

National University of Computer and Emerging Sciences, Lahore Campus



Course: Computer Architecture
Program: BS(Computer Science)
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Section: A
Exam: Quiz 4a

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Q1: What is the difference between OTP ROM and MASK programmed ROM. What is their write ability and storage permanence?
Marks 5

Q2: Consider a machine with a byte addressable main memory of 2^{16} bytes and block size of 8 bytes. Assume that a direct mapped cache consisting of 32 lines is used with this machine. 15 marks

a. How is a 16-bit memory address divided into tag, index and offset?

b. Into what line would bytes with each of the following addresses be stored?

0001 0001 0001 1011

1101 0000 0001 1101

- c. Suppose the byte with address 0001 1010 0001 1010 is stored in the cache. What are the addresses of the other bytes stored along with it?

- d. If the cache is 4-way set associative then tell the location of values (given in part b) in this cache

- e. If the cache is fully associative then what would be the size of index bits and tag bits?