A.P.G.D.C.A./M.Sc. (Computer Sc.)/M.C.A.

1st Semester Examination, January– 2009

COMPUTER ORGANISATION AND ARCHITECTURE

Paper–APGDCA-4

Time allowed : 3 hours]   [Maximum marks : 75

Note : Attempt any *five* questions.

All questions carry equal marks.

1. (a) What do you understand by Pipelining ? When, where and why is it necessary ? Also differentiate between the Instruction Pipelining and Arithmetic Pipelining.   8

   (b) What is Vector Processing ? State its significance and also enumerate certain applications which demand Vector Processing.   7

2. (a) What are micro-operations ? What are its various types ? Illustrate the implementation of each category of micro-operations through its block diagram(s).   8

   (b) How does a micro-program differ from a program? Discuss the Wilkes's micro-programmed design of Control Unit.   7

3. (a) What is meant by an Input/Output (I/O) module? What are the functions performed by an I/O module ? Illustrate the general structure of an I/O module.   8

    (b) What is Cache Coherence ? Why does it occur ? Briefly discuss at least two techniques to overcome Cache Coherence problem.   7

4. (a) What is Instruction Set ? What are the elements of an instruction ? How an instruction is represented ? What are various types of instructions ? Also enumerate the factors which play important role for selection of an Instruction Set for a machine.   7

    (b) What do you mean by an Instruction Cycle ? What are various sub-cycles in an Instruction Cycle ? Also outline the steps performed during each of these sub-cycles.   8

5. (a) How does RISC architecture differ from CISC ? Briefly outline the main characteristics of RISC architecture.   8

    (b) What is an Input/Output (I/O) Processor ? Outline the functions performed by an I/O Processor as well as illustrate the architecture for an I/O Channel.   7