# Punjab Technical University
# Master of Computer Application Examination

**MCA 3rd Semester COMPUTER SYTEM ARCHITCTURE 2009**

**Time : 03 Hours**
**Maximum Marks : 75**
**Instruction to Candidates:**
**1) Selection - A is Compulsory.**
**2) Attempt any Nine questions from Section – B**

**Section A**

a) What is the difference between latch and flip flop?
b) What is Demultiplexer?
c) What is the difference between high level and low level language?
d) What is the function performed by timing and control unit in a microprocessor?
e) What is a two byte instruction? Give example.
f) What are the function that are integrated in Instruction Fetch Unit?
g) What is difference between micro-operation and macro-operation?
h) What are various methods of control logic design?
i) List the several factors that affect the performance of a bus.
j) What is the use of branch to subroutine instruction?
k) Give the function of memory address and memory buffer registers.
l) What are the basic requirements for a memory unit?
m) What are the functions of ROM?
n) What is sequential access memory? Give Example.
o) What are interleaved memory organization?

**Section B**

Q2) What are the different logic gates used for the design of digital circuits? Give their logic symbols and truth tables.
Q3) What is counter? Discuss its working principle.
Q4) Describe the various instruction code formats.
Q5) Outline some specific properties of RISC systems.
Q6) Describe the design procedure for hard wired control.
Q7) Describe the concept of interrupts and vectored interrupts in handling I/O devices.
Q8) Sketch and explain the timing diagram of an input transfer on a synchronous bus.
Q9) With the help of a neat diagram and example, explain the working of a typical micro programmed control unit.
Q10) What are the various types of ROM? Discuss the methods of programming ROMs.
Q11) Compare shared memory multiprocessor architecture and distributed memory architecture.
Q12) Discuss about implementation of virtual memory and cache memory. What is their importance?
Q13) Explain the working of dynamic memory. Why dynamic memory is more suitable for computer RAM?