

Registration no:

--	--	--	--	--	--	--	--	--	--

Total Number of Pages: 2

B.TECH
FECE6401

7th Semester Regular / Back Examination 2016-17
COMPUTER SYSTEM ARCHITECTURE

BRANCH(S): AEIE, ECE, EIE, ETC, IEE

Time: 3 Hours

Max Marks: 70

Q.CODE: Y185

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: (2 x 10)

- a) What is the difference between RISC and CISC Architecture?
- b) What are the six stages of an instruction cycle?
- c) What is a Bus? What are the main differences between I/O Bus and memory Bus?
- d) Is ROM a RAM? Justify your answer.
- e) What do you mean by seek time?
- f) What are the functions of PC and MAR?
- g) Differentiate between DRAM and SRAM.
- h) Differentiate between Instruction and Micro instruction.
- i) Why computers' memory systems are typically built as hierarchies?
- j) Differentiate between horizontal and vertical microprogramming?

Q2 a) Draw the schematic diagram of the architecture of a single internal bus CPU, clearly showing the general purpose, special purpose registers and the data path. Explain the function of each component. (5)

b) Using Assembly Language write a program to evaluate the statement $P = (A * B + C * D)$ in a single accumulator processor. Assume that the processor has **Load, Store, Multiply and **Add** instructions, and all values fit in the accumulator. (5)**

Q3 a) Explain zero address, one address, two address and three address instructions with examples. (5)

b) With an example show the addressing mechanism in big-endian and little-endian format. (5)

Q4 a) Given $x = 0101$ and $y = 1010$ in two complement notation. Compute the product $p = x * y$ with Booth's Algorithm. (5)

b) What do you mean by addressing mode? Explain the different types of addressing mode. (5)

210 210 210 210 210 210 210 210

Q5 a) Design a 4-bit carry -lookahed fast adder and show it with a schematic diagram. (5)

b) List the four alternative methods of rounding the result of floating point operation. (5)

Q6 a) Explain with a schematic Block diagram, the functioning of microprogrammed Controlled Unit.What is the advantage of this approach? (5)

b) A Hard disk has 16 surfaces,448 tracks per surface,768 sectors per track.Each sector can accommodate 512 Bytes.What is the maximum storage capacity of the above hard disk?How would you organize the data in the hard disc to minimize the Access time? (5)

Q7 a) Explain the virtual memory management technique with the help of following information. (5)

Virtual Memory :256G Bytes
Physical Memory:4G Bytes
Page Size :8 M Bytes

What would be the size of the page table assuming 6 bits are used as control bits in the page table.

b) Explain the Nonrestoring division algorithm for division of two positive binary integers as given below. (5)
Divisor=10, Dividend=11011

Q8 Write short notes on any two of the following (5 x 2)

- a) Segmentation
- b) Hardwired Control
- c) Locality of Reference
- d) Page Replacement Policies