

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR (AUTONOMOUS)

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**QUESTION BANK (DESCRIPTIVE)**

Subject with Code: MICROPROCESSORS AND
MICROCONTROLLERS (20EC0416)

Course & Branch: : B.Tech – CSE & CSIT

Year & Sem: II-B.Tech & II-Sem

Regulation: R20

UNIT-I**MICROPROCESSORS, MICROCOMPUTERS AND ASSEMBLY LANGUAGE**

1		Draw a block diagram of Microprocessor based system and explain the functions of each component: Microprocessor, Memory and I/O and their line communication.	[L4] [CO1]	[12M]
2	a)	How does Microprocessor works? Explain in details	[L1] [CO2]	[4M]
	b)	List different computer languages and explain them	[L2] [CO2]	[8M]
3	a)	Write the steps required for writing and executing Assembly language Program and explain the procedure.	[L2] [CO3]	[4M]
	b)	Differentiate low-level language and high-level language.	[L2] [CO1]	[4M]
	c)	Define instruction and how it can be expressed in terms of symbolic code give example.	[L1] [CO2]	[4M]
4	a)	How computers are classified? Explain in brief.	[L1] [CO1]	[6M]
	b)	List different types of microcomputers and with example	[L1] [CO1]	[6M]
5		Draw a block diagram of Microprocessor controlled temperature system and identify function of each component.	[L4] [CO2]	[12M]
6		List the three operations commonly performed by the Microprocessor or MPU.	[L1] [CO2]	[12M]
7	a)	Describe the memory model of a typical memory chip.	[L2] [CO1]	[6M]
	b)	Explain how memory addresses are assigned to a memory chip of size 1K (1024X8)?	[L2] [CO2]	[6M]
8		Illustrate the Instruction fetch operation from memory location 2005H.	[L3] [CO2]	[12M]
9		Explain the difference between the peripheral I/O and memory mapped I/O.	[L2] [CO2]	[12M]
10	a)	Illustrate the microcomputer system with example.	[L3] [CO1]	[6M]
	b)	Draw the block diagram of output section of Microcomputer . Describe the role of tristate bus driver, decoder and latch.	[L4] [CO2]	[6M]

UNIT-II
8085 MICROPROCESSOR ARCHITECTURE

1	a)	Draw the pin diagram of the 8085 microprocessor and categorize the pins based on function.	[L4] [CO2]	[8M]
	b)	Outline the role of the following pins in the 8085 microprocessor i) RESET OUT ii) ALE iii) HOLD & HLDA iv) TRAP	[L2] [CO2]	[4M]
2	a)	Define an interrupt and explain the different types of interrupts available in the 8085 microprocessors.	[L2] [CO2]	[6M]
	b)	List out the control and status signals in 8085 microprocessor	[L1] [CO2]	[6M]
3	a)	Discuss how the dataflow from memory to Microprocessor with neat diagram.	[L2] [CO2]	[6M]
	b)	Draw the timing diagram for transfer of byte from memory to micro processor	[L4] [CO2]	[6M]
4	a)	With a neat sketch and explain, the De-multiplexing of the Bus AD7- AD0 in 8085.	[L3] [CO3]	[6M]
	b)	Illustrate the generating control signal in 8085 Microprocessor.	[L2] [CO2]	[6M]
5	a)	Sketch neat the block diagram of 8085 Architecture and explain the function of each block.	[L3] [CO3]	[8M]
	b)	Discuss the different types of registers used in the 8085 microprocessors.	[L2] [CO2]	[4M]
6	a)	Explain the functions of a program counter, stack pointer & ALU in 8085 μ P.	[L2] [CO2]	[6M]
	b)	Draw the flag register of the 8085 microprocessor and explain each bit in detail.	[L2] [CO2]	[6M]
7	a)	List out the instruction sets, Explain the instruction sets with examples.	[L2][CO2]	[6M]
	b)	Explain the Data transfer instructions of the 8085 microprocessor with example.	[L2] [CO2]	[6M]
8	a)	Describe the Logical instructions of the 8085 microprocessor with example.	[L2] [CO2]	[6M]
	b)	Discuss CMA, RAR, RAL, RLC and RRC instructions with suitable example.	[L2] [CO2]	[6M]
9	a)	Explain the Arithmetic instructions. instructions of the 8085 microprocessor	[L2] [CO2]	[6M]
	b)	Explain the branch control instructions of the 8085 microprocessor	[L2] [CO2]	[6M]
10	a)	Discuss conditional jump and un conditional jump instruction with an example	[L2] [CO3]	[6M]
	b)	Discuss the data format and storage with an example	[L2] [CO2]	[6M]

UNIT-III
THE 8051 ARCHITECTURE

1	a)	Draw the internal architecture of 8051 microcontroller and explain the function of each block present in it.	[L2] [CO3]	[8M]
	b)	List the features of 8051 microcontroller.	[L1] [CO2]	[4M]
2	a)	List out the special function registers in 80851 MC	[L1] [CO5]	[6M]
	b)	Describe the internal RAM structure in the 8051 microcontroller.	[L2] [CO2]	[6M]
3		Draw the pin diagram of 8051 microcontroller and describe the functionality of each pin in detail.	[L4] [CO3]	[12M]
4	a)	Explain about program counter and data pointer	[L2] [CO4]	[6M]
	b)	Discuss about flags and program status word in 8051 MC	[L2][CO3]	[6M]
5	a)	Analyze the functionality of I/O ports circuits in 8051 microcontroller.	[L4] [CO4]	[8M]
	b)	Explain the external memory in microcontroller.	[L2][CO2]	[4M]
6	a)	List and explain the timers and counters operation in 8051 microcontrollers.	[L2][CO6]	[6M]
	b)	Discuss the TCON & TMOD Register with a neat sketch.	[L2][CO3]	[6M]
7	a)	Illustrate the operation of serial data input /output in 8051 μ C	[L3][CO3]	[6M]
	b)	Describe the functions of PCON and SCON in the 8051 microcontroller.	[L2][CO2]	[4M]
8	a)	Compare serial communication and parallel communication.	[L4][CO4]	[6M]
	b)	Explain how the 8051 microcontroller transfers the serial data input and output using UART.	[L2][CO5]	[6M]
9	a)	Explain the different types of interrupts in the 8051 microcontroller.	[L2][CO2]	[6M]
	b)	Describe the vector address of interrupts in 8051 μ C	[L2][CO2]	[6M]
10	a)	Draw and explain a special function of the interrupt enable (IE) register. 8051 μ C	[L2][CO3]	[6M]
	b)	Define draw the formats for IP and TCON register. 8051 μ C	[L2][CO3]	[6M]

UNIT-IV
PROGRAMMING THE 8051

1	a)	Describe the different types of addressing mode supported by 8051 with suitable examples.	[L2][CO4]	[6M]
	b)	List out the any five instructions for immediate addressing modes and indirect addressing modes with suitable example.	[L1] [CO4]	[6M]
2	a)	Explain the moving data instructions of 8051 microcontroller with an example.	[L2][CO4]	[6M]
	b)	Draw and explain the external addressing using mov x and mov c	[L2][CO4]	[6M]
3	a)	Discuss the code memory read only data moves	[L2][CO4]	[6M]
	b)	Explain the function of stack and data exchanges instruction with an example.	[L2][CO4]	[6M]
4	a)	Discuss the logical operations Instructions of 8051 microcontroller with an example.	[L2][CO4]	[6M]
	b)	Discuss RR, RL, RLC, RRC and swap instructions with suitable example.	[L2] [CO4]	[6M]
5	a)	Discuss the following instructions of 8051 microcontroller with an example. (i) Bit-level logical operations (ii) Byte level logical operations	[L2][CO4]	[8M]
	b)	Explain how the 8051 microcontroller performs rotate and swap operations with an example.	[L2][CO4]	[4M]
6	a)	Write and explain an ALP program of and ,OR AND XOR operation in 8051	[L2][CO4]	[6M]
	b)	Write and explain an ALP program of four time rotate right and rotate left carry operation in 8051	[L2][CO4]	[6M]
7	a)	List various arithmetic operations performed in 8051 microcontroller.	[L1] [CO4]	[6M]
	b)	Explain any three arithmetic operations Instructions of 8051 microcontroller with an example.	[L2] [CO4]	[6M]
8	a)	List various incrementing and decrementing instructions with examples in 8051 microcontroller.	[L1] [CO4]	[4M]
	b)	Develop and write an assembly program of 8051 microcontroller to unsigned additional and subtraction two 8-bit numbers and store the result in a 2055&2057 memory location.	[L3] [CO6]	[4M]
	c)	Develop and write an assembly program of 8051 microcontroller to divide and multiplication two 8-bit numbers and store the result in a 2055&2057 memory location.	[L3] [CO6]	[4M]
9	a)	Differentiate between Jump and Call instructions.	[L2] [CO4]	[4M]
	b)	Explain Jump and Call instructions of 8051 microcontroller with an example.	[L2] [CO4]	[4M]
	c)	Describe the bit and byte jumps instruction with an example.in 8051	[L2] [CO4]	[4M]
10	a)	Discuss the calls and subroutines with suitable example.	[L2] [CO4]	[4M]
	b)	Explain the following terms i) Call and stack ii) calls and returns iii) interrupts and returns	[L2] [CO4]	[4M]
	c)	Discuss the interrupts and interrupt handler subroutines	[L2] [CO4]	[4M]

Unit-V
APPLICATIONS

1	a)	Discuss about Keyboards and human factors	[L2] [CO5]	[6M]
	b)	Describe and draw the keyboard configurations.	[L1] [CO5]	[6M]
2	a)	List out types of 16 key layout and draw the diagram of the lead per key keyboard configuration	[L4] [CO5]	[6M]
	b)	Design the x-y matrix keyboard and coded key board	[L6] [CO5]	[6M]
3	a)	Illustrate the the programs for keyboards	[L3] [CO5]	[6M]
	b)	Explain and draw the scanning keyboards and it configuration.	[L2] [CO5]	[6M]
4	a)	Design and explain the large matrix keyboard	[L2] [CO5]	[6M]
	b)	Discuss about interrupt driven program for small keyboards	[L2] [CO5]	[6M]
5	a)	Explain and design the 2*4 coded keyboard	[L2] [CO5]	[6M]
	b)	Illustrate the seven-segment numeric led Display and explain the operation seven segment	[L3] [CO5]	[6M]
6	a)	List out the types of led displays and draw the seven-segment display circuit used for SVNSEG program	[L3] [CO5]	[6M]
	b)	Draw the pin diagram and explain the intelligent LCD display	[L1] [CO4]	[6M]
7	a)	Define the D/A and A/D conversions and write any five advantages	[L1] [CO4]	[6M]
	b)	Draw diagram and explain the D/A converter circuit	[L4] [CO5]	[6M]
8	a)	Design and explain the A/D converter circuit	[L2] [CO5]	[8M]
	b)	List any five advantages of A/D converter and it applications	[L1] [CO5]	[4M]
9	a)	Explain multiple interrupts present	[L2] [CO2]	[6M]
	b)	Illustrate the multiple source interrupt circuit used in Lopri and Hipri program	[L3] [CO6]	[6M]
10	a)	Describe and design the hardware circuits for multiple interrupts	[L1] [CO5]	[6M]
	b)	Design and explain the real-time application using 8051 Microcontroller with suitable block diagram.	[L3] [CO6]	[6M]

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