Code No: 123BQ **R15**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, December - 2019
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)	Discuss about "Performance Measurement" of a computer.	[2]
b)	Convert the hexadecimal number 2AC5.D to binary and octal.	[3]
c)	Simplify the expression using K-map. $F(X,Y, Z)= \sum m(1,3,5,6)$	[2]
d)	Implement OR logic using NOR gate.	[3]
e)	Draw the flow chart for subtraction of 2 fixed point binary numbers.	[2]
f)	Write the sequence of operations that take place during reading of memory.	[3]
g)	Where is the micro program stored?	[2]
h)	What are the different secondary storage devices?	[3]
i)	What is I/O interface?	[2]
j)	Mention the names of different buses. What is PCI bus?	[3]

PART-B

(50 Marks)

2.a) Explain about the performance evaluation of computers.
b) Differentiate between multiprocessor and multi computers. [5+5]

OR

3.a) Convert $6520_{(10)}$ into
i) BCD ii) Excess-3 iii) 2421 iv) Binary.
b) Demonstrate subtraction using signed binary numbers. [5+5]

4.a) Simplify the following Boolean function F, together with the don't-care conditions d and then express the simplified function in sum-of-min terms form.
$F(x,y,z)= \sum 0, 1, 4, 5, 6)\ d(x,y,z)=\sum(2, 3, 7)$
b) What are the different ways of using Universal Shift Register with a neat diagram? [5+5]

OR

5.a) Design a 4 bit equality comparator.
b) Design a 4 bit ring counter. [5+5]

6. Write the algorithms for floating point addition and floating point subtraction. [10]

OR

7.a) Explain the register structure of IA-32 Pentium processor.
b) Discuss about Instructions and Instruction Sequencing. [5+5]

8.a) Distinguish between micro programmed control and hardwired control.
b) Explain Multibus organization. [5+5]

OR

9.a) Define Virtual memory and explain its memory organization.
b) Classify different memories. [5+5]

10. How does hardware interrupt work? Explain. [10]

OR

11. Explain about DMA controller in detail with a neat diagram. [10]

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