



SRI KRISHNA COLLEGE OF TECHNOLOGY
An Autonomous Institution, (Approved by AICTE and affiliated to Anna University)
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QUESTION BANK

Course Code	Course Title
22CS502	Microprocessors and Microcontrollers

List of Possible Questions from Module 1 and Module II (First Half – Until Interfacing I/O Devices)

Part – A (10 x 02 = 20 Marks) Answer All Questions	
1	Classify the buses of a Microprocessor and specify which bus is related to speed of a processor.
2	Calculate the total amount of memory for a 16 – bit microprocessor.
3	Interpret the purpose of CX and DX registers in 8086 Microprocessor
4	Infer on the calculation of 20-bit physical address in 8086 microprocessor.
5	Enlist any two applications of 8086 Microprocessors.
6	Sketch the flag register of 8086 Microprocessor.
7	Write the pin definition for \overline{DT} and $\overline{M}/\overline{IO}$ in minimum mode operation.
8	Draw the control word signal format for minimum mode in 8086 microprocessors.
9	Mention the function of opcode prefetch queue in 8086 microprocessor.
10	Indicate the type of data transfer available in 8086 system with reference to the $\overline{M}/\overline{IO}$, \overline{RD} and \overline{WR} control signals.

11	List the significance of HOLD and HLDA signals in 8086 processor
12	Draw the “read “machine cycle of 8086 microprocessor.
13	List the various status of S2,S1, S0 signals in 8086
14	Mention the importance of pipeline operation
15	Discuss the pipeline process
16	Mention the significance of multiplexed bus in 8086
17	List the types of addressing modes in 8086 microprocessors.
18	Write an instruction to subtract 32H from contents of AL register and specify which type of addressing mode.
19	Interpret instruction MOV AL, (BP) and identify the addressing mode.
20	Mention any four instructions used in 8086 microprocessors.
21	Interpret the direct addressing modes of 8086 microprocessors .
22	Identify the addressing mode of MOV AX, 55H (BX) (SI)
23	Write an assembly language program to add two 16 bit numbers and store the result at 7200H.
24	Write an assembly language program to load the accumulator with a constant value.
25	Write an assembly Program for reading and displaying a character pressed from the keyboard.
26	Calculate the physical address, when segment address is 1085H and effective address is 4537 H.
27	Write an assembly language program to multiply two 16 bitnumbers and store the result at 8500H.
28	Outline the operand and mnemonics in 8086 microprocessors.
29	.Write notes on control transfer instructions in 8086
30	List the classifications of instruction set in 8086.
31	Differentiate between the macro and procedure
32	Discuss the assembler directives
33	Interpret the features of 8255 programmable peripheral interface
34	Enlist the modes of operation supported by 8255
35	Draw the control word format of BSR mode.
36	Interpret memory mapped I/O on 8086 microprocessor.

37	Mention the steps involved in ADC interfacing.
38	How memory interfacing is differentiated from I/O interfacing?
39	List the salient features of Dual Slope 12-bit ADC.
40	Mention the applications of 8255-PPI.

Part – B (05 x 16 = 80 Marks) Answer All Questions		Marks
1	I. Discuss the various functions of various modules in architecture with suitable diagram.	8
	II. Illustrate the pin configuration of 8086 Microprocessor in detail.	8
2	I. Explain the register organization of 8086 microprocessor.	8
	II. Compare the minimum and maximum modes of 8086 Microprocessor	8
3	I. Examine the architectural view of minimum mode operation of the 8086 system.	8
	II. Discuss in detail about the control signals associated with maximum mode.	8
4	I. Illustrate the functions and significance of bus controller chip IC8288 in maximum mode operation.	8
	II. With a neat sketch, discuss the memory read cycle timing operation of the 8086 system in maximum mode.	8
5	I. Give the significance of 70 and IO/M signals in 8086	8
	II. Give the significance of OF, TF, IF and DF flags in 8086	8
6	I. Discuss the memory organization of 8086 processor	8
	II. Discuss the memory access mechanism in 8086	8
7	I. Brief the features of 8086 processor	8
	II. Brief the special features of 8086 processor	8
8	I. Draw the flags bit in 8086 and mention the significance	8
	II. Discuss the different special purpose registers in 8086	8
9	I. Discuss the procedure to generate the physical address with suitable example	8
	II. Discuss the instruction queue in 8086 and mention status bits to identify the queue status	8
10	I. If the execution unit generate an effective address of 43A2H and the DS register contains 4000H, What will be the physical address generated by the BIU?. Mention the maximum size of the data segment.	8
	II. Write down the content of AX and DX register after the execution of the following instruction in details MOV AX, 4000H MOV DX, 500H MOV BX, 10H DIV BX	8
11	I. With suitable examples, discuss the different addressing modes supported by 8086	8

	II. List and discuss the stack segment related instructions in 8086	8
12	I. With suitable example explain the various string manipulation instruction	8
	II. Describe the data transfer instruction in 8086 with suitable example	8
13	I. Discuss the results of executing the following instructions MOV BX, 0301H MOV SI, 1548H MOV (BX+SI), 3492H	8
	II. Describe the importance of Flag operations and discuss the various flag operation instructions	8
14	I. Compare and contrast the operation of PUSH and POP instruction in 8086 with example	8
	II. Compare and contrast the 8086 instructions XCHG and XLAT operation with an example	8
15	I. Describe the Shifts and Rotate operation in 8086	8
	II. Obtain the effective address for different addressing modes with the contents of registers as given below Offset: 1000H; AX=5000H; BX=2000H; SI=3000H; DS=7000H; BP=5000; DI=4000H; BP=6000H	8
16	I. Write an assembly language program in 8086 microprocessor to find addition of series of hundred 8-bit numbers.	8
	II. Write an assembly language program in 8086 microprocessor to subtract two 16-bit numbers.	8
17	I. Write an assembly language to find out the product of two matrices and store the result in the third matrix.	8
	II. Write an assembly language program to move 16 - byte string, from the offset 0200H to 0300H in the segment 7000H.	8
18	I. Write an assembly language program to find out the number of odd and even numbers from a given series of 16-bit hexadecimal numbers: 2546, 0AB2, 0C23, 0B91, A34B, 127A.	8
	II. Write an assembly language program to move a byte string of 16 bits long from the offset 0400H to 0600H in the segment 8000H.	8
19	I. Write an assembly language program to display a message "Microprocessors and Microcontrollers" on the screen.	8
	II. Write an assembly language program to find the largest number in the given array of 8-bit numbers: 82H, 56H, 34H, A8H, 19H.	8
20	I. Write an assembly language program to reverse the string	8
	II. Write the algorithm and draw the flow chart for reverse the string	8

21	I. Discuss the different unconditional jump instructions in 8086	8
	II. Discuss the DIV, IDIV, MUL and IMUL instructions with suitable example in 8086	8
22	I. Draw the block diagram of 8255 explain each block in detail.	8
	II. Sketch the pin schematic diagram of 8255 and mention its function.	8
23	I. Explain the input output mode of operation of 8255 programmable peripheral interface.	8
	II. Explain the bit set reset mode of operation of 8255 programmable peripheral interface.	8
24	I. Describe the Interfacing of 4x4 Keyboard with 8255 programmable peripheral interface.	8
	II. Describe the Interfacing of LCD with 8255 programmable peripheral interface.	8
25	I. Explain the operation of analog to digital converter with neat block diagram and timing diagrams.	8
	II. Write an assembly language program to interface ADC 0808 with 8086 through 8255 PPI	8
26	I. Discuss the operating modes of the 8255 PPI	8
	II. Write a set of instructions to perform the following and discuss it; Initialize port A as input, port B as output, port C upper as output and port C lower as input, and use mode 0 for group A and mode 1 for group B.	8
27	I. Describe the interfacing of 8255 with 8086 in I/O mapped I/O	8
	II. Describe the interfacing of 8255 with 8086 in memory mapped I/O	8
28	I. Write a BSR control word subroutine to set bits PC7 and PC3 and reset them after 10 ms. Assume that delay subroutine	8
	II. List the features of 8255 interfacing model	8
29	I. Compare and contrast the mode 0 and mode 1 in 8255	8
	II. Discuss the input and output timing diagram of 8255	8
30	I. Describe the function of different control signals in strobed I/O in 8255	8
	II. Write the instruction to perform the following : set bit 4 of port C; reset bit 4 of port C. Assume the address of PA =10H, PB=11H, PC=12H and control reg 13H	8