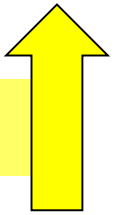
Exam#3 Sample Questions and Required Answer Format

Problem #1: true/false statements

- Examples:
  1) ___T___All elements of a given array have the same data type
  2) ___F___ All elements of a given array are placed randomly in computer's memory
  3) ___F___The index of the first element of an array is 1
  4) ___F___ The 3-D array c[3][2][4] contains 3+2+4 = 9 elements
  5) ___F___ The 2-D array d[2][3] contains six elements: d[1][1], d[1][2], d[1][3], d[2][1], d[2][2], d[2][3]



Answer format:

Problem#2: given a program with a set of errors, identify all the errors

```
1.  #include "stdio.h"
2.  #define array_size 5;
3.  #define my_const 10;
4.
5.  void main(void)
6.  {
7.          int myarray{array_size};
8.
9.          for (int i=0, i <= array_size, i++)
10.         {
11.                 myarray(i) = i*my_const;
12.                 printf("myarray(%d) is :%d\n", i, myarray(i));
13.         }
14.         return 0;
15. }
```

Answer format:

Problem#2:

Line 2: ; should be removed

Line 3: ; should be removed

Line 5: the first void should be int

Line 7: {} should be []

Line 9: <= should be < and , should be ;

Line 11: (i) should be [i]

Line 12: (i) should be [i]

Problems #3 & #4: given a correct program, find the output of the program

- Example

```
#include "stdio.h"
void main(void)
{
  char a[11] = "Nice job";
  for(int i=0; i < 11; i++)
  {
     if(i < 9)
              printf("%c\n", a[i]);
     else
              printf("%d\n", a[i]);
  }
}
```

Answer format:

N
i
c
e

j
o
b

0
0

Justification needs to show the contents of the entire array:

From a[0] to a[10]: Nice job\000

The first nine elements will be output as the character type while the last two elements are output as integer numbers

Problem #5: given a set of requirements, write a complete C program to implement them.

- Example:

  Write a program that reads a 2X3 array from the keyboard. Print out the elements of the second row in this 2D array.

```
#include <stdio.h>
void main(void)
{
int num_array[2][3], i, j;

for(i=0; i< 2; i++) /*i is row index*/
    for (j=0; j<3; j++) /*j is column index*/
    { printf{"please input next array element:\n");
      scanf("%d", &num_array[i][j]);
     }

printf{"please print out the second row:\n");
for (j=0; j<3; j++) /*j is col index*/
    printf("%d", num_array[1][j]);
}
```

Exam #3

- Time: **9:00am ~ 10:30am, Friday, April 21**
- Please arrive at the class on time; no make up time will be given for late arrivals.
- Form:
  - Open book, open notes
  - Calculators are NOT allowed
  - Visual Studio is NOT allowed
  - Chat GPT is NOT allowed
- Preparation:
  - Lecture notes #20 - #26 prepared by Dr. Xing (available on class website)
  - Lab #9 - #11

Good Luck!