b) Logicalinstructions.	[L2][CO2]	**[5+5M]**
9	Explain the following instructions of 8085 microprocessor with an example. a) Arithmeticinstructions b) Stackcontrol instructions.	[L2][CO2]	**[5+5M]**
10	a) Define instruction. b) Explain the instruction, data formats & data storage in8085µP.	[L1][CO2] [L2][CO2]	**[2M]** **[8M]**
11	a) Describe how timing and control signals are generated in 8085 µP. b) Explain what operation will take place when the following instructions are executed**:** i) RAL ii) RLC iii) DAD	[L1][CO2] [L1][CO2]	**[5M]** **[5M]**

Course Code: 18EC0420 **R18**

UNIT –III
THE 8051 ARCHITECTURE

1	a) Define microcontroller.	[L1][CO1]	**[2M]**
	b) Give the function of Port 0 of 8051 µC.	[L1][CO1]	**[2M]**
	c) How many oscillators used in 8051 µC and give its operating frequency.	[L1][CO1]	**[2M]**
	d) List out the 8051 µC five interrupts.	[L1][CO1]	**[2M]**
	e) Draw the configuration of TCON register.	[L1][CO1]	**[2M]**
2	With the help of neat diagrams, Describe the differences between microprocessors and microcontrollers.	[L4][CO3]	**[10M]**
3	a) List the features of8051microcontroller. b) Mention the applications of microcontrollers ineverydaylife.	[L1][CO3] [L4][CO3]	**[4M]** **[6M]**
4	With the help of a neat block diagram, Explain the internal architecture of 8051 microcontroller indetail.	[L2][CO3]	**[10M]**
5	a) Define register. Mention the need of registers in µPorµC. b) Draw the flag register of 8051 µC and describe the functionality of each flag in detail	[L2][CO3] [L2][CO3]	**[5M]** **[5M]**
6	Mention the various registers present in 8051 µC and explain their functionality indetail	[L2][CO3]	**[10M]**
7	Draw the pin diagram of 8051 µC and describe the functionality of each pin indetail.	[L2][CO3]	**[10M]**
8	a) Mention the importance of I/O port in a µPor µC. b) Describe the functionality of I/O ports present in 8051 µC.	[L4][CO3] [L4][CO3]	**[2M]** **[8M]**
9	a) Explain the importance of memory in a µPor µC. b) Describe how the memory is organized in 8051 µCin detail.	[L2][CO3] [L4][CO3]	**[2M]** **[8M]**
10	a) Define counter. Mention the applicationsof counter b) Describe the operation of timers present in8051µC.	[L2][CO3] [L2][CO3]	**[3M]** **[7M]**
11	a) Compare serial communication andparallel communication. b) Explain how the 8051 µC transfers the data usingserial port.	[L5][CO3] [L2][CO3]	**[3M]** **[7M]**

Course Code: 18EC0420 **R18**

UNIT –IV
PROGRAMMING THE 8051

1	a)Classify addressing modes of 8051 µC.	[L1][CO1]	**[2M]**
	b) Give the examples for logical operations of 8051 µC.	[L1][CO1]	**[2M]**
	c) List the importance of DAA instruction.	[L1][CO1]	**[2M]**
	d) What is the role of NOP in 8051 µC.	[L1][CO1]	**[2M]**
	e) Compare RLC A and RRC A.	[L1][CO1]	**[2M]**
2	a) Write a short note on assemblylanguageprogramming. b) Explain the moving data instructions of 8051 µC with an example.	[L1][CO4] [L2][CO4]	**[3M]** **[7M]**
3	a) Defineaddressingmode. b) List various addressing modes of 8051 microcontroller and explain them with an example each.	[L1][CO4] [L4][CO4]	**[2M]** **[8M]**
4	a) Mention various logical operations performed inassemblylanguage. b) Explain the logical Instructions of 8051 µC with an example.	[L2][CO4] [L2][CO4]	**[2M]** **[8M]**
5	Explain the following operators of 8051 µC withanexample. (i) Bitlevel (ii) Bytelevel	[L2][CO4]	**[12M]**
6	a) Mention the difference between Jump andCalloperations. b) Explain Jump and Call instructions of 8051 µC with an example.	[L1][CO4] [L2][CO4]	**[2M]** **[8M]**
7	Write an assembly program of 8051 µC to multiply two 8-bit numbers and store the result in a memorylocation.	[L4][CO4]	**[10M]**
8	a) Mention various arithmetic operations performed inassemblylanguage. b) Explain the arithmetic Instructions of 8051 µC with an example.	[L2][CO4] [L2][CO4]	**[2M]** **[8M]**
9	a) Describe the operation of return instruction in 8051 µC with suitableexample. b) Explain how the 8051 µC performs rotate and swap operations with an example.	[L2][CO4] [L2][CO4]	**[3M]** **[7M]**
10	a) Write an assembly program of 8051 µC to divide two 8-bit numbers and store the result in a memory location. b)Write an assembly program of 8051 µC to subtract two 8-bit numbers and store the result in a memory location.	[L2][CO4] [L2][CO4]	**[5M]** **[5M]**
11	a) Write an assembly program of 8051 µC to logically AND two 8-bit numbers and store the result in a memory location. b)Write an assembly program of 8051 µC to logically OR two 8-bit numbers and store the result in a memory location.	[L2][CO4] [L2][CO4]	**[5M]** **[5M]**

UNIT –V
APPLICATION

Course Code: 18EC0420 **R18**

1	a) What is matrix keypad and give its use.	[L1][CO1]	**[2M]**
	b) Classify the seven segment displays.	[L1][CO1]	**[2M]**
	c) Give the different methods to implement switch debouncing.	[L1][CO1]	**[2M]**
	d) List out the features of ADC 0808.	[L1][CO1]	**[2M]**
	e) Define switch bounce.	[L1][CO1]	**[2M]**
2	a) With a neat diagram, show the interfacing of a 4x4 matrix keypad with 8051 µC. b) Describe key bouncing problem andde-bouncing solutions.	[L4][CO5] [L6][CO5]	**[5M]** **[5M]**
3	Describe with a schematic, the scanning of the 4x4 matrix keyboard in an 8051 basedsystemand identifying thekeypressed.	[L4][CO5]	**[10M]**
4	a) Write a short note onLCDDisplay. b) With the help of a neat diagram show the interfacing of LCD Display with 8051 µC and explainitsoperation.	[L1][CO5] [L4][CO5]	**[3M]** **[7M]**
5	a) List instruction command codes for programminganLCD. b) List the merits, demerits and applications of an LED display over an LCD.	[L1][CO5] [L4][CO5]	**[6M]** **[4M]**
6	a) List the features of 16X2LCDdisplay. b) Draw and explain the pin Diagram of 16x2LCD display.	[L4][CO5] [L2][CO5]	**[3M]** **[7M]**
7	a) Write a short note on7-Segemnt display. b) With the help of a neat diagram, show the interfacing of 7- segment display with 8051 µC and explainitsoperation.	[L3][CO5] [L2][CO5]	**[3M]** **[7M]**
8	a) Write a short note on Analog toDigitalConverter. b) With the help of a neat diagram, show the interfacing of ADC 0808 with 8051 µC and explain itsoperation.	[L1][CO5] [L2][CO5]	**[3M]** **[7M]**
9	a) Define Interrupt and classifytheinterrupts. b) Explain multiple interrupts present in8051µC.	[L1][CO5] [L2][CO5]	**[4M]** **[6M]**
10	Design and explain anymicrocontroller-basedsystem.	[L4][CO5]	**[10M]**
11	Design and explain the implementation of 4-way traffic control system using 8051 microcontroller.	[L4][CO5]	**[10M]**

Prepared by:
1. CH.MURALI KRISHNA Assistant Professor/ECE