

## Prelim Paper

## Computer Organization and Architecture

Time: 3 Hrs.]

[Marks : 80

**N.B.:** (1) Question No. 1 is compulsory.

(2) Solve any THREE questions from remaining FIVE questions.

(3) Assume suitable data if required.

1. (a) Explain Von Neumann model of architecture in details. **05**  
(b) Explain differences between RISC and CISC. **05**  
(c) Explain nano programming. **05**  
(d) Explain difference between hardwired and softwired. **05**
2. (a) With a neat flowchart, explain the procedure for division of floating–point numbers carried out in the computer. **10**  
(b) Give algorithm for restoring division to handle both positive and negative integer in two complement code. **10**
3. (a) Write a short note on Memory characteristics. **10**  
(b) Explain the elements of cache design. **10**
4. (a) A virtual memory system has a 16 K word logical address space, 8K word physical address space with page size of 2K word. The page address trace of a program has been found to be 7 5 3 2 1 0 4 1 6 7 4 2 0 1 3 5.  
List the four pages resident in the memory after each page reference for the following replacement policies : (a) FIFO (b) LRU **10**  
(b) Explain RAID and its level. **10**
5. (a) Explain IEEE floating point represent? **10**  
(b) Explain Flynn classification in detail. **10**
6. (a) Write short note on DMA. **10**  
(b) Compare between interrupt based data transfer and DMA based data transfer. **10**

