



SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES

(Autonomous)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

QUESTION BANK

20ECE242 – COMPUTER ARCHITECTURE AND MICROPROCESSOR

Q No.	Questions	CO	PO	BT
UNIT – 1: BASIC STRUCTURE OF COMPUTER				
PART A (2 Marks)				
1	List out the computer types	CO1	PO1	R
2	Define SPEC rating.	CO1	PO1	R
3	Define memory hierarchy	CO1	PO1	R
4	Compare RISC and CISC architecture	CO1	PO1	An
5	State the performance equation.	CO1	PO1	R
6	Discuss the components of a computer?	CO1	PO1	U
7	Define bus system.	CO1	PO1	R
8	State micro operations?	CO1	PO1	R
9	Define register transfer language.	CO1	PO1	R
10	Define pipeline processing.	CO1	PO1	R
PART-B (10 Marks)				
1	Describe in detail about the functional unit of computer	CO1	PO1	U
2	Discuss about the basic operational concepts.	CO1	PO1	U
3	Describe the following terms i) Arithmetic micro operations ii) Logic micro operations	CO1	PO1,PO2	U
4	Evaluate the computer performance of the system	CO1	PO1, PO2	E
5	Discuss about the register transfer and explain with examples	CO1	PO1	U
6	Define bus system of the computer and explain its operation	CO1	PO1	R
7	List the computer types and explain in detail	CO1	PO1	R
8	Explain about the pipelining and super scalar operations	CO1	PO1	U
9	Write in detail about the shift micro operations	CO1	PO1	R
10	Compare von Neumann and Harvard computers	CO1	PO1	An
UNIT – 2 COMPUTER ARITHMETIC				
PART A (2 Marks)				
1	Illustrate some basic computer instructions	CO2	PO1	U
2	Write Instruction Cycle	CO2	PO1	R
3	Write the main features of Booth's algorithm?	CO2	PO1	R
4	Demonstrate the multiplication hardware diagram	CO2	PO1	A
5	List the steps of multiplication algorithm.	CO2	PO1	R
6	State registers in computer system	CO2	PO1	R
7	Examine instruction set	CO2	PO1	An
8	Recall the concept of BCD	CO2	PO1	R
9	Compare restoring and non restoring algorithm	CO2	PO1	An
10	List the steps involved in the instruction execution	CO2	PO1	R
PART-B (10 Marks)				
1	Illustrate Booth Multiplication algorithm in detail with example	CO2	PO1,PO2	A
2	Describe the Computer registers in detail	CO2	PO1	U



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3	Discuss Decimal arithmetic operations	CO2	PO1	U
4	Analyze the multiplication of signed 2's complement numbers with algorithm and example	CO2	PO1,PO2	An
5	Describe the division algorithm with diagram	CO2	PO1	U
6	Describe about basic concepts of ALU design.	CO2	PO1	U
7	State the non-restoring division technique with an example	CO2	PO1	R
8	Apply and explain the flow chart of floating point addition process.	CO2	PO1,PO2, PO3	A
9	Apply the flow chart of addition and subtraction operation with algorithm	CO2	PO1,PO2, PO3	A
10	Explain with a diagram the design of fast multiplier using carry save adder circuit.	CO2	PO1	U

UNIT – 3 INTRODUCTION TO 8086 MICROPROCESSOR

PART A (2 Marks)

1	Define microprocessor.	CO3	PO1	R
2	Define Bus in microprocessor	CO3	PO1	R
3	Recall about Stack Register.	CO3	PO1	R
4	List the flag register in 8086.	CO3	PO1	R
5	Identify the register organization of 8086.	CO3	PO1	U
6	Describe about program counter and stack pointer register in 8086.	CO3	PO1	U
7	The offset address of data is 341BHand the data segment value is 123AH. Determine the physical address of the data.	CO3	PO1,PO2	A
8	How would you explain two modes of operation in 8086?	CO3	PO1	R
9	Write the needs for timing diagrams?	CO3	PO1	R
10	Compare minimum mode and maximum mode of operation.	CO3	PO1	An

PART-B (10 Marks)

1	Demonstrate the 8086 internal architecture and explain its functional unit roles along with registers in detail.	CO3	PO1	U
2	Define interrupts and their types. Write in detail about interrupt service routine.	CO3	PO1	R
3	Sketch the functional description of 8086 microprocessor with a neat diagram.	CO3	PO1	A
4	Summarize the timing diagram of memory read and memory write operations of 8086 microprocessor and explain in detail.	CO3	PO1	U
5	Examine all the pin functions of 8086 processor configured in the maximum mode.	CO3	PO1	An
6	Discuss about the signals involved in minimum mode operation of 8086 with a microprocessor based system with the timing diagram.	CO3	PO1	U
7	Describe and explain the system bus timing of 8086?	CO3	PO1	U
8	(i) Describe the maximum mode configuration of 8086 with a neat diagram. (ii) Mention the functions of various signals of 8086.	CO3	PO1	U
9	Identify the physical memory organization of 8086.	CO3	PO1,PO2	U
10	Identify and explain the Memory Management	CO3	PO1,PO2	U



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UNIT-4: 8086 TIMING DIAGRAMS & INSTRUCTION SET

PART A (2 Marks)				
1	Define the assembler directives in 8086	CO4	PO1	R
2	Outline the different type of addressing modes of 8086	CO4	PO1	A
3	State in your own words about the 8086 instructions	CO4	PO1	R
4	Classify the program control instructions available in 8086	CO4	PO1	U
5	How would you use carry and zero flags that reflect the result of the instruction CMP BX, CX?	CO4	PO1,PO2	An
6	List the string instructions available in 8086.	CO4	PO1	R
7	Briefly describe the term Macros.	CO4	PO1	U
8	Elaborate on any four string instructions.	CO4	PO1	U
9	Recall the instruction formats.	CO4	PO1	R
10	Classify the instruction set of 8086.	CO4	PO1	U
PART-B (10 Marks)				
1	(i) Outline the use of the assembler directives: DD, ASSUME, EQU.(ii)Write an 8086 ALP to convert BCD data to Binary data.	CO4	PO1,PO2, PO3	R, C
2	Examine the various addressing modes available in 8086 and Explain each mode with an example.	CO4	PO1	An
3	(i) Explain the data transfer, arithmetic and branch instructions of 8086 microprocessor with examples. (ii) Analyze an 8086 ALP to find the sum of numbers in an array of 10 elements.	CO4	PO1,PO2, PO3	U, An
4	Outline and explain the Physical Memory Organization	CO4	PO1	A
5	Discuss about instruction formats and instruction execution timing.	CO4	PO1	R
6	Express the operand formats for the addressing modes with example.	CO4	PO1	R
7	Generalize the concept of byte and string manipulation with an example.	CO4	PO1	R
8	Define interrupts and their types. Write in detail about interrupt service routine.	CO4	PO1	R
9	Summarize an 8086 ALP to compare two strings of same length.	CO4	PO1,PO2, PO3	U
10	(i) Explain in about the indirect addressing mode in 8086. (ii) Design an ALP in 8086 to multiply two 16-bit numbers.	CO4	PO1,PO2, PO3	U, C
UNIT- 5 PROGRAMMING WITH 8086 MICROPROCESSOR & INTERFACING DEVICES				
PART A (2 Marks)				
1	Show how logical instruction is used to perform logical operation in 8086 with example.	CO5	PO1	R
2	List out the branch instruction with an example	CO5	PO1	R
3	Write the string related instruction in 8086.	CO5	PO1	R
4	Write about the 8255 PPI.	CO5	PO1	R
5	List out the various operating modes of 8255.	CO5	PO1	R
6	Define A/D and D/A convertor	CO5	PO1	R
7	Examine the features of mode 1 used in 8255	CO5	PO1	R
8	Compare A/D and D/A interfacing	CO5	PO1	An
9	Find the output of the instruction AND AL,AL	CO5	PO1,PO2	R
10	Recall the uses of handshaking signals in mode 2 of 8255	CO5	PO1	R



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PART-B (10 Marks)				
1	(i) Manipulate DAC converter with block diagram. (ii) How is D/A converter interfaced with 8086?	CO5	PO1,PO2, PO4	An
2	With a block diagram design how 8255 functions in different modes to accommodate different kind of I/O devices.	CO5	PO1,PO2	C
3	Describe the block diagram of 8255 in detail with its operating modes	CO5	PO1	U
4	Develop an assembly language program for sorting array of numbers in ascending order Using 8086 Instructions	CO5	PO1,PO2, PO3	C
5	Develop an assembly language program for sorting array of numbers in descending order Using 8086 Instructions	CO5	PO1,PO2,P O3	C
6	Develop a program to transfer 10 bytes of data from memory location from 2000H to 3000H using the MOVSB instruction MOVSB.	CO5	PO1,PO2, PO3	C
7	Explain the different modes of operation of 8255 PPI	CO5	PO1	U
8	Draw and explain the interfacing of 8255 PPI with 8086	CO5	PO1,PO2,	U
9	Interface the A/D with 8086 and explain.	CO5	PO1,PO2, PO4	C
10	Draw and interface the D/A with 8086 and explain	CO5	PO1,PO2, PO4	C



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