

Question Paper consists of Part-A and Part-B  
Answer ALL the question in Part-A and Part-B

PART-A (10X2 = 20M)

	Marks	CO	BL
1. a) Solve X from the following. i) $(BA0.C)_{16} = (X)_8$ ii) $(10101100)_2 = (X)_{16}$ . iii) $(FFE.C)_{16} = (X)_{10}$	(2M)	CO1	BL3
b) Implement Full Adder using half adder.	(2M)	CO1	BL3
c) Define flip-flop? Design the basic flip-flop using NOR gates.	(2M)	CO2	BL2
d) Compare single bus structure and multiple bus structure.	(2M)	CO2	BL2
e) Write a note on register operands of an arithmetic instruction.	(2M)	CO3	BL2
f) Define the term processor and discuss about output unit.	(2M)	CO3	BL2
g) Differentiate RAM and ROM	(2M)	CO4	BL3
h) Define Flash Memory and cache memory?	(2M)	CO4	BL2
i) Define the term processor and discuss about output unit.	(2M)	CO5	BL2
j) Write a short note on concept of interrupt cycle .	(2M)	CO5	BL2

PART-B (5X10 = 50M)

2a.	Simplify the following expressions (i) $AB + BC + AC$ (ii) $(X+Y).(Y+Z)$	5(M)	CO1	BL2
b	What is decoder? Construct 3*8 decoder using logic gates and truth table.	5(M)	CO1	BL2
(OR)				
3a.	Reduce the following function using K- map $F(A,B,C,D) = \sum m(5,6,7,12,13,14) + d(8,9)$ .	5(M)	CO1	BL2
b.	Explain about weighted and Non weighted codes.	5(M)	CO1	BL3
4a.	Draw the logic diagram of a JK flip - flop and using excitation table explain its operation.	5(M)	CO2	BL4

b.	Compare single bus structure and multiple bus structure in detail.	5(M)	CO2	BL4
(OR)				
5a.	Write the differences between synchronous and Asynchronous Counters.	5(M)	CO2	BL3
b.	Briefly discuss about various types of Shift Registers.	5(M)	CO2	BL3

6a.	Explain the Floating point Multiplication algorithm with an example	5(M)	CO3	BL4
b.	Draw the block diagram of Hard wired control unit of a basic computer and explain its components	5(M)	CO3	BL4
(OR)				
7a.	Draw the connections between the processor and main memory and explain the basic operational concepts.	5(M)	CO3	BL4
b.	Explain the addition and subtraction of the floating point numbers with flow chart.	5(M)	CO3	BL4

8a.	Explain briefly about memory hierarchy and discuss size and performance parameters.	5(M)	CO4	BL4
b.	What is a Virtual Memory? Explain the process of converting virtual addresses to physical addresses with a neat diagram	5(M)	CO4	BL2
(OR)				
9a.	With a neat diagram, show the memory address map of RAM and ROM for a computer system (Assume 512 bytes).	5(M)	CO4	BL4
b.	Explain Cache memory organization with Associative mapping. Explain how it improves the memory access time.	5(M)	CO4	BL4

10a	Mention the standard I/O interfaces and describe them.	5(M)	CO5	BL3
b.	Define DMA and draw the two-channel DMA controller and explain it.	5(M)	CO5	BL2
(OR)				
11a	What is an interrupt? What are the different types of interrupts known to you describe briefly?	5(M)	CO5	BL4
b.	Draw and explain input/output interface circuit connecting a keyboard to asynchronous bus.	5(M)	CO5	BL4

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