**东 南 大 学 考 试 卷**（ A 卷）

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| 课程名称 | 程序设计基础及语言I | | | 考试学期 | | 19-20-2 | 卷面 | | 100分 |
| 适用专业 | 计算机大类 | 考试形式 | 半开卷 | | 考试时间长度 | | | 笔试60分钟  机试120分钟 | |

仅 允 许 携 带 课 程 指 定 教 材

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| **试题** | **得分** | **评阅人** |
| 第一部分：笔试  **自 觉 遵 守 考 场 纪 律 如 考 试 作 弊 此 答 卷 无 效** |  |  |
| 第二部分：机试 |  |  |
| 成绩合计： |  |  |

**第一部分 笔试**

I. Read the following programs and write the output of them.（20 scores）

1) What is the output of the following program? (4 scores)

#include <iostream>

using namespace std;

int v=5;

int main()

{

int v=65;

for (int v=65;v<=66;v++)

{

switch(v){

case 'A': cout<<'A'<<endl; break;

case 'B': cout<<'B'<<endl;

default: cout<<::v<<endl;

}

}

cout<<v<<endl;

return 0;

}

2) What is the output of the following program? (4 scores)

#include <iostream>

using namespace std;

void fun()

{

static int a=0;

for(int i=0;i<=a;i++) cout<<"\*";;

cout<<a++<<endl;

}

int main()

{

for(int i=0;i<4;i++)

fun();

system("pause");

return 0;

}

3) What is the output of the following program? (4 scores)

#include <iostream>

using namespace std;

void f(int \*p, int \*r, int size)

{

for(int i = 0; i < size; i++)

{

p[i] += \*(r + i);

}

}

int main()

{

const int column\_size = 3, row\_size = 3;

int a[row\_size][column\_size]={{1,1,1},{1,1,1},{1,1,1}};

int b[column\_size]={1,2,3};

for(int i=0; i<row\_size; i++)

{

f(a[i],b, column\_size);

cout<<b[i]<<',';

}

cout<<endl;

for(int i=0;i<row\_size;i++)

{for (int j=0;j<column\_size;j++)

cout<<a[i][j]<<',';

cout<<endl;

}

return 0;

}

4) What is the output of the following program? (4 scores)

#include <iostream>

using namespace std;

void mys(char s1[], char s2[])

{

int i = 0;

for(;s1[i]!='\0'&&s2[i]!='\0';i++)

{

if(s1[i]!=s2[i])

break;

}

Cout << boolalpha << "i=" << I << " "

<< ((s1[i] > s2[i])?true:false)<<endl;

for (int n = 0; ((s2[n]!='\0')&&(s2[n] = s1[i+n])); n++)

;

s2[i] = '\0';

}

int main()

{

char string1[]="HappyNewYear";

char string2[]="Happy";

mys(string1,string2);

cout<<string1<<endl;

cout<<string2<<endl;

return 0;

}

5) What is the output of the following program? (4 scores)

#include <iostream>

using namespace std;

void mys(const char \*s, int& n)

{

if (\*s == '\0')

return;

n++;

mys(s+1, n);

cout<<\*s;

}

void main()

{

char s[] = "goodlevel";

int t = 0;

mys(s,t);

cout<<endl<<t;

}

II．Fill in the blanks in the following programs. (20 scores)

1） (10 scores) Complete two template functions named mwap and insert to sort elements in ascending order by insertion sort method.

#include <iostream>

using namespace std;

\_\_\_\_\_\_\_\_(1) \_\_\_\_\_

void mswap(\_\_\_\_\_\_\_\_(2) \_\_\_\_\_)

{

T temp;

temp=a;

a=b;

b=temp;

}

\_\_\_\_\_\_\_\_(1) \_\_\_\_\_

void insert(\_\_\_\_\_\_\_(3) \_\_\_\_\_\_)

{

for(int i=1;i<=size-1;i++)

{

for(int j=i-1; \_\_\_(4) \_)

{

if(arr[j]>arr[j+1])

mswap(arr[j+1],arr[j]);

else

\_\_\_\_\_\_\_\_(5) \_\_\_\_\_

}

}

}

int main()

{

int a[5]={4,3,7,1,9};

insert(a,5);

for(int i=0;i<5;i++)

cout<<a[i]<<" ";

return 0;

}

2). (10 scores) Complete the following program to get the number of prime numbers not larger than a number n given by user.

#include <iostream>

using namespace std;

int main()

{

int n,cnt=0;

cin>>n;

for(int i=2; \_\_\_\_\_(6) \_;i++)

{

\_\_\_\_\_\_\_\_(7) \_\_\_

for(\_\_\_\_\_\_\_\_(8) \_\_)

if(i%j==0) f=false;

if(f) \_\_\_\_\_\_\_\_(9) \_\_\_\_\_

}

cout<<cnt;

\_\_\_\_\_\_\_\_(10) \_\_\_\_\_

}

**第二部分 机试**

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**III. Write programs according to the requests. Choose any THREE questions to answer. (60 scores)**

1. (20 scores) Randomly generate two one-dimensional arrays and print them. Their sizes are 6 and 10, respectively. The type of each element is ***int***, and it is between 1-100. Provide a function (named ***sortArray***) to merge these two arrays into one 4\*4 array, and the elements are sorted in ascending order from the top left to the bottom right. An ***output*** function is needed to output the 4\*4 array as following:

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1 2 3 4

5 6 7 8

9 10 11 12

13 14 15 16

A possible output is:

The 1st array is: 54 47 89 89 54 19

The 2nd array is: 1 71 91 86 15 74 53 68 18 28

The sorted 4\*4 array is:

1 15 18 19

28 47 53 54

54 68 71 74

86 89 89 91

1. (20 scores) Write a program to read a sentence (one line of only words). Go through the line by using a pointer. Change the initial character of each word to capital letters, and output the sentence.

Input: Nothing is impossible for you

Output: Nothing Is Impossible For You

The output is:

Please enter a sentence:

Nothing is impossible for you

Nothing Is Impossible For You

1. (20 scores) Define a class account that represents a customer’s bank account. It contains two data members name and balance that stores the account holder’s name and balance respectively. Besides the set and get functions, this class also needs two additional member functions: a ***display*** function that demonstrate the name and balance of the account; a ***calcBalance*** function that calculate the balance of the account after a year (the yearly interest rate is provided in the argument list).

Create an account array with 4 elements. You can provide their names and initial balance in the program directly. Print their accounts’ information of this year as well as of 5 years later, provided that the yearly interest rate is 5%.

1. (20 scores) Randomly draw two poker cards from a card deck and compare which card is larger. The comparison is done according to the following rules:

* The card with larger face value is the winner:

Ace > K > Q > J > 10 > 9 > 8 > 7 > 6 > 5 > 4 > 3 > 2

* If face values are the same, then compare their suit:

Spade > Heart > Club > Diamond

Hint: You can generate two random int values within [0,51] that represent a card. If two values are the same coincidentally, generate again until two values are different.