



Date: 02. 05. 2008

Time: 4.00 pm – 5.30 pm

Answer All Questions

Q1.

- a. Briefly discuss the advantages and disadvantages of the following mass storage media.
 - i. CD ROM
 - ii. Hard disk
 - iii. Pen drive (removable drive)
- b. Why DMA technology is very useful? Describe in your own words.
- c. Using examples briefly explain the memory hierarchy in a computer system.
- d. Show the functional behavior of a RAM cell using D- type flip-flop.
- e. Design an eight (8) word, four-bit RAM by using 4x4 RAMs.

Q2.

- a. What is the von Neumann model of the Computer? Compare with other machines and explain briefly.
- b. Briefly explain the following terms
 - i. RISC Computer
 - ii. Fetch-execute cycle
 - iii. The System bus model
- c. Draw a suitable 'datapath' and explain how computer executes a command?
- d. Compare ASCII and UNICODE describing the advantages and disadvantages.

Q3.

- a. Convert the following numbers into Binary(base 2), Octal(Base 8) and hexadecimal(Base 16)
 - i. 55_{10}
 - ii. 20_2
 - iii. 96_{10}
 - iv. 45_{10}
- b. By using 8 bit register store the above values.
- c. Draw a truth table for a full adder.
- d. Design an addition/ subtraction unit by using full adders and NOR gates.
- e. Use Two's Complement addition to perform the following calculations.
 - i. $55_{10} + 45_{10}$
 - ii. $55_8 - 20_{10}$
 - iii. $96_{10} - 45_{10}$

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