

QUIZ 6 – USER DEFINED FUNCTIONS

Name: .....

Duration: 60 Minutes

INSTRUCTIONS:

1. Answer Question 1 and 2 into the spaces provided in the question paper.
2. Answer Question 3 using Dev C++. After you have finished, submit only the source code of your program to e-learning website.
3. For Question 3, you are allowed to refer to any resources **provided that you have already submitted Question 1 and 2.**
4. Any discussion is prohibited.

Question 1

What would be printed by each of the following cout statements labeled (a) – (e). Write your answer into the spaces provided in the program.

```
#include <iostream>
using namespace std;

/* Function prototypes */
void funA(void);
void funB(int);
void funC(void);

int a=5;

int main()
{
    int a=8;

    cout << a;    // (a). Answer:_____

    funA();
    funB(10);
    a=11;
    funC();

    cout << a;    // (b). Answer:_____

    system("pause");
    return 0;
}

void funA(void)
{
    cout << a;    //(c). Answer:_____
    a = a+2;
}

void funB(int a)
{
    cout << a;    // (d). Answer:_____
}

void funC(void)
{
    cout << a;    // (e). Answer:_____
}
```

Question 2

Given two overloaded functions below.

```
int fun(int a, int &b)
{
    int c = a + b;

    a = a+1;
    b = b+1;

    return c;
}

int fun(int a)
{
    return a*a*a;
}
```

Determine the values of **x** and **y** if the function is called as follows. Assume that the original values of x and y for each question are **x=2** and **y=5**. Each question is independent.

- (a) fun(x, y);
- (b) y = fun(1, x);
- (c) fun ( fun(1, y), x);
- (d) y = fun(x);
- (e) x = fun(3) + fun(1,y);

Answers:

	x	y
(a)		
(b)		
(c)		
(d)		
(e)		

### Question 3

Write a complete C++ program that grades the students of a class based on their scores. The grading scales are as in **Table 1**.

**The grading scales must be implemented using a user-defined function.** The program firstly asks the user to enter the number of students and followed by the score of each student. The program needs to determine:

- the grade of each student,
- the average score of the class, and,
- the overall grade of the class, which is based on the average score.

**Figure 1** illustrates an example run of the program. Note that **bold text** are user input.

**Table 1**

Score	Grade
80 and above	A
70 to less than 80	B
50 to less than 70	C
Less than 50	F

```
Enter the number of students => 5
```

```
Enter the score => 90
```

```
The grade is A
```

```
Enter the score => 80
```

```
The grade is A
```

```
Enter the score => 65
```

```
The grade is C
```

```
Enter the score => 40
```

```
The grade is F
```

```
Enter the score => 70
```

```
The grade is B
```

```
Average score      : 69
```

```
Overall Grade      : C
```

**Figure 1**