

國立臺北科技大學九十七學年度碩士班招生考試

系所組別：4230 商業自動化與管理研究所丙組

第一節 計算機概論 試題

填准考證號碼

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第一頁 共一頁

**注意事項：**

1. 本試題共十題，每題 10 分，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. Write pseudo code versions of an algorithm that gets as input your current credit card balance, the total dollar amount of new purchases, and the total dollar amount of all payments. The algorithm computes the new balance, which this time includes an 5% interest charge on any unpaid balance below \$1000, 10% interest charge on any unpaid balance between \$1000 and \$5000, inclusive, and 15% on any unpaid balance above \$5000.
2. Write pseudo code versions of an algorithm to find the largest value in a list.
3. For a list D, B, G, F, A, C, E, perform a selection sort and show the list after each exchange that has an effect on the list ordering.
4. Suppose a list of seven names: Albert Bob David Kim Mary Peter Sue, using binary search to decide whether Jessica is in the list. What names would be compared to Jessica?
5. What do the signed integers -254 and +300 look like in binary using 10 bits and signed magnitude integer representation?
6. Write a Boolean expression that is true if and only if x and y are both in the range 100 to 1000 but x is not equal to y.

7. Defragmenting a disk means to reorganize files on the disk so that as many pieces of the file as possible are in sectors on the same track, regardless of the surface it is on. Explain why defragmentation can be beneficial.
8. Explain why message collisions would or would not occur on local area networks that used the ring topology or the star topology.
9. Write a complete C++ or Java program that asks for the price of an item and the quantity purchased and writes out the total cost.
10. Write T if the statement is true, F if the statement is false. (Each statement worth 2 points, total 10 points.)
  - a. All unethical acts are illegal.
  - b. Encryption can be used for privacy purposes in addition to security purposes.
  - c. Metadata is stored in the data dictionary.
  - d. In a relational database, more than one table can be included in a database.
  - e. A markup language is typically used to create the animated elements of a Web page.