

**I. Choose The Right Answer**

- Which of following is an illegal user-define symbol? \_\_\_\_  
A) const    ~ B) \_2g3    C) COM    D) vars
- Assuming all variables are integers, the value of the expression (a = 3, b = 5, a + b ++, a += b) is \_\_\_\_.  
A) 8    B) 9    C) 6    D) 3
- Which one is equivalent to the following code block? \_\_\_\_  

```
while (a) {
    if(b) continue;
    c;
}
```

A) while (a) { if (!b) c; }    B) while (c) { if (!b) break; c; }  
C) while (c) { if (b) c; }    D) while (a) { if (b) break; c; }
- According to the precedence of operation, which one is the right order in descending sort. \_\_\_\_  
A) Arithmetic Operations, Assignment Operations, Relational Operations  
B) Arithmetic Operations, Relational Operations, Assignment Operations  
C) Relational Operations, Assignment Operations, Arithmetic Operations  
D) Relational Operations, Arithmetic Operations, Assignment Operations
- Choose the wrong definition for the character strings. \_\_\_\_  
A) char str[4]= "QUST";    B) char str[]= "QUST";  
C) char \*str= "QUST";    D) char str[]={ 'Q', 'U', 'S', 'T', '\0' };

- Determine the output of the following program. \_\_\_\_

```
#include<stdio.h>
#include<string.h>
int main() {
    char *s1="AbDeG";
    char *s2="AbdEg";
    s1+=2; s2+=2;
    printf("%d\n", strcmp(s1, s2));
}
```

- A) a positive number    B) a negative number    C) zero    D) It depends.

- Determine the output of the following program. \_\_\_\_

```
#include<stdio.h>
int main() {
    int a[6][6], i, j;
    for(i=1; i<6; i++)
        for(j=1; j<6; j++)
            a[i][j] = (i/j) * (j/i);
    for(i=1; i<6; i++) {
        for(j=1; j<6; j++)
            printf("%2d", a[i][j]);
        printf("\n");
    }
}
```

```

    return 0;
}
A) 11111    B) 00001    C) 10000    D) 10001
   11111      00010      01000      01010
   11111      00100      00100      00100
   11111      01000      00010      01010
   11111      10000      00001      10001

```

8. Determine the output of the following program which is about Tower of Hanoi. \_\_\_\_

```

#include<stdio.h>
void move(char getone,char putone){
    printf("%c-->%c\n",getone,putone);
}
void hanoi(int n,char one,char two,char three){
    if(n==1) move(one,three);
    else{
        hanoi(n-1,one,three,two);
        move(one,three);
        hanoi(n-1,two,one,three);
    }
}
int main() {
    hanoi(3,'A','B','C');
    return 0;
}

```

```

A) A-->C    B) A-->C    C) A-->C    D) A-->C
   A-->B      A-->B      A-->B      A-->B
   C-->B      C-->A      C-->B      C-->B
   B-->A      A-->B      A-->C      A-->C
   C-->B      B-->C      B-->A      A-->B
   A-->C      A-->C      B-->C      B-->C
   A-->B      A-->B      A-->C      A-->C

```

9. Determine the output of the following program which runs on the 32-bit machine. \_\_\_\_

```

#include<stdio.h>
int main(){
    typedef struct{
        char name[10];
        int id;
        float weight;
    }student;
    printf("%d",sizeof(student));
    return 0;
}

```

A) 14 B) 16 C) 18 D) 20

10. As defined below, the value of b is \_\_\_\_.

```

int a[10]={1,2,3,4,5,6,7,8,9,10}, *p=&a[3], b=p[5];
A) 5    B) 6    C) 8    D) 9

```

## II. Fill In The Blank

1. Given the following declarations, `int x=3,y=2; float a=2.5,b=3.5;` then the value of the expression `(x+y)%2+(int)a/(int)b` is \_\_\_\_.

2. This program below aims to output the number of the lowercase letter, so fill in the blank and make sure it will work. \_\_\_\_

```
int n=0,c;
c=getchar();
while(    ) {
    if(c>='a' && c<='z') n++;
    c=getchar();
}
```

3. Determine the value of x when `a=1,b=3,c=5,d=4`. \_\_\_\_

```
if(a<b)
if(c<d) x=1;
else
    if(a<c)
        if(b<d) x=2;
        else x=3;
    else x=6;
else x=3;
```

4. Show the output of the following program. \_\_\_\_

```
#include <stdio.h>
int main() {
    int s=0,k;
    for (k=7;k>=0;k--){
        switch(k){
            case 1:
            case 4:
            case 7: s++; break;
            case 2:
            case 3:
            case 6: break;
            case 0:
            case 5: s+=2; break;
        }
    }
    printf("%d",s);
    return 0;
}
```

5. When the following code is executed, how many iterations of the loop are performed? \_\_\_\_

```
char *s="\ta\018bc";
for( ;*s!='\0';s++);
```

6. If you would like to append something after the binary file by `fopen` function, which mode can you choose? \_\_\_\_

7. For the 2-dimensional array `int b[][3]={{1,0,-1},{10,12},{8,3,9},{0}}`; the value for the `b[2][1]` is \_\_\_\_\_.

8. Show the output of the following program. \_\_\_\_\_

```
char *format="%s, a=%d, b=%d\n";
int a=1, b=10;
a+=b;
printf(format, "a+=b", a, b);
```

9. Given the following array of structure

```
struct c{
    int x;
    int y;
}s[2]={1, 3, 2, 7};
```

then the result of the statement `printf("%d", s[0].x*s[1].x)` is \_\_\_\_\_.

10. Determine the output of the value of b. \_\_\_\_\_

```
int a[4][2] = {1, 2, 3, 4, 5, 6, 7, 8};
int b = (*(a + 2) + 1);
```

### III. Programming

Write a program that prints out the number of words in a sentence. A gap is defined as one or more spaces in a row, so a sequence of spaces counts as just one gap. Anything other than a space is considered to be part of a word. Here is a simple example as below:

Input: Good morning!

Output: 2

Given an incomplete program below, you can choose to fill in the blank to make it work.

Or you can write your answer but don't forget to comment out for your code.

```
#define N 1024
int main(){
    char sentence[N];
    int i, count=0, word=0;
    char c;

    for(i=0; _____; i++){
        if(c==' '){
            _____
            else if (word==0) {
                _____
                count++;
            }
        }
        printf("%d\n", count);
        return 0;
    }
```