**102學年度資訊工程學系 程式設計能力檢核考-2**

**注意事項**： A卷

1. 在非C碟的硬碟建立一個目錄，名稱是你的學號，程式碼存到該目錄，**程式檔案名稱為學號+底線+考題編號**，例如學號為489190001，第2題考題檔名為489190001\_2.cpp或489190001\_2.java。
2. **程式碼第一行用註解方式註明你的學號、姓名與修課班級**，補考者註明目前所在年級及班級，例如學號為489190001，姓名陳小明，修課班級 1A，// ID: 489190001 name: 陳小明 class: 1A
3. 不得與其他同學交談，如果有任何問題，舉手詢問監考助教。
4. 考試撰寫完成後，舉手請監考助教過去拷貝程式，並列印出原始程式碼。
5. 題目輸出如果有小數位數，不用理會位數，以實數輸出即可。

題目卷必須繳回。

1. Write a program that converts **Fahrenheit** temperatures to **Centigrade** temperatures. The formula is **C = (F-32)\*5/9** where F is the Fahrenheit temperature and C is the centigrade temperature. Rounding off the **C** and using integer type to output, for example, C = 20.3 🡪 C = 20, C = 20.6 🡪 C = 21.

|  |  |  |
| --- | --- | --- |
| input | F: *80* | F: *90* |
| output | **C = 27** | **C = 32** |

1. Write a program with a loop that user enter a series of integers, followed by -99 to signal the end of the series. After all the numbers have been entered, the program should display the sum of all even numbers entered.

|  |  |
| --- | --- |
| input | enter a series of integers (enter -99 to break):  ***21***  ***40***  ***13***  ***30***  ***-99*** |
| output | **Sum of even numbers: 70** |

1. Write a function named Uppercase(), if the parameter is a lowercase English character, this function will convert to uppercase English character and return the uppercase letter to caller.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| input | f | G | 4 | $ |
| output | **F** | **G** | **4** | **$** |

char Uppercase(char);

char Uppercase(char a)

{

//to complete your code, here

}

//you cannot modify the following code

int main()

{

char x;

cout<<"input a character:";

cin>>x;

cout<<Uppercase(x)<<endl;

return 0;

}

1. Write a **recursive** function ***power***( *base*, *exponent* ) that when invoked returns *baseexponent*. For example, ***power***( 3, 4 ) = 3 \* 3 \* 3 \* 3. Assume that exponent is an integer greater than or equal to 1.

Hint: The recursion step would use the relationship

***baseexponent* = *base* \* *baseexponent*–1**

and the terminating condition occurs when exponent is equal to 1 because *base1* = *base.*

|  |  |  |
| --- | --- | --- |
| input | Enter a base and an exponent: 5 10 | Enter a base and an exponent: 3 5 |
| output | **5 raised to the 10 is 9765625** | **3 raised to the 5 is 243** |