

11/6/2011

SE SEM-III Computer  
Computer Organization Architecture

34 : 1st half-11(d)-JP

Con. 3668-11.

RK-1260

(3 Hours)

[ Total Marks : 100

- N.B.** (1) Question No. 1 is **compulsory**.  
 (2) Solve any **four** questions out of remaining **six** questions.  
 (3) Draw the **diagrams** if **necessary**.

1. Explain IEEE format for floating :—
  - (a) Point number representation 10
  - (b) Explain RISC and CISC architectures in details. 10
  
2. (a) Explain different bus arbitration schemes with suitable diagrams. 10  
 (b) Explain Van Neumann Architecture in detail. 10
  
3. (a) Describe in detail the organization of a typical CPU. It should include program control unit, data processing unit and appropriate registers. 10  
 (b) Distinguish between :— 10
  - (i) Hardwire control and microprogrammed control
  - (ii) Horizontal and vertical microprogrammed control unit.
  
4. (a) Explain the different RAID levels. 10  
 (b) A winchester magnetic disk unit has densities of  $40 \times 10^6$  bits per square inch of surface. 10
  - (i) If the inner diameter of recording area is 4 inches and outer diameter is 7 inches, what is average bit density along a track if radial track spacing density is 2000 tracks/inch.
  - (ii) What is data transfer rate in bytes/sec at a rotational speed of 3600 rpm ?
  
5. (a) Write short notes on :— 10
  - (i) DMA
  - (ii) Interrupt driven I/O.
 (b) Explain Flynn's classifications with suitable diagrams. Also comment on design issues of pipeline architecture. 10
  
6. Explain SPARC processor in detail.
  - (a) Draw and explain n bit windows architecture of SPARC processor 10
  - (b) Describe wave front arrays. 10
  
7. (a) Explain page replacement algorithm. Find out page fault for following string using LRU method. Consider page frame size = 3 10  
           7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1  
 (b) What is Virtual Memory ? Explain how paging is useful in implementing virtual memory. 10