系所組別： 製造資訊與系統研究所乙組
考試科目： 計算機概論　　　　　　　　　　　　　　　　　考試日期：0307，節次：2

※ 考生請注意：本試題 □可 ☑不可 使用計算機

1. Convert each of the following values. (6%)
   a. $(1011.0101)_2 = ($　　$)_8$
   b. $(-469)_{10} = ($　　$)_{16}$
   c. $(101)_8 = ($　　$)_{16}$

2. Explain the following abbreviations/terms: (25%)
   a. SOC
   b. WAN
   c. Call by value
   d. Call by address
   e. Data mining

3. Convert expression $A*(B+C/(D-E))$ to a postfix expression. (4%)

4. Develop a recursive function to compute the GCD of two integers. (10%)

5. Suppose that A is a two-dimensional array, the address of A(1, 1) is 644 and the address of A(3, 3) is 676, compute the address of A(14, 14). (10%)

6. Give a tree representation and evaluate the value of the prefix expression
   +-x 235/X236  (8%)

7. Write a program to compute the number of nodes of a **Singly Linked List**. (12%).

8. Analyze the time complexity of quick sort in the worse case, best case, and average case (10%)

9. Tell the story about the following ER (Entity-Relation) model. (15%)