**注意事項與題目講解**

**期末考分兩部分:**

**1~6題手寫，7~14上機**

**注意事項:**

**除了65404其餘不得使用筆電。**

考試期間可參考自己準備的資料、筆記、程式碼等

考試期間不得上網搜尋、使用chatgpt、通訊軟體、手機、平板電腦等設備等

online judge server : http://140.116.154.71/

**講解:**

第一題:

Write a function to implement [quicksort](https://www.geeksforgeeks.org/quick-sort/) algorithm that will work for all types of data i.e ints, floats, chars etc.

**int** main(){

**char**\* a[] = {"bbc", "xcd", "ede", "def",

"afg", "hello", "hmmm", "okay", "how" };

**int** b[] = { 45, 78, 89, 65, 70, 23, 44 };

**int**\* p = b;

\_qsort(a, **sizeof**(**char**\*), 0, 8, (**int** (\*)(**void**\*, **void**\*))(cmpstr));

\_qsort(p, **sizeof**(**int**), 0, 6, (**int** (\*)(**void**\*, **void**\*))(cmpnum));

}

第四題:

第一行: 解釋變數 a、p、b

第二行: 解釋變數 b

第三行: 說明 for 迴圈的功能

第五題:

struct Node {

int data;

struct Node\* next;

struct Node\* prev; };

void splitLinkedList(...){

…

}

/\*

other function

\*/

第六題(a) (b):

struct ipv6 {

unsigned prefix[4];

unsigned char prefixlen;

};

int match(unsigned \*prefix, unsigned char len, unsigned \*ipv6)

len means prefixlen.

You can use printf in the match function or use return type to tell the main function your result.

ex:

ipv6 = {.prefix = {0x20010db8, 0x0db8, 0x0000, 0x00000000},

.prefixlen = 36};

{0x20010db8, 0x0db8, 0x0000, 0x0000000a} -> match

{0x20010dba, 0x0db8, 0x0000, 0x00000000} -> not match

{0x20010db8, 0xadb8, 0x0000, 0x00000000} -> match

{0x20010db8, 0x10000db8, 0x0000, 0x00000000} -> not match