시작 일시	2018-10-30, 19:40:34
진행 상황	종료됨
완료 일시	2018-10-30, 20:16:15
소요시간	35 분 41 초

정보

The total exam time is **90 minutes**.

- You should take the Midterm-A first.
  - During the Midterm-A, you cannot use any other program including the DEV-C++ except the PLMS browser itself.
- After finishing the Midterm-A, raise your hand to request the T.A for the password to start the Midterm-B. That is, you cannot start Midterm-B without finishing the Midterm-A.
  - You should use the DEV-C++ to solve the Midterm-B. Other programs are not allowed to use in default. But If it is necessary for you to use other IDEs or compiler programs, ask the T.A for permission.

The total points of the mid-term exam is **150**.

The following table shows points assigned to each question.

Midterm-A (Short Answer Questions - 90 points)

Q #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
pts	6	6	3	8	4	5	4	4	6	5	4	6	4	4	10	3	3	5

Midterm-B (Essay(Programming) Questions - 60 points)

Q #	**1**	**2**	**3**
pts	20	20	20

문제 1
풀이 완료
총 6.00 점

- OS stands for Operating System
- GUI stands for Grapical User Interface
- CLI stands for Coment Liner Interface
- IDE stands for Independent Development Environment
- Kernel is the core of OS.
- Shell is a user interface or a command processor of OS.

문제 2
풀이 완료
총 6.00 점

Determine O/X (True/False)

- Windows commands and filenames are case-sensitive O
- Linux/Unix commands and filenames are case-sensitive X
- The path separator of Windows is "/" (dash) O
- The path separator of Linux/Unix is "/" (dash) O
- Windows exposes a separate file system tree for each device. Ex) A:₩foo.txt, C:₩bar.txt, E:₩boy.txt O
- Linux/Unix exposes a separate file system tree for each device. Ex) A:₩foo.txt, C:₩bar.txt, E:₩boy.txt X

문제 3
풀이 완료
총 3.00 점

In every C program source code that runs independently, the [main]() function must exist and be unique. Fill in the blank with a proper function name. Note that the identifiers are case sensitive in the C language.

문제 4
풀이 완료
총 8.00 점

We want to do the following tasks in the Microsoft Windows Command Prompt. Fill in the blanks with proper commands or options.

The initial working directory is "C:₩Users₩PNU" as shown in the command prompt of the figure below.

1. Create a directory named "bprog" at "c:₩".
2. Change the current working directory to "bprog" created at the step 1
3. Create a directory named "hello" at "c:₩bprog"
4. Change the current working directory to "hello" created at the step 3
5. Create a C source file named "hello.c"
6. Compile "hello.c" using "gcc" to build an executable file named "hello.exe"
7. Execute "hello.exe"

Windows Command Prompt

```
Microsoft Windows [Version 10.0.17134.345]
(c) 2018 Microsoft Corporation. All rights reserved.
C:\Users\PNU>md [ ₩bprog ]                    ①
C:\Users\PNU>cd [ ₩bprog ]                    ②
C:\bprog>md hello                  ③
C:\bprog>cd hello                  ④
C:\bprog\hello> [ copy ] con hello.c                  ⑤
#include <stdio.h>
int main(void)
{
    printf("Hello, World.\n");
    printf("Hello, World.\n");
    printf("Hello, World.\n");
    return 0;
}
 ^Z
        1 file(s) has been copied.
C:\bprog\hello>gcc [ /s ] hello.exe hello.c                  ⑥
C:\bprog\hello> [ hello.exe ]                 ⑦
Hello, World.
Hello, World.
Hello, World.

C:\bprog\hello>
```

문제 5
풀이 완료
총 4.00 점

Complete the source code below to get the following execution result.

Execution Result
Hello C 5 5.200000 A Hello C

[1] : d [2] : f [3] : c [4] : s

```
#include <stdio.h>

int main(void)
{
    printf("Hello C\n");
    printf("%[1]\n",5);
    printf("%[2]\n",5.2);
    printf("%[3]\n",'A');
    printf("%[4]\n","Hello C");

    return 0;
}
```

문제 6
풀이 완료
총 5.00 점

Complete the source code below to get the following execution result.
DO NOT include inessential white space characters in your answer.

Execution Result
Hello "C" Programming!

[1] : Hello₩n₩"C₩"₩nProgramming!

```
#include <stdio.h>

int main(void)
{
    printf("[1]");

    return 0;
}
```

문제 **7**

풀이 완료

총 4.00 점

We got the following (partial) execution result. Fill in the blank [1] in the source code properly to get the result.

Also Fill in the blanks [2] and [3] in the execution result by considering the given source code.

[1] : 3

Execution Result
Initially, Sum = 0.000000 SUM: 256, AVG: 85.333336 [2] 0 , [3] 0.200000 , [4] 17

```
#include <stdio.h>

int main(void)
{
    int kor=85, eng=94, mat=77;
    int sum = 0;
    float avg;

    printf("Initially, Sum = %f\n",sum);
    sum = kor + eng + mat;
    avg = sum / [1];

    printf("SUM: %d, AVG: %f\n", sum, avg);
    printf("[2] %d, [3] %f, [4] %d\n",(eng-mat)/kor, (float)
((eng-mat)/kor), eng%mat);

    return 0;
}
```

문제 **8**

풀이 완료

총 4.00 점

Complete the source code below to get the following execution result.

DO NOT include inessential white spaces and parentheses in your code.

Execution Result
17 2

Execution Result
12 2

[1] : "%d",&a [2] : a%b

```
#include <stdio.h>

int main(void)
{
    int a, b=5;

    scanf([1]);
    printf("%d\n",[2]);

    return 0;
}
```

문제 9
풀이 완료
총 6.00 점

What is the output of the following program ? Fill in the blanks.

Execution Result

```
1 > 2 : 0
1 != 2 : 1
1 <3 <2: 0
1+2*3%3: 1
1<0||1<2&&2<3: 1
result = 3
```

```
#include <stdio.h>

int main(void)
{
    int a=1, b=2, c=3;
    int result;

    printf("1 >  2 : %d\n", a>b);
    printf("1 != 2 : %d\n", a!=b);
    printf("1 <3 <2: %d\n", a<c<b);
    printf("1+2*3%%3: %d\n",a+b*c%3);
    printf("1<0||1<2&&2<3: %d\n",a<0||a<b&&b<c);

    result = a = b = c;
    printf("result = %d\n", result);

    return 0;
}
```

문제 10
풀이 완료
총 5.00 점

Complete a function named is_odd() by filling in the blank in the source code below properly.

The function is_odd() has an integer argument k, and it returns 1 when k is an odd number, returns 0 otherwise.

An Execution Result Example

```
3
is an odd number.
```

```
#include <stdio.h>

int is_odd(int k)
{
    return k%2;
}

int main(void)
{
    int n;

    scanf("%d",&n);

    if (is_odd(n))
        printf("is an odd number");
    else
        printf("is an even number");

    return 0;
}
```

문제 11
풀이 완료
총 4.00 점

We want to get the same results from the 2 source codes below.
Complete the second source code appropriately.
DO NOT include inessential white spaces and parentheses in your code.

Source Code #1

```
#include <stdio.h>

int main(void)
{
    int a, b;

    scanf("%d%d", &a, &b);

    if( a!=1||b!=1 )
        printf("a or b != o
ne\n");
    else
        printf("a and b ==
one\n");

    return 0;
}
```

Source Code #2

```
#include <stdio.h>

int main(void)
{
    int a, b;

    scanf("%d%d", &a, &b);

    if( a==1&&b==1 )
        printf("a and b ==
 one\n");
    if( a!=1||b!=1 )
        printf("a or b != o
ne\n");

    return 0;
}
```

문제 12
풀이 완료
총 6.00 점

We want to get the same results from the 2 source codes below.
Complete the second source code appropriately by writing proper expressions for the blanks.
DO NOT include inessential white spaces and parentheses in your code.

Source Code #1

```
#include <stdio.h>

int main(void)
{
    int a, b, c;

    scanf("%d%d%d", &a, &b,
&c);
    if( a==1 ) {
        if( b==1 )
            printf("a and b
== one\n");
        if( c==1 )
            printf("a and c
== one\n");
    }
    return 0;
}
```

Source Code #2

```
#include <stdio.h>

int main(void)
{
    int a, b, c;

    scanf("%d%d%d", &a, &b,
&c);

    if( a==1&&b==1 )
        printf("a and b ==
 one\n");
    if( a==1&&c==1 )
        printf("a and c ==
 one\n");

    return 0;
}
```

문제 13
풀이 완료
총 4.00 점

We want to get the same results from the 2 source codes below.

Complete the second source code appropriately by writing proper expressions for the blanks.

DO NOT include inessential white spaces and parentheses in your code.

Source Code #1

```
#include <stdio.h>

int main(void)
{
    int v;

    scanf("%d", &v);

    if(v%3==0&&v%5==0)
        printf("a multiple
of 3 and 5\n");
    else if(v%3==0)
        printf("a multiple
of 3\n");
    else if(v%5==0)
        printf("a multiple
of 5\n");
    else
        printf("other\n");

    return 0;
}
```

Source Code #2

```
#include <stdio.h>

int main(void)
{
    int v;

    scanf("%d", &v);

    if(
 v%3==0&&v%5==0 )
        printf("a multiple
 of 3 and 5\n");
    if(
 v%3==0&&v%5!=0 )
        printf("a multiple
 of 3\n");
    if(
 v%3!=0&&v%5==0 )
        printf("a multiple
 of 5\n");
    if( v%3!=0&&v%5!=0
)
        printf("other\n");

    return 0;
}
```

문제 14
풀이 완료
총 4.00 점

For the source code below, what are the output values of nx and ny when it is executed and input constants are 2, 3, 1 and 2, 1, 3?

Execution Result-1	Execution Result-2
Enter three integers : 2 1 3 nx= 3 , ny= 3	Enter three integers : 2 3 1 nx= 1 , ny= 0

```
#include <stdio.h>
int main(void)
{
        int n1, n2, n3;
        int nx=0, ny=0;

        printf(" Enter three integers : ");
        scanf("%d %d %d", &n1, &n2, &n3);

        if (n1 < n2) {
                if (n1 < n3) nx = n1;
        }
        else nx = n3;

        if (n1 < n2)
                if (n1 < n3) ny = n1;
        else ny = n3;

        printf("nx=%d, ny=%d\n", nx, ny);

        return 0;
}
```

문제 15
풀이 완료
총 10.00 점

We want to get the same results from the 2 source codes below.

Complete the second source code appropriately by writing proper expressions for the blanks.

DO NOT include inessential white spaces and parentheses in your code.

Execution Result Examples			
1989 not leap year	1988 leap year	1300 not leap year	1200 leap year

Source Code #1

```
#include <stdio.h>

int main(void)
{
    int y;

    scanf("%d",&y);

    if(y%4==0)
        if(y%100==0)
            if(y%400==0)
                printf("l
eap year\n");
            else
                printf("n
ot leap year\n");
        else
            printf("leap
year\n");
    else
        printf("not leap
year\n");

    return 0;
}
```

Source Code #2

```
#include <stdio.h>

int main(void)
{
    int y;

    scanf("%d",&y);

    if(
 y%4==0&&y%100!=0||y%400=0
)
        printf("leap year\n");
    else
        printf("not leap year
\n");

    return 0;
}
```

문제 16
풀이 완료
총 3.00 점

What is the output of the following program ? Fill in the blanks.

Execution Result					
1	3	5	7	9	4

```
#include <stdio.h>
int main(void)
{
    int i, s=0, cnt=0;

    for(i=1;i<8;i=i+2) {
        s = s + i*2;
        cnt = cnt + 1;
        printf("%d ", i);
    }
    printf("%d %d\n", i, cnt);

    return 0;
}
```

문제 17
풀이 완료
총 3.00 점

We want to get the same execution results from the 2 source code below.
Complete the Source Code #2 by filling in [1],[2] and [3] with proper codes.
DO NOT include inessential white-spaces and parentheses in your code.
Ex) **a = 15 (X) a=15(O) a=(b*c) (X) a=b*c (O)**

- [1] a=15
- [2] a>0
- [3] a=a-(a%3+1)

Source Code #1

```
#include <stdio.h>

int main(void) {
    int a;

    a=15;
    while( a>0 ) {
        printf("%d\n", a);
        a=a-(a%3+1) ;
    }
   return 0;
}
```

Source Code #2

```
#include <stdio.h>

int main(void) {
    int a;

    for([1]; [2]; [3]) {
        printf("%d\n", a);
    }
    return 0;
}
```

문제 18
풀이 완료
총 5.00 점

We want to execute the statement "s=s+2*i-1" inside the "for" loop for **6** times. That is, # of execution of the statement "s=s+2*i-i" is 6. For each of the followings for the blank [1], determine whether it meets the above condition.

1. `i <= 18` O
2. `i <= 17` O
3. `i < 16` X
4. `i < 19` O

In addition, write the output of the program.

Execution Result

86

```
#include <stdio.h>

int main(void)
{
    int s,i;
    s=0;
    for( i=1; [1]; i=i+3 ) {
        s=s+2*i-1;
    }
    printf("%d\n",s);

    return 0;
}
```