國立中央大學資訊工程學系 102 學年度第一學期博士班資格考試題紙

科目：**計算機結構**（Computer Architecture）第一頁 共一頁(page 1 of 1)

1. (10%) What is Amdahl's law?
2. (10%) Using separated instruction cache and data cache instead of a unified cache could mainly reduce which kind of hazard? Please explain the reason.
3. (10%) What is dynamic scheduling? Why is dynamic scheduling important?
4. (10%) What is Loop Unrolling when exploiting instruction level parallelism? What are the advantages? Explain it clearly by an example.
5. (10%) Briefly and clearly explain how a (m,n) correlating branch predictor works?
6. (10%) Please compare VLIW and superscalar machines.
7. (10%) Pease compare "microprogramming" and "hardwired control"?
8. (10%) Given TLB, main memory, page table, cache and the secondary storage, please describe the procedures of a memory access by using these components.
9. (10%) In memory hierarchy design, please describe the positive and negative effects of (a) increasing cache size (b) increasing block size (c) increasing associativity.
10. (10%) In your opinion, what are the future directions of computer architectures and compilers?