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华南理工大学期末考试

《C++程序设计(I)》试卷 A

注意事项：1. 考前请将密封线内各项信息填写清楚；
2. 所有答案请直接答在试卷上；
3. 考试形式：闭卷；
4. 本试卷共 五 大题，满分 100 分， 考试时间 120 分钟。

题 号	一	二	三	四	五	总分
得 分						
评卷人						

座位号_____ 专业_____ 学院_____ 学号_____ 姓名_____

（密 封 线 内 不 答 题）

密 封 线

- 1. Select the correct results and mark them on the answer sheet. (40 scores)

Answer sheet：

(1) [A][B][C][D]	(2) [A][B][C][D]	(3) [A][B][C][D]	(4) [A][B][C][D]
(5) [A][B][C][D]	(6) [A][B][C][D]	(7) [A][B][C][D]	(8) [A][B][C][D]
(9) [A][B][C][D]	(10)[A][B][C][D]	(11)[A][B][C][D]	(12)[A][B][C][D]
(13)[A][B][C][D]	(14)[A][B][C][D]	(15)[A][B][C][D]	(16)[A][B][C][D]
(17)[A][B][C][D]	(18)[A][B][C][D]	(19)[A][B][C][D]	(20)[A][B][C][D]

1) Which of the following is true? ( )

A）Structures may contain many data types.

B）Members of different structures must have unique names.

C）Keyword typedef is used to define new data types.

D）Structures are always passed to functions by reference.

2) Which of the following is false? ( )

A） char a[20]=”abcdefg”; B） char a[]=”x+y=55.”;

C） char a[15]={’1’,’2’}; D） char a[10]=’5’;

3) Which of the following logical expression is equal to !(x>0 || y==5)（ ）。

A） x<=0 || y!=5 B） x<=0 && y!=5

C） x>0 || y!=5 D） x>0 && y==5

4) How many errors in the following statements? （ ）

```
struct d {
        int a;
        double a;
        } a,d;
```

A）1　　B）2　　C）3　　D）4

5) Assume **i=2, j=2**，the result of the expression **(i++)+(++j)** is（　　）。

A）4　　B）5　　C）6　　D） 7

6) Assume **a=1, b=2, c=3, d=4**，the result of the expression **a>b? a: c>d? c: d** is(　　)

A）1　　B）2　　C）3　　D）4

7) After the following statements is performed, the value of **x** is （　　）。

```
unsigned x=10;  x<<=2;
```

A) 10　　B）20　　C）30　　D）40

8) Which of the following is *false* (　　)

A) Recursive calls take time and consume additional memory.

B) Recursive functions are the functions that call themselves directly.

C) One advantage of the recursive functions is easy to understand.

D) If no base case，the recursive function will infinite loops.

9) Which operator has the highest precedence?（　　）

A)!　　B）&&　　C)! =　　D）? :

10) Assume $y=\begin{cases} 3x^3 & x<0 \\ 3x^2+7 & x=0 \\ 5x & x>0 \end{cases}$ which program is correct (　　)

A）
```
y=3*x*x*x;
if ( x ! = 0)
else    if ( x >=0) y=5*x;
else y = 3*x*x+7;
```

B）
```
y = 3*x*x*x;
    if ( x <= 0)
   else if ( x = = 0) y = 3*x*x+7;
     else    y = 5*x;
```

C）
```
if ( x >= 0)
 if ( x > 0) y = 5*x ;
 else    y = 3*x*x+7 ;
   else      y = 3*x*x*x;
```

D）
```
   y = 3*x*x+7;
  if ( x <= 0 )
    else if( x < 0 ) y = 3*x*x*x;
          else    y = 5*x;
```

11) After the following statements is performed, the value of a[0],a[1],a[2] are （　　）

```
int a[ ]={10, 11, 12}, *p=&a[0]; p++; (*p) ++;
```

A）10,11,12　　B）11,12,12

C）10,12,12　　D）11,11,12

12) Assume **i=1**，after the following statements is performed, the value of **i** is（　　）。

```
switch (i)
{case 1: i++;
 case 2: i++;
 case 3: ++i; break;
 case 4: --i;
 default: i++;
}
```

A) 1　　B) 2　　C) 3　　D) 4

13) Which of the following is *ture* (　　)

A）The **default** case is required in the **switch** selection structure.

B） The **break** statement is required in the default case of **switch** selection structure to exit the structure properly.

C）The expression **(x>y && a<b)** is **true** if either the expression **x>y** is **true** or **a<b** is **true**.

D）An expression containing the **||** operator is **true** if either or both of its operands are **true**.

14) Which of the following is *ture* (　　)

A）An array can store many different types of values.

B）An array subscript should normally be of data type float.

C） If there are fewer initializers in an initializer list than the number of elements in the array, the remaining elements are initialized to the last value in the list of initializers.

D）It is an error if an initializer list contains more initializers than the number of elements in the array.

15) Which of the following is *ture* (　　)

A）Pointers of any type can be assigned to **void** pointers.

B）The address operator **&** can be applied only to constants and to expressions

C）A pointer that is declared to the type **void** can be dereferenced.

D）Pointers of different type may not be assigned to one another without a cast operation.

16) Which of the following is *false* (　　)

A) Classes enable the programmer to model objects that have attributes (data members) and behaviors (member functions).

B) Once a class has been defined, the class name is now a type name, which can be used to declare objects of that class.

C) An object is an instance of a class.

D) A class only has one object.

17) Assume

```
struct  worker
{ int  no ;
  char name[ 20 ] ;
};
worker w, *p = &w ;
```

which of the following is *false* (　　)。

A) w.no　　B) p -> no　　C) (*p).no　　D) *p.no

18) Which of the following is *false*（　　）

A）int a[2][3]={0}　　B）int a[][3]={{0,1},{0}}

C）int a[2][3]={{0,1},{2,3},{4,5}}　　D）int a[][3]={0,1,2,3,4,5}

19) The function prototype of fun3 is: **void　fun3(int &)**，which of the following is *true*：（　　）

A）int　x=2.17; fun3(&x)　　B）int a =15;　fun3(a*3.14)

C）int　b=100;　fun3(b)　　D）fun3(256)

20) Assume the statement **using std::cout;** is used, which of the following is *false* (　　)

A）All variables must be declared before they are used.

B）All variables must be given a type when they are declared.

C）Declarations can appear almost any where in the body of a C++ function.

D）A C++ program that prints three lines of output must contain three out statements using **cout**.

♦ 2. Please write out the performed results of the following programs。(24 scores)

1）
```
#include <iostream>
using namespace std;
void    main()
{     int i, j, k=0;
       for(i=0;i<3;i++){
            k++;
            for(j=0;j<3;j++){
                 if(!(j%2)) continue;
                 k++;
             }
            if(!(j%2)) break;
         }
   cout<<"k="<<k<<endl;
}
```

2）
```
#include <iostream>
using    namespace std;
void    main()
{ char *p, a[]= "I Love C++" ;
          for(p=a; *p!='\0' ;)
           { cout<<p<<endl;
             p++;
             if(*p != '\0' ) p++ ;
             else    break;
            }
}
```

3） #include <iostream>

```
using namespace std;
int    f(int);
void    main()
{    int x=4,i;
     for(i=0;i<2;i++)
          cout<<f(x)<<endl;
}
int f(int a)
{    int b=0;
     static int c=3;
     b*=a;    c*=a;
     return (a+b+c);
}
```

4） #include<iostream>

```
using    namespace std;
void main()
{
  int temp,value,a,b,c,d;
  value=temp=a=b=c=d=0;
  do
  {      cout<<"Enter a four-digit integer :";
            a=cin.get()-48;
         b=cin.get()-48;
         c=cin.get()-48;
         d=cin.get()-48;
         if ((a>=0)&&(a<=9)&&(b>=0)&&(b<=9)&&(c>=0)&&(c<=9)&&(d>=0)&&(d<=9))
              value=a*1000+b*100+c*10+d;
  }while (!value);
    a=(a+7)%10;b=(b+7)%10;     c=(c+7)%10;    d=(d+7)%10;
    temp=a;    a=c;    c=temp;
    temp=b;    b=d;     d=temp;
    cout<<"The orginal number is : "<<value<<endl;
    cout<<"The encrypt number is : "<<a<<b<<c<<d<<endl;
}
```

Input:1234

Output:

5） #include <iostream>

```
using    namespace std;
class test
 { private:
        int num;
        float fl;
    public:
        test( );
        int getint( ){return num;}
        float getfloat( ){return fl;}
        ~test( );
 };
 test::test( )
 {
        cout << "Initalizing default" << endl;
        num=0;fl=0.0;
 }
 test::~test( )
 {
        cout << "Desdtructor is active" << endl;
 }
 void main( )
 {
    test array[2];
    cout << array[1].getint( )<< " " << array[1].getfloat( ) <<endl;
 }
```

6） #include <iostream>

```
using namespace std;
int function1(int, int);
int main()
{
    cout<<"The result is:"<< function1(2,10) <<endl;
    return 0;
}
int function1(int a, int b)
{    if ( b<=1)
          return a;
      else
          return a* function1(a,b/2);
```

```
}
```

♦ 3.Fill in 【 】 according to the request of the subjects（20 scores）.

1) The following program finds the maximum in a matrix and gives the position of the maximum.

```
#include <iostream>
using namespace std;
【                                                    】
【                                                    】
void findmax ( int a[ ][n]);
void main()
{ int a[m][n]={1,2,3,4,5,6,7,8,9,10,1,2};
    findmax(a);
}
void findmax( int b[][n])
{ int max,maxrow,maxcol;
  【                                                  】
  for (int i=0;i<m;i++)
    for (int j=0;j<n;j++)
      if (b[i][j]>max)
      {
        【                                            】
      }
  cout<<"The maximum in the matrix is "<<max<<endl;
  cout<<"The maximum position is row:"<<maxrow<<"column:"<<maxcol<<endl;
}
```

2) The following program sorts the strings in descending order and prints out the result.

```
#include <iostream>
using std::cout;
using std:endl;
#include <cstring>
void   sortstr(【                                    】, int n)
{ int i, j, k;
  char * temp;
  for(i=0; i<n-1; i++)
    { k=i;
      for( j=i+1;j<n; j++)
        if  (【                                      】 )
              k=j;
      }
```

```
}
void    main()
{ int    i;
  char *pname[4]={"pascal",    "Visual Basic",    "Visual C++",    "lisp"};
  sortstr(【                                                    】);
  for(i=0;i<4;i++)
  cout<<pname[i]<<endl;
}
```

3) The following program is binary search of an array.

```
#include <iostream>
#include <iomanip>
using namespace std;
int binarySearch( const int [], int, int, int, int );
int main()
{           const int arraySize = 15;
            int a[ arraySize ], key;
            for ( int i = 0; i < arraySize; i++ )    // create some data
                a[ i ] = 2 * i;
            cout << "Enter a number between 0 and 28: ";
            cin >> key;
            int result = binarySearch( a, key, 0, arraySize - 1, arraySize );
            if ( result != -1 )
                cout << '\n' << key << " found in array element "<< result << endl;
            else
                cout << '\n' << key << " not found" << endl;
            return 0;
        }
        int binarySearch( const int b[], int searchKey, int low, int high, int size )
        {   int middle;
            while (【                                    】 ) {
                  【                                        】 ;
                 if (【                                      】 )    // match
                        return middle;
                 else    if (【                                        】)
                          high = middle - 1;
                        else
                           low = middle + 1;
             }
            return -1;
```

```
} // end function binarySearch
```

♦ 4. Create a class **Rectangle**. The class stores the Cartesian coordinates(笛卡儿坐标) of the four corners of the rectangle. The constructor calls a **set** function that accepts four sets of coordinates and verifies that each of these is in the first quadrant(第一象限) with no single **x** or **y** coordinate larger than 20.0. The **set** function also verifies supplied coordinates do, in fact, specify a rectangle. Provide member functions that calculate the **length**, **width**, **perimeter** and **area**. The **length** is the larger of the two dimensions. Include a predicate function(判定函数) **square** that determiners whether the rectangle is a square. (16 scores)