MCA – 63C

VI Semester M.C.A. Examination, February/March 2010
ADVANCED COMPUTER ARCHITECTURE

Time: 3 Hours Max. Marks: 100

Instructions: *1) Answer **all** questions in Part **A**, **5** out of 8 questions in Part – **B**, and **4** out of 6 questions in Part – **C**.*
*2) Part – **A**: Questions from **1 to 8** carry **1** mark and **9 to 14** carry **2** marks **each**.*
*3) Part – **B**: **Each** question carries **8** marks.*
*4) Part – **C**: **Each** question carries **10** marks.*

PART – A

1. What is PDA ?
2. Define ISA.
3. What is throughput ?
4. What are control hazards ?
5. Define bandwidth.
6. What is perfect caches ?
7. What is coarse grained multithreading ?
8. Define MTTF.
9. What are the classes of computer ?
10. What is module reliability ?
11. Define CPI.
12. What is cache coherence problem ?
13. What are the pipeline hazards ?
14. What is tightly coupled memory ?

P.T.O.

PART – B

1. Write the ISA formats.
2. Explain data dependency hazards.
3. Explain hardware based speculation.
4. Explain the basic VLIW approach.
5. Explain branch target buffers.
6. Write the basic structure of a centralized shared memory multiprocessors.
7. Write the impact of virtual machine on virtual memory and I/O.
8. Explain M/M/m multiple server model.

PART – C

1. Write the dimensions of ISA.
2. Write the basic structure of a MIPS floating point unit using Tomasulo's algorithm.
3. Explain Directory based coherence.
4. What are the advanced optimizations of cache performance?
5. Explain different types of addressing modes with example.
6. Explain pipeline structural and control hazards.