Code No: 113BQ

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, February/March - 2016
DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION
(Information Technology)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A **[25 Marks]**

1.a)	Write short note on computer generations.	[2]
b)	Convert the hexadecimal number 1DFC.5 to binary and octal.	[3]
c)	What is mean by register?	[2]
d)	What is race around condition? How it is avoided.	[3]
e)	Write about IEEE 754 floating point format.	[2]
f)	Give brief idea on Instruction Formats with on example.	[3]
g)	What is the difference between SRAM and DRAM?	[2]
h)	Write a short note on cache memories.	[3]
i)	What is bus arbitration? Mention the types of bus arbitration?	[2]
j)	Explain the read operation on the PCI bus.	[3]

Part-B (50 Marks)

2.a) Write the functional units of computer system with the help of a neat block diagram.
b) Explain the functions and organization of address bus, data bus and control bus in a digital computer system. [5+5]

OR

3.a) Perform the arithmetic operation (-638) + (+785) with the decimal numbers using signed 10's complement representation for negative numbers.
b) Explain about the Memory unit of a Computer. [6+4]

4.a) Find the reduced POS form of the function .
$F(A, B, C, D) = \Sigma m(1, 3, 7, 11, 15) + \Sigma d(0, 2, 5)$. Implement using NAND logic.
b) Explain the working of PLA and PAL with help of neat diagrams and mention the advantages of programmable logic devices. [5+5]

OR

5.a) Design a Decade counter using JK flip-flops.
b) Explain 4-bit shift register with parallel load with a neat diagram. [5+5]

6.a) Explain the various addressing modes with suitable example.
b) Explain Algorithms for fixed point addition. [7+3]

OR

7.a) Explain Booths multiplication algorithm with an example.
b) Write a short note on Basic Machine Instructions. [7+3]

8.a) Write the advantages and disadvantages of hardwired control versus micro programmed control.

b) Write about memory management requirements. [5+5]

OR

9.a) What is meant by virtual memory? Explain virtual memory concept in computer system with suitable examples.

b) Explain about execution of instructions. [6+4]

10.a) Explain the handshake control data transfer during input and output operation in asynchronous bus with timing diagram.

b) Write in detail Programmed I/O. [5+5]

OR

11.a) Explain the interrupt system of a digital computer. Write about hardware and software interrupts. Describe how enabling and disabling of interrupt system can be done in a digital computer.

b) What is DMA data transfer? [7+3]

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