MAHATMA GANDHI UNIVERSITY

M.C.A DEGREE EXAMINATION

MODEL QUESTION PAPER

(2011 Revised Syllabi)

First Semester

MCA 103 COMPUTER ORGANIZATION AND ARCHITECTURE

Time : Three hours **Maximum : 75 Marks**

Part A

Answer any ten questions.

Each question carries 3 marks.

- Discuss Bus Arbitration
- Explain Cache Coherency problem.
- What is Microprogram Sequencing. Discuss.
- What is a vectored interrupt?
- Explain prefetching of microinstructions
- Explain memory interleaving
- Briefly explain Direct Memory Access.
- Explain Instruction pipelining
- Write short notes on Array Processor
- Distinguish between Memory Mapped I/O and I/O Mapped I/O.
- What is the importance of secondary storage in implementing Virtual Memory
- Compare RISC and CISC organizations

(10 x 3 = 30 marks)

Part B

***All questions carry equal marks*.**

- (a) Explain the various addressing modes commonly used in processors.

Or

- Diagrammatically illustrate and discuss the Functional Units of a Computer.

- (a) With relevant example discuss the process of Enabling and Disabling Interrupts.

Or

- Diagrammatically illustrate and discuss the working of a Synchronous Bus.

- (a) Discuss the replacement algorithms for Cache memories.

Or

List and discuss the different types of Read-Only Memories.

- (a) With an example discuss multiplication using Booth's algorithm.

Or

- Design a circuit for a fast adder with a 4-bit carry lookahead operation.

17 (a) Explain the concept of Instruction Level Parallelism.

Or

(b) Explain Flynn's Classification in detail.

(5 x 9 = 45 marks)