

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR (AUTONOMOUS) Siddharth Nagar, Narayanavanam Road – 517583 <u>QUESTION BANK</u>

 Subject with Code : MICROPROCESSORS AND MICROCONTROLLERS (20EC0416)

 Course & Branch : B.Tech – EEE
 Year & Sem: III & II
 Regulation: R20

UNIT–I MICROPROCESSORS, MICROCOMPUTERS AND ASSEMBLY LANGUAGE

1.	a)	Draw the block diagram of a computer and explain the function of each block.	[L2] [CO2]	[6M]
	b)	Draw the block diagram of a computer with microprocessor as CPU and explain each block.	[L2] [CO2]	[6M]
2.	a)	Describe microprocessor based system with bus architecture	[L1] [CO2]	[6M]
	b)	Summarize the sequence of steps how the microprocessor works	[L2] [CO1]	[6M]
2	a)	Classify the computer languages and describe each	[L2] [CO2]	[6M]
э.	b)	Compare the computer languages	[L2] [CO1]	[6M]
4	a)	Write the functions of the following A) Assembler B) Compiler C) Interpreter	[L1] [CO2]	[6M]
	b)	Discuss the development of computers	[L2] [CO1]	[6M]
5.	a)	Summarize the applications mainframes, workstations and single board microcomputers	[L2] [CO1]	[6M]
	b)	Explain microprocessor based temperature system with neat Diagram	[L4] [CO1]	[6M]
6	a)	Discuss the microprocessor initiated operations	[L2] [CO2]	[6M]
0.	b)	Recall the functions of different Busses in the bus organization	[L1] [CO1]	[6M]
7	a)	Classify the memories and discuss each	[L2] [CO2]	[6M]
7.	b)	Give the details of Latch and tri-state buffer with neat diagrams	[L4] [CO2]	[6M]
Q	a)	Draw the memory address map diagram to interface for 512 bytes from 8000 location	[L3] [CO1]	[6M]
0.	b)	Discuss the following memory models A) RAM B) ROM.	[L2] [CO2]	[6M]
9.	a)	Describe the following memories A) Static RAM B) Dynamic RAM.	[L2] [CO2]	[6M]
	b)	Discuss the following A) PROM B) EPROM C) EEPROM.	[L2] [CO2]	[6M]
10.	a)	Review the I/O devices identification methods	[L2] [CO2]	[6M]
	b)	Explain microcomputer systems	[L2] [CO1]	[6M]

1.	a)	Give the details of 8085 microprocessor	[L3] [CO2]	[6M]
	b)	Draw a signal diagram of 8085	[L3] [CO2]	[6M]
2.	a)	Define multiplexing of the Bus .Explain multiplexed data and address in 8085.	[L3] [CO2]	[6M]
	b)	Discuss the control signals in 8085.	[L3] [CO1]	[6M]
3.	a)	Describe the interrupts in 8085.	[L3] [CO2]	[6M]
	b)	Review the following signalsA) HOLDB) HLDAC) READY	[L3] [CO1]	[6M]
4.	a)	Recognize the importance of the following signalsA) ALEB) INTRC) INTA	[L3] [CO2]	[6M]
	b)	With neat diagram explain the microprocessor communication with memory	[L3] [CO1]	[6M]
5	a)	With neat diagram explain demultiplexing the bus AD7-AD0	[L3] [CO1]	[6M]
5.	b)	Draw the architecture of 8085	[L3] [CO1]	[6M]
6.	a)	Explain different blocks in 8085 architecture	[L3] [CO2]	[6M]
	b)	List and discuss flags in 8085	[L3] [CO1]	[6M]
7	a)	With example explain one, two and three byte instructions	[L4] [CO2]	[6M]
7.	b)	Determine the different ways of specifying the data in the instruction.	[L4] [CO2]	[6M]
8.	a)	Give the classification of instruction set and any 2 examples in each set	[L4] [CO1]	[6M]
	b)	Give the function of the following instructions A) LXI B) SBI C) POP D) JPO E) DI F) XCHG	[L4] [CO2]	[6M]
9.	a)	Calculate the result in A and B registers after executing each of the instructions with initial values of A=56, B=37 And Carry bit is 1. A) ADD B B) SBB B C) XRA B	[L4] [CO2]	[6M]
	b)	Describe the function of the following instructions A) OUT B) MOV C) XRA D) RLC E) PUSH F) CALL	[L4] [CO2]	[6M]
10.	a)	Calculate the result in A and B registers and carry flag condition after executing each of the following instructions with initial values of A=96, B=82 and Carry bit is 0. A) MOV A,B B) ADD B C) ANA B	[L4] [CO2]	[6M]
	b)	Discuss the function of the following instructions A) CMA B) IN C) NOP D) HLT E) JC F) ADI	[L4] [CO1]	[6M]

UNIT–II 8085 MICROPROCESSOR ARCHITECTURE

UNIT – III

The 8051 Architecture

1.	a)	List the features of 8051 microcontroller.	[L1] [CO3]	[6M]
	b)	Differentiate Microprocessor and Microcontroller.	[L2] [CO2]	[6M]
2.	a)	Draw the internal architecture of 8051 microcontroller.	[L3] [CO3]	[6M]
	b)	Explain the function of each block in 8051 microcontroller.	[L2] [CO3]	[6M]
3.	a)	Draw the pin diagram of 8051 microcontroller.	[L3] [CO3]	[6M]
	b)	Describe the functionality of following pins. i) RXD ii) INT iii) T0 iv) PSEN v) EA vi) ALE	[L2] [CO3]	[6M]
4.	a)	Explain the following registers. i) Program Counter ii) Data Pointer	[L2] [CO3]	[6M]
	b)	Review the PSW Register in 8051 microcontroller.	[L1] [CO3]	[6M]
5	a)	Discuss how the Internal RAM memory is organized in 8051 microcontroller.	[L2] [CO3]	[6M]
5.	b)	Discuss different Functions of ports.	[L2] [CO3]	[6M]
6	a)	Explain about Timer/counter control logic in 8051 with diagram.	[L2] [CO4]	[6M]
6.	b)	Discuss the TCON Special Function Register.	[L2] [CO3]	[6M]
7	a)	Explain the role of each bit in TMOD Register.	[L2] [CO3]	[6M]
7.	b)	Give the details of timer mode 0 & mode1.	[L2] [CO3]	[6M]
0	a)	Discuss the Auto Reload mode in the 8051 microcontroller.	[L2] [CO3]	[6M]
0.	b)	Explain the different serial data transmission modes in 8051.	[L2] [CO3]	[6M]
9.	a)	Describe how the serial communication modes are set using SCON, PCON register in 8051μ C	[L1] [CO3]	[6M]
	b)	Explain how the 8051 microcontroller transfers the serial data in UART mode.	[L2] [CO4]	[6M]
10.	a)	Describe the IE and IP registers.	[L1] [CO3]	[6M]
	b)	List and discuss different types of interrupts in the 8051microcontroller.	[L2] [CO3]	[6M]

UNIT - IV PROGRAMMING THE 8051

1	a)	Define Addressing Modes. List and describe different addressing modes.	[L3] [CO4]	[6M]
1.	b)	Explain the following Addressing Modes with examples.A) ImmediateB) RegisterC) Direct	[L2] [CO4]	[6M]
2.	a)	Explain any 3 moving data instructions of 8051 microcontroller with an example	[L2] [CO4]	[6M]
	b)	Discuss the following move instructions. A) MOV Rr,#n B) MOV @R1,#35h C) MOV DPTR,#nn	[L3] [CO4]	[6M]
3.	a)	Draw and explain the external addressing using MOVX and MOVC	[L2] [CO4]	[6M]
	b)	Explain the following instructions A) PUSH B) POP C) XCHD	[L2] [CO4]	[6M]
4.	a)	Discuss the any 3 logical operation instructions of 8051 microcontroller	[L2] [CO4]	[6M]
	b)	GIVE THE RESULT the following instruction with A=32, R1=77 A) ANL A,R1 B)CPL A C)XRL A,R1	[L2] [CO4]	[6M]
	a)	Discuss RR, RLC, and SWAP instructions with example.	[L2] [CO4]	[6M]
5.	b)	DESCRIBE the following BIT level Boolean operations. A)ANL C,b B)CPL C C) ORL C,/b	[L2] [CO4]	[6M]
	a)	Explain ADD, SUBB. DIV instructions of 8051 microcontroller with example.	[L2] [CO4]	[6M]
6.	b)	Give the result in A and B after executing the following instruction withinitial values A=07, B=09.A) DIV A,BB) MUL A,BC) INC A	[L1] [CO4]	[6M]
_	a)	Explain JNC, JB, JBC instructions of 8051 with an example	[L2] [CO4]	[6M]
1.	b)	Discuss CJNE A add, radd , JZ and DJNZ R, radd	[L1] [CO4]	[6M]
	a)	Describe AJMP, LJMP, and ACALL	[L2] [CO4]	[6M]
8.	b)	Write an ALP to place the number 34h in register R5, R6, and R7. Using immediate and register addressing modes	[L1] [CO4]	[6M]
9.	a)	Write a ALP to put the number 8Dh in RAM locations 3050h and 3054h.	[L1] [CO4]	[6M]
	b)	Develop an assembly program of 8051 microcontroller addition of two 8- bit numbers in internal memory location 30h and 40h and store the result in a memory location 50h.	[L3] [CO4]	[6M]
10.	a)	Give three different ways to clear the contents of the A register	[L1] [CO4]	[6M]
	b)	Write the program that will complement every bit in register R6 in bank2	[L2] [CO4]	[6M]

Unit V Applications

1	a)	Discuss about Keyboards and human factors	[L2] [CO5]	[6M]
1	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 programs for keyboards	[L3] [CO5]	[6M]
	b)	Explain and draw the scanning keyboards and it configuration.	[L2] [CO5]	[6M]
1	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]
<i>'</i>	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]	[6M]
	b)	List any five advantages of A/D converter and it applications	[L1] [CO5]	[6M]
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		Describe and design the hardware circuits for multiple interrupts	[L1] [CO5]	[12M]

Prepared by D R Lakshmi