



**SIDDHARTH GROUP OF INSTITUTIONS:: PUTTUR
(AUTONOMOUS)**

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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Microprocessors and
Microcontrollers (18EC0420)
Year & Sem: III-B.Tech & II-Sem

Course & Branch: B.Tech – ECE
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 evolution of μ P.	[L1][CO1]	[5M]
	b) Draw the block diagram of microcomputer and explain function of each block.	[L2][CO1]	[5M]
3	Define instruction and explain different type's instructions supported by μ P.	[L1][CO1]	[10M]
4	a) What is the need of memory? And classify different types of memory.	[L1][CO1]	[5M]
	b) Compare RAM and ROM memories.	[L1][CO1]	[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.	[L1][CO1]	[4M]
	b) Briefly explain different computer languages.	[L1][CO1]	[6M]
7	a) Write short notes on output devices.	[L1][CO1]	[5M]
	b) Compare static RAM and Dynamic RAM	[L1][CO1]	[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 μ P & μ C.	[L1][CO1]	[5M]
	b) Explain the terms i) SSI ii) MSI iii) LSI iv) VLSI v) ULSI	[L1][CO1]	[5M]
11	a) Draw and explain the basic architecture of a microprocessor.	[L1][CO1]	[6M]
	b) Define the terms: i) BIT, ii) NIBBLE, iii) BYTE & iv) WORD	[L1][CO1]	[4M]

UNIT -II
8085 MICROPROCESSOR ARCHITECTURE

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.	[L2][CO2]	[5M]
	b) Sketch neat block diagram of 8085 microprocessor.	[L1][CO1]	[5M]
3	a) Explain the requirement of a program counter, stack pointer & ALU in 8085 μ P.	[L1][CO1] [L2][CO2]	[5M] [5M]
	b) Draw and define the flags in 8085 μ P.		
4	a) Draw the pin diagram of 8085 μ P.	[L2][CO2]	[5M]
	b) Define the following pins: i) READY ii) ALE iii) RESET OUT iv) HOLD & HLDA.	[L1][CO1]	[5M]
5	a) Explain briefly the control & status signals in 8085 μ P.	[L2][CO2]	[5M]
	b) Define and explain the different types of interrupts available in 8085 μ P.	[L2][CO2]	[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.	[L2][CO2]	[6M]
	b) Classify the register set in 8085 μ P.	[L2][CO2]	[4M]
8	Explain the following instructions of 8085 microprocessor with an example. a) Data transfer instructions b) Logical instructions.	[L2][CO2]	[5+5M]
9	Explain the following instructions of 8085 microprocessor with an example. a) Arithmetic instructions b) Stack control instructions.	[L2][CO2]	[5+5M]
10	a) Define instruction.	[L1][CO2]	[2M]
	b) Explain the instruction, data formats & data storage in 8085 μ P.	[L2][CO2]	[8M]
11	a) Describe how timing and control signals are generated in 8085 μ P.	[L1][CO2]	[5M]
	b) Explain what operation will take place when the following instructions are executed: i) RAL ii) RLC iii) DAD	[L1][CO2]	[5M]

UNIT –III
THE 8051 ARCHITECTURE

1	a) Define microcontroller.	[L1][CO1]	[2M]
	b) Give the function of Port 0 of 8051 μ C.	[L1][CO1]	[2M]
	c) How many oscillators used in 8051 μ C and give its operating frequency.	[L1][CO1]	[2M]
	d) List out the 8051 μ C 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 of 8051 microcontroller.	[L1][CO3]	[4M]
	b) Mention the applications of microcontrollers in everyday life.	[L4][CO3]	[6M]
4	With the help of a neat block diagram, Explain the internal architecture of 8051 microcontroller in detail.	[L2][CO3]	[10M]
5	a) Define register. Mention the need of registers in μ P or μ C.	[L2][CO3]	[5M]
	b) Draw the flag register of 8051 μ C and describe the functionality of each flag in detail	[L2][CO3]	[5M]
6	Mention the various registers present in 8051 μ C and explain their functionality in detail	[L2][CO3]	[10M]
7	Draw the pin diagram of 8051 μ C and describe the functionality of each pin in detail.	[L2][CO3]	[10M]
8	a) Mention the importance of I/O port in a μ P or μ C.	[L4][CO3]	[4M]
	b) Describe the functionality of I/O ports present in 8051 μ C.	[L4][CO3]	[6M]
9	a) Explain the importance of memory in a μ P or μ C.	[L2][CO3]	[4M]
	b) Describe how the memory is organized in 8051 μ C in detail.	[L4][CO3]	[6M]
10	a) Define counter. Mention the applications of counter	[L2][CO3]	[4M]
	b) Describe the operation of timers present in 8051 μ C.	[L2][CO3]	[6M]
11	a) Compare serial communication and parallel communication.	[L5][CO3]	[4M]
	b) Explain how the 8051 μ C transfers the data using serial port.	[L2][CO3]	[6M]

UNIT -IV
PROGRAMMING THE 8051

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

UNIT –V
APPLICATION

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 μ C.	[L4][CO5] [L6][CO5]	[5M] [5M]
	b) Describe key bouncing problem and de-bouncing solutions.		
3	Describe with a schematic, the scanning of the 4x4 matrix keyboard in an 8051 based system and identifying the key pressed.	[L4][CO5]	[10M]
4	a) Write a short note on LCD Display.	[L1][CO5]	[3M]
	b) With the help of a neat diagram show the interfacing of LCD Display with 8051 μ C and explain its operation.	[L4][CO5]	[7M]
5	a) List instruction command codes for programming an LCD.	[L1][CO5]	[6M]
	b) List the merits, demerits and applications of an LED display over an LCD.	[L4][CO5]	[4M]
6	a) List the features of 16X2LCDdisplay.	[L4][CO5]	[3M]
	b) Draw and explain the pin Diagram of 16x2LCD display.	[L2][CO5]	[7M]
7	a) Write a short note on7-Segemnt display.	[L3][CO5]	[3M]
	b) With the help of a neat diagram, show the interfacing of 7- segment display with 8051 μ C and explain its operation.	[L2][CO5]	[7M]
8	a) Write a short note on Analog to Digital Converter.	[L1][CO5]	[3M]
	b) With the help of a neat diagram, show the interfacing of ADC 0808 with 8051 μ C and explain its operation.	[L2][CO5]	[7M]
9	a) Define Interrupt and classify the interrupts.	[L1][CO5]	[4M]
	b) Explain multiple interrupts present in8051 μ C.	[L2][CO5]	[6M]
10	Design and explain any microcontroller-based system.	[L4][CO5]	[10M]
11	Design and explain the implementation of 4-way traffic control system using 8051 microcontroller.	[L4][CO5]	[10M]