J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY

UGC Autonomous

Module / Unit wise Question Bank

Name of the Faculty:	Dr. Anindya Jana/G. Samatha		
Subject:	Digital Logic Design & Computer Organization.		
Class:	II B tech I Sem		
Branch:	CSE		

MODULE- I				
Long Answer Question (5 M and 10 Marks)				
S.NO	**Question**	**CO**	**Bloom's Taxonomy**	**Marks**
1	List and explain various computer types and their uses	CO1	L2	5 M
2	Convert the following i) (53.625)10 to (?)2 ii) (3FD)16 to (?)2 iii) (A69.8)16 to (?)10	CO1	L3	5M
3	Explain various bus structures with diagrams.	CO1	L2	5 M
4	Explain operational steps of a computer with diagram	CO1	L2	5 M
5	Explain various computer generations	CO1	L2	5 M
6	Explain functional units of a computer with neat diagram	CO1	L2	10M
7	Express the following numbers in decimal : (10110.0101)2, (16.5)16 , (26.24)8.	CO1	L3	5 M
8	What is gray code. How do you convert a gray number into binary number. Convert 101101101&110110100 from gray to binary.	CO1	L3	5 M
9	Explain floating point representation with an example	CO1	L2	5 M
10	Perform the decimal subtraction in 8-4-2-1 BCD using 9's complement i) Subtract 79 from 26 ii) Subtract 748 from 983	CO1	L3	5 M
11	Convert the following i) (95.25)10 to (?)2 ii) (2EF)16 to (?)2 iii) (B79.6)16 to (?)10	CO1	L3	5M
12	i) What is IEEE 754 standard in Floating point representation. ii) Represent (32.75)10 in single precision and double precision formats.	CO2	L3	10 M

MODULE- II				
Long Answer Question (5 M and 10 Marks)				
S.NO	**Question**	**CO**	**Bloom's Taxonomy**	**Marks**
1	Simplify the following Boolean functions, using a four variable Karnaugh map method and implement the simplified function using NAND gates F(A,B,C,D) = ∑0,2,4,5,6,7,8,10,13,15)	CO2	L3	10 M
2	Design Full Adder using two half adders and 3*8 decoder.	CO2	L3	5 M
3	Explain multiplexer and implement 16 x 1 multiplexer using 8 x 1 multiplexers.	CO2	L3	5 M
4	Implement full adder using half adders and give its truth table.	CO2	L3	5 M
5	What is a flip-flop? Write down the characteristic equation of J-K, T flipflops.	CO2	L3	5 M
6	Explain decoder and implement 3 to 8 decoders using 2 to 4 decoders.	CO2	L3	5 M
7	Describe Universal Logic gates? Why they are so called? Perform the realization of all the logic gates using NAND gates.	CO2	L3	5 M
8	What is a flip-flop? Write down the characteristic equation of S-R, D flipflops.	CO2	L3	5 M

MODULE- III				
Long Answer Question (10 Marks)				
S.NO	**Question**	**CO**	**Bloom's Taxonomy**	**Marks**
1	Explain Booth's algorithm for multiplication of two 2's complement numbers with one example.	CO3	L3	10M
2	i) Write a program to evaluate an arithmetic expression X=(A+B)*(C+D) using a) Three -address b) Two-address c) One-address d) Zero address instructions. ii) Explain various Addressing Modes with one Numerical example.	CO3	L3	10M
3	Write the Algorithm for adding and subtracting numbers in signed-2'scomplement representation.	CO3	L3	10 M
4	Categorize the instruction set and explain each of them in detail with an example.	CO3	L2	10 M
5	Explain various Addressing Modes. that can be used for load instructions with examples.	CO3	L3	10 M
6	Discuss Computer arithmetic addition and subtraction can be performed using Signed magnitude data? Also provide its hardware implementation.	CO3	L3	10M

MODULE- IV				
Long Answer Question (10 Marks)				
S.NO	**Question**	**CO**	**Bloom's Taxonomy**	**Marks**
1	i)A Computer uses RAM chips of 1024x1 capacity. a) How many chips are needed and how should the address lines be connected to provide a memory capacity of 1024 bytes? b) How many chips are needed to provide a memory capacity16K bytes? ii) Differentiate between Micro-programmed and Hard-wired control and give their relative merits	CO4	L3	10M
2	Give the block diagram and function table of RAM and ROM chips.	CO4	L3	10 M
3	Explain the different types of mapping techniques used in the usage of cache memory.	CO4	L2	10M
4	Explain virtual memory organization and Memory Management requirements.	CO4	L2	10 M
5	Discuss about the design and functioning of hardwired control unit. Also give its advantages and disadvantages.	CO4	L2	10M
6	Write a short notes on a) Magnetic disk b)Virtual Memory c) Magnetic Tape.	CO4	L2	10 M

MODULE- V				
Long Answer Question (5 M and 10 Marks)				
S.NO	**Question**	**CO**	**Bloom's Taxonomy**	**Marks**
1	Explain the function of DMA transfer with diagram.	CO5	L3	10M
2	Design the general 8-bit parallel interface and explain its working.	CO5	L2	5 M
3	Explain briefly about enabling and disabling of interrupts?	CO5	L2	5 M
4	Explain Programmed I/O and Interrupt Driven I\O with examples.	CO5	L2	10M

Short Answer Question (1Mark and 3 mark)				
S.NO	**Question**	**CO**	**Bloom's Taxonomy**	**Marks**
1	What is the gray code?	CO1	L2	1M
2	What is multi processor and multi computer?	CO1	L2	1M
3	What is flip flop?	CO3	L2	1M
4	Convert the following i) (A69.8)16 to (?)10 ii) (3FD)16 to (?) 2	CO2	L3	3M
5	What is Shift Register?	CO2	L2	1M
6	What is counter?	CO3	L2	1M
7	Write about PLD's.	CO3	L2	1M
8	What is meant by SOP form and POS from	CO3	L2	1M
9	Find 1's and 2's complement of number 101011	CO2	L3	3M
10	Write the difference b/w combinational circuits vs sequential circuits	CO2	L2	3M
11	What is a K-map? Draw different types of k-Maps.	CO2	L2	3M
12	Write DeMorgan's theorems in Boolean algebra,	CO2	L2	3M
13	Explain different types of Memories.	CO4	L2	3M
14	What are logic gates? Explain briefly with diagrams.	CO3	L2	3M
15	What is cycle stealing and burst mode in DMA	CO5	L2	3M