# 中原大學 97 學年度碩士班入學考試

4 月 13 日 16:00~17:30 工業與系統工程學系甲組

誠實是我們珍視的美德，
我們喜愛「拒絕作弊，堅守正直」的你！

科目：計算機概論



□可使用計算機，惟僅限不具可程式及多重記憶者　■不可使用計算機

**1 至 5 題, 每題 5 分, 共 25 分**

1. (True/False) Counter-controlled loops should not be controlled with floating-point variables. Floating-point values are represented only approximately in the computer's memory, often resulting in imprecise counter values and inaccurate tests for termination.

2. (Single Choice) What is the manufacturing section of the computer? It is responsible for the performance of calculations such as addition, subtraction, multiplication and division.
   (a) Central processing unit (CPU)
   (b) Arithmetic and logic unit (ALU)
   (c) Memory unit
   (d) None of above

3. (Single Choice) Which of the elements below are needed in counter-controlled repetition?
   (a) Control variable
   (b) Increment
   (c) Initial value
   (d) All of the above

4. (Single Choice) Which of the following is not part of the function/method header?
   (a) Function/method name
   (b) Parameter list
   (c) Function/method call
   (d) All of above

5. Assume that **value** has been initialized to **50**. The values from **1** to **50** should be summed. Complete the following codes.

```
while (value > 0)
{
    sum += value;
    _____;
}
```

6. (25 points) Write a program that reads two integers and determines and prints whether the first is a multiple of the second. For example, if the user input **18** and **3**, the first number is a multiple of the second. If the user inputs **4** and **8**, the first number is not a multiple of the second. **(Please specify what computer language you use)**

7. (30 points) Write a function **IntegerPower(base, exponent)** that display the value of

   $$\mathbf{base}^{\mathbf{exponent}}$$

   For example, **IntergerPower(3,4) = 3 * 3* 3 * 3**. Assume that **exponent** is a positive integer and that **base** is an integer. Function **IntegerPower** should use a **For** loop or **While** loop to control the calculation. Do not use any **Math** library methods or the exponentiation operator, ^. **(Please specify what computer language you use)**

8. (20 points) Converting business statements into dependencies. Consider the following relation **DiskDrive**(serialNumber, manufacturer, model, batch, capacity, retailer). Each tuple in the relation **DiskDrive** contains information about a disk drive with a unique serialNumber, made by a manufacturer, with a particular model, released in a certain batch, which has a certain storage capacity, and is sold by a certain retailer. For example, the tuple **DiskDrive**(1978619, WesternDigital, A2235X, 765234, 500, CompUSA) specifies that WesternDigital made a disk drive with serial number 1978619, model number A2235X, released in batch 765234; it is 500GB and sold by CompUSA.

   Write each of the following dependencies as a functional dependency (FD):

   (a) The manufacturer and serial number uniquely identifies the drive

   (b) A model number is registered by a manufacturer and hence can't be used by another manufacturer.

   (c) All disk drives in a particular batch are the same model.

   (d) All disk drives of a particular model of a particular manufacturer have exactly the same capacity.