2013 级 计算机科学 2 班 程序设计 I 期中考试 请在答题纸答题

PART I. SINGLE SELECTION *20 points, 10 problems, 2 point each.*

1. Which of the following is not a valid C++ identifier?
   A) good
   B) good123
   C) g123d
   D) 123good

2. Which of the following expression exactly equals to -- i ?
   A) i --
   B) i += 1
   C) ++ i
   D) i = i – 1;

3. A variable is negative after it is assigned a positive value. We call this:
   A) Underflow
   B) Overflow
   C) Overload
   D) Oversize

4. Which of the following mathematic expression is correct?
   A) 3+4x
   B) (x-3)(y-4)/(x-5)
   C) 5.0/9+x
   D) ++(a+1)

5. Which of the following statement is not correct?
   A) Conversion from a shorter integer to a longer integer is lossless.
   B) Conversion from a *double* value to an *integer* might cause loss of precision.
   C) Conversion from an *integer* to a *char* will not cause loss of precision.
   D) Conversion from a *long* to a *double* might cause loss of precision.

6. Which of the following represents the condition that *value* is within (0,100)?
   A) 0<value<100
   B) 0<value ^ value<100
   C) 0<value && value<100
   D) 0<value || value<100

7. Which of the following expression equals 1?
   A) 7 % -3
   B) -7 % 3
   C) 7.0 % 3
   D) 3 % 7

8. Which of the following is not correct in **for (*init-exp*; *bool-exp*; *eval-exp*)** ***block*** ?
   A) *init-exp* runs before all iterations.
   B) *bool-exp* is evaluated before each iteration.
   C) *eval-exp* runs after each iteration.
   D) *init-exp* cannot be empty.

9. Which of the following about function matching is not correct?
   A) A function cannot be matched if it is not defined.
   B) A function cannot be matched if it has a different name.
   C) A function cannot be matched if it has a different signature.
   D) Two overloaded functions can be matched by the same function call.

10. Two functions are ambiguous if:
    A) They have same name.
    B) They have the same list of parameter types.
    C) The compiler does not know which one to call.
    D) They are overloaded functions.

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PART 2. PROGRAM ANALYSIS *20 points, 4 problems, 5 points each.*

1. What is sum?

```
int sum = 0;
int i = 10;
while (i > 0) {
    sum += i;
    -- i;
}
```

2. What is sum?

```
int sum = 0;
for (int i = 0; i < 10; ++ i) {
    sum += i;
}
```

3. What is sum?

```
int sum = 0;
for (int i = 1; i < 100; i *= 3) {
    sum += i;
}
```

4. What is sum?

```
int i = 2;
int j = 5;
while (i < j) {
    i *= i;
    j *= 2;
}
sum = i + j;
```

PART 3. CONCEPT EXPLANATION *20 points, 4 problems, 5 points each.*

1. The short-circuit operation of && and ||.
2. The differences between a continue-statement and a break-statement inside a loop.
3. The four good things of using function.
4. What is done automatically in a C program before and after each function call?

PART 4. PROGRAMMING *20 points.*

Write a program to get all of the integer solutions that satisfy the following equations.

$$\begin{cases} x^3 - 28x^2 + 245x - 650 = 0 \\ 1 \le x \le 100 \end{cases}$$

EXAMPLE OUTPUT:

x=5
x=10
x=13

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PART 5. ERROR DETECTION & CORRECTION *20 points, 4 problems, 5 points each.*

1.

```
#include <iostream>

char toUppercase(char lc) {
    char upper = lc + ('a' - 'A');
    return;
}

int main() {
    bool isEnded;
    while (isEnded = true) {
        char lower;
        cin >> lower;
        char upper = toUppercase();
        cout << upper << endl;
        isEnd = (upper == "e");
    }
}
```

2.

```
#include <iostream>

int main() {
    cin >> value;
    //判断正负
    if (value >= 0);
        if (value != 0)
            cout << "正数"
    else
        cout << "负数";
    //判断奇偶
    if (value % 2 == 0)
        cout << value;
        cout << "是奇数";
    else
        cout << "是偶数";
}
```

3.

```
#include <iostream>

int main() {
    double option;
    cin >> option >> endl;
    switch (option) {
    case 1: cout << "you choice is 1";
         2: cout << "you choice is 2";
    default > 3: cout << "wrong choice";
}
```

4.

```
int max(int value1, int value2) {
    return max(value1, value2;
        value2);
}

int max(int value1, value2,
    value3 = -32768)
{
    value1 = max(value1, value2);
    value1 = max(value2, value3);
    return value1;
}

int min(int value1, int value2) {
    return (value1 < value2);
}

int min(int value1, value2,
    value3 = 32768)
{
    return min(value1,
        min(value2, value2);
}

int main() {
    int value1 = min(1, 2, 3);
    int value2 = max(4, 5, 6);
}
```