國立臺灣師範大學 100 學年度碩士班招生考試試題

科目：計算機結構　　　　　　　　　適用系所：應用電子科技學系

注意：1.本試題共 1 頁，請依序在答案卷上作答，並標明題號，不必抄題。2.答案必須寫在指定作答區內，否則不予計分。

1. (50 分, 每小題 5 分) Please explain the following terms:

   (a) Clock skew

   (b) Propagation delay

   (c) Mealy finite state machine

   (d) Hardware-based speculation

   (e) SIMD

   (f) Page fault

   (g) Multilevel cache

   (h) Interrupt driven I/O

   (i) Memory mapped I/O

   (j) RAID

2. (20 分, 每小題 4 分) Please describe the detailed actions of the following steps to execute an instruction on a pipelined microprocessor: (a) instruction fetch, (b) instruction decode and operand fetch, (c) execution, (d) memory access, and (e) result store.

3. (10 分) Please describe the mechanisms of running a function call on a microprocessor.

4. (10 分) Please design the hardware architecture of the floating pointing multiplication.

5. (10 分) Please describe the concept of loop unrolling for multiple-issue pipeline.