Punjab Technical University
Master of Computer Application Examination

MCA 2nd Semester DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION 2006

Time: Three hours Maximum: 100 marks

PART A Answer ALL questions. (8 x 5 = 40 marks)

1. (a) Write a brief note on BCD number representation.
OR
(b) Briefly explain the Basic Duality principle of Boolean algebra.

2. (a) What are PLA's? Briefly explain.
Or
(b) Explain the principle of operation of NOR gate.

3. (a) Write a brief note on R-S flip flop.
Or
(b) Explain briefly the principle of operation of parallel binary adder.

4. (a) Write a brief note on master-slave flip flop.
Or
(b) Explain briefly the operation of a Binary coded decimal adder.

5. (a) Explain the main memory operations.
Or
(b) Explain the operation of a PUSH DOWN stack.

6. (a) Write a brief note on sequencing of control signals.
Or
(b) What is prefetching of micro instructions ? Briefly explain?

7. (a) Write a brief note on Grouping of control signals.
Or
(b) Write a brief note on Bit slices.

8. (a) Explain briefly the concept of virtual memory.
Or
(b) Write a brief note on semi conductor ROM memories.

PART B Answer ALL questions. (5 x 12 = 60 marks)

9. (a) Reduce the following expression using K-map and implement in universal logic
m (0,1,2,3,4,6,8,9,10,11).
Or
(b) Explain in detail about NAND to NAND and NOR to OR gate networks.

10.(a) Describe in detail the principle of operation of a Binary counter.
Or
(b) Explain in detail the shift operation

11.(a) Describe in detail the different addressing methods.
Or
(b) Explain in detail about INPUT-OUTPUT programming.

12.(a) Explain in detail about distributed computing.
Or
(b) Describe in detail about micro programmed control.

13.(a) Explain in detail about multiple module memories and Inter leaving.
Or
(b) Describe in detail about memory management.