

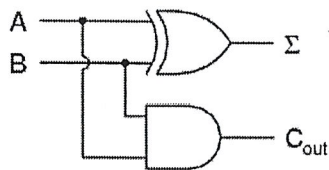
國立臺灣科技大學 105 學年度碩士班招生試題

系所組別：電子工程系碩士班甲組

科目：計算機概論

(總分為 100 分)

1. (10%) Translate each of the following binary representations into its equivalent base representation. To get full credit, please also list the process.
 - (a) $(101100)_2 = (\quad)_{16}$ (5%)
 - (b) $(0.001)_2 = (\quad)_{10}$ (5%)
2. (10%) What do CISC and RISC stand for? Compare and contrast CISC architecture with RISC architecture, and then give an example for each of them.
3. (10%) List four conditions that lead to deadlock in a computer system.
4. (10%) Answer the following questions.
 - (a) What is a proxy server and what are its functions? (5%)
 - (b) Similarly, what does DNS stand for, and what function does it provide? (5%)
5. (10%) Let a half adder be expressed as follows, construct a full adder using this building block.



6. (25%) Explain the following terms.
 - (a) Cache memory (5%)
 - (b) Algorithm (5%)
 - (c) Computer virus (5%)
 - (d) Phishing (5%)
 - (e) Compiler (5%)
7. (15%) Consider the sequence: 3, 1, 4, 7, 5, 8, 6, 2.
 - (a) Insert, into an initially empty binary search tree, numbers of the sequence (in the order). Draw the binary search tree after these insertions. (5%)
 - (b) What will be the output of inorder traversal of the tree obtained in (a)? (5%)
 - (c) What are the advantages and disadvantages of an array-based representation for a binary tree? (5%)
8. (10%) Consider the sequence 38, 41, 52, 75, 22, 13, 84, 63 using insertion sort. Show the list at the end of each pass.

