招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	資訊工程學系碩士在職專班、電機工程學系碩士在職專班		
科　　　　目	計算機概論		
注 意 事 項	本考科禁止使用掌上型計算機		

1. (5%) How does the cache memory differ from the RAM memory? (5%) How does the CPU use the cache memory to speed up the processing?

2. (15%) Write down a computer program to calculate the sum of 1+3+5+...+99.

3. (10%) What are the differences between the two parameter passing methods: <u>call by reference</u> and <u>call by value</u>?

4. (15%) What are the advantages and disadvantages of representing a group of items as an array versus a linear linked list?

5. (10%) Explain the differences between a file system and a database system.

6. (20%) What are the tasks of an operating system?

7. (20%) What will the following C code output?

```c
#include <stdio.h>
int foo(int a[], int n, int v1, int v2)
{
    int idx = 0;
    int c = 0;
    if (v1>v2)
        return -1;
    while (idx < n)
    {
        if (a[idx] >= v1 && a[idx]<=v2)
            c++;
        idx ++;
    }
    return c;
}

int main()
{
    int b[10];
    for (int i=0; i<10; i++)
        b[i] = i*10;
    printf("The first answer is %d\n", fun(b, 5, 15, 100));
    printf("The second answer is %d\n", fun(b, 10, 15, 100));
    printf("The third answer is %d\n", fun(b, 0, 15, 100));
    printf("The fourth answer is %d\n", fun(b, 0, 0, 100));
}
```