浙江大学 2016－2017 学年冬学期

《程序设计基础》课程期末考试试卷

课程号：__211Z0040___， 开课学院：__计算机学院__

考试试卷：√A 卷、B 卷（请在选定项上打√）

考试形式：√闭、开卷（请在选定项上打√），允许带__/__入场

考试日期：_2017_年_01_月_14_日，考试时间：_120_分钟

诚信考试，沉着应考，杜绝违纪.

考生姓名：_____学号：_____所属院系：_____

(注意：答题内容必须写在答题卷上，写在本试题卷上无效)

Section 1: Single Choice(2 marks for each item, total 20 marks)

1. Which one below is ***NOT*** one of the integer types? _____.
   A．int　　B．char　　C．double　　D．long
2. In the following notations, _____can express a character constant(字符常量) correctly.
   A．'\x100'　　B．125　　C．'\08'　　D．'\'
3. Which one below is NOT for ***"x is in the range of [-10, 0]"***? _____.
   A．-10<=x, x<=0　　B．x<=0&&x>=-10
   C．!(x<-10||x>0)　　D. -10 <=x<=0
4. The conditional expression ***x%3*** in
   while (x%3) a++;
   is equivalent to_____.
   A．x%3!=0　　B．x%3==0　　C．x%3==1　　D．x%3==2
5. For the declaration: ***short int a[][3]={1,2,3,4,5};*** ,the value of expression ***sizeof(a)*** is _____.
   A．10　　B．12　　C．24　　D．unknown
6. Given the following code fragment, the return value of function-call ***f(f(3))*** is _____.

```
int f(int k)
{
    static int a=1;
    return a*=k;
}
```

   A．1　　B．3　　C．6　　D．9
7. Assume that: ***int a[2][3];*** , which can correctly make reference to array ***a*** ? _____.
   A．a[1][3]　　B．a[2][2]　　C．a[2][!-1]　　D．a[-1][3]
8. Given: ***int a[5], *p=a+1;***, the expression____is equivalent to the expression ****p***.
   A．a+1　　B．a[1]　　C．a[0]+1　　D．p[1]
9. For the declarations: ***char *s, str[10];***, statement_____is completely correct.
   A．strcpy(s, "hello");　　B．str="hello"+1;

C. s=&(str+1);　　D. s=str+1;

10. For the code below:

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

If let ***a=1,b=2,c='+'***,the input _____ is NOT correct. /***NOTE***: a ***<BLANK>*** stands for a blank character and a ***<ENTER>*** for a return character.*/

A. 1+2***<ENTER>***

B. ***<BLANK><ENTER>***1+***<ENTER>***2***<ENTER>***

C. ***<ENTER>***1***<ENTER>***+***<BLANK>***2***<ENTER>***

D. ***<BLANK><BLANK>***1+***<BLANK>BLANK>***2***<ENTER>***

Section 2: Fill in the blanks（2 marks for each item, total 30 marks）

1. Given: ***short a = -127;*** , the ***two's complement***(补码) of variable ***a*** is _____.
2. Given: ***int c = 'w';***, the value of expression ***c-1=='v' || (c+1=='v'%123)*** is _____.
3. Given: ***int x = 5;***, the result of ***! x<10*** is _____.
4. Given: ***int a=6, b=7;*** , the value of expression ***(a++ == --b) ? ++a : b--*** is_____.
5. Given the declaration: ***char s[]="123\0A0";*** , the following statement:

   printf("%d#%d#", sizeof(s), strlen(s));

   will output _____.
6. The following code fragment will output _____.

```
char *s[2] ={"hello", "world"}, **p=s;
printf("%c#", (*p++)[1]);
printf("%s#", *p+1);
```

7. The following code fragmente will output _____.

```
int s[10]={1,2,3,4,5,6,7,8,9,10};
int *a=s, *b=s+9, *c;
c=a+(b-a)/2;
printf("%d", c[1]);
```

8. The ***fprintf*** function call that is equivalent to ***printf("Hello,world");*** should be_____ .
9. After executing the following code fragment, the value of variable ***y*** is_____.

```
int x,y;,
for (y=1, x=1; y<=50; y++) {
    if (x >= 10) break;
    if (x%2 == 1)  { x+=5;  continue; }
     x-=3;
}
```

10. Given: ***double a[]={1, 2, 3, 4, 5};*** ,the value of expression ***(int)&a[3] - (int)&a[0]*** is_____.
11. The following code fragment will output _____.

```
 int s[ ] = { 5, 6, 7 };
 int *p;
 for( p=s+2; p-- > s; )  printf("%d#", *p);
```

12. After executing the following code fragment, the output is _____.

```
unsigned char a=255;
char b;
b=a;
printf("%d", b);
```

13. After executing the following code fragment, the value of ***n*** is _____.

```
int n;
```

for (n=1; n; n++) ;

14. The output of the following program is _____.

```
#include <stdio.h>
void s(int *a, int *b)
{
      int *m;
      m = a; a = b; b = m;
}
main()
{
      int a=1,b=2;
      s(&a, &b);
      printf("%d#%d#", a, b);
}
```

15. If all variables have been defined and declared in the following program, all the variables which can be used in function ***fun()*** are _____.

```
#include <stdio.h>
int a=1;
void fun(int x)
{
   static int y;
   ……
   return;
}
int z;
void main( )
{
   int b;
   fun(z);
}
```

Section 3: Read each of the following programs and answer questions (5marks for each item, total 30 marks)

1. The output of the following program is _____.

```
#include <stdio.h>

void strFun(char *t, char *s)
{
      int i=0, j=0;

      while (s[i]) i++;
      i--;
      while (i>=0) {
         if (s[i]>='a' && s[i]<='z') t[j]=s[i]-'a'+'A';
         else t[j]=s[i];
         i--;
         j++;
      }
      i++;
      while (t[j++]=s[i++]);
}

int main()
{
    char t[80], s[20]="abc123";
```

```
    strFun(t,s);
    printf("%s", t);
}
```

2. When input:
   4
   2016 1231 2017 521
   the output of the following program is _____.

```
#include <stdio.h>
int a[10];

void Fun(int n)
{
      while (n>0) {
         a[n%10]++;
         n=n/10;
       }
}

int main()
{
      int n,i,m,k;

      scanf("%d", &n);
      for (i=0; i<n; i++) {
          scanf("%d", &m);
          Fun(m);
      }
      k=0;
      for (i=0; i<9; i++)
          if (a[i]>a[k]) k=i;
      printf("%d:%d\n",k, a[k]);
}
```

3. The output of the following program is _____.

```
#include <stdio.h>

void func(int a[], int n)
{
    int i, j, temp;

    for (i = 0; i < n; i++) {
        for (j = i + 1; j < n; j++)
            if (a[j]>a[i]) {
                temp = a[j];
                a[j] = a[i];
                a[i] = temp;
            }
    }
}

int main()
{
      int a[]={6, 7, 9, 2, 3, 2, -1}, i, n;

      n=sizeof(a)/sizeof(int);
```

```
    func(a,n);
    for(i=0; i<n; i++)  printf("%d ", a[i]);
}
```

4. When input:

```
4
2  3  4 1
5  6  1 1
7  1  8 1
1  1  1 1
```

the output of the following program is: _____

```
#include <stdio.h>
#define MAXN 10

int main()
{
    int n, i, j, a[MAXN][MAXN], sum=0;

    scanf("%d", &n);
    for (i=0; i<n; i++)
        for (j=0; j<n; j++)
            scanf("%d", &a[i][j]);
    for (i=n-1; i>=0; i--)
        for (j=n-1; j>=0; j--)
            if ((i==j) || (i+j==n-1)) sum += a[i][j];
    printf("%d ", sum);
    return 0;
}
```

5. The text file ***input.txt*** contains a line characters: ***command -nud –r***. The following program will output: _____.

```
#include <stdio.h>
#include <malloc.h>

int main(void )
{
   FILE * fp;
   char * str[3];
   char ** strp;
   int i;
   char c;

   fp = fopen("input.txt", "r");
   for (i=0; i<3; i++) str[i] = (char *)malloc(100);
   fscanf(fp,"%s %s %s", str[0], str[1], str[2]);
   strp = str;
    i = 0;
   while ( i++ < 2 && (*++strp)[0] == '-' )
        while ( c=*++strp[0] )  putchar (c);
   fclose(fp);
}
```

6. When input: ***happy#new#year@ZJU<ENTER>***, the following program will output _____.

```
#include <stdio.h>

int main()
{
    int word=0;
    char c;

    while ((c=getchar())!='\n')
    {
        if (c=='#') word=0;
        else if (c=='@') word = 1;
        else if (word==0 && c>='a' && c<='z') {
            c=c-'a'+'A';
            word=2;
        } else if (word==1 && c>='A' && c<='Z') {
            c=c-'A'+'a';
            word=2;
        }
        putchar(c);
    }
}
```

Section 4: According to the specification, complete each program (2 marks for each blank, total 20 marks)

1. Given an item of size ***v*** (***v<=10***)，now to pack (装入) this item into the best fit bin (最适合的箱子) from the ***N*** (***N=6***) bins. The Best Fit means that to place the item in the tightest spot among all bins, i.e. have the least free room after packed. (所谓最合适是指装入后箱子的剩余空间最少) For example, if the free rooms of these ***N*** bins are ***{9, 0, 8, 1, 10, 10}***，and the size of current item is ***7***, the item should be packed into the ***No.2*** bin (bin number from ***0***)，and the free room of this bin will be ***1***. (the free room before packing is ***8***). Following program inputs the size of item, outputs the number of best fit bin and its free room after packed. Function ***int Pack(int v)*** return the number of best fit bin.

```
#include <stdio.h>
#define BinNum  _______(1)_________

int a[BinNum]={9, 0, 8, 1, 10, 10};

int Pack(int v)
{
    int i, m;

    for(i=0; i<BinNum; i++)  { /* Find the first bin which can be packed with v */
        if (a[i] >= v) {
            m=i;
            _______(2)_________;
        }
    }

    for(i++; i < BinNum; i++)  {   /* Continue finding the best fit one in the left bins. */
        if ((a[i] >=v )  &&  (_______(3)_________))  m=i;
    }

    a[m] = _______(4)_________;
    return m;
}
```

```
int main()
{
      int i,m,k;
      int n;

      scanf("%d", &n);
      m=_____(5)_____;
      printf("The item is packed into bin No.%d:%d.\n ", m, a[m]);
}
```

2. There are two text files ***input1.txt*** and ***input2.txt***, which contain some integers respectively. The following program will read in these integers, calculate the occurrence of each integer both in the two files, and store the result into another text file ***output.txt***. For example:

input1.txt contains: ***12 10 12 11 10 10 8***
input2.txt contains: ***10 11 12 13 14 15 16***
output.txt will be generated with: ***(12,3)(10,4)(11,2)***

```
#include <stdio.h>
#include <stdlib.h>
#define MAX 100

FILE * open_a_file (char *filename, char *mode)
{
      FILE *fp;

      if ((_____(6)_____) == NULL) {
          printf("Can't open file %s\n", filename);
          exit(-1);
      }
      return fp;
}

int exist(int val, int arr[], int n)
{
      int i;

      for (i=0; i<n; i++) if  ( val == arr[i] ) return i;
      return -1;
}

main()
{
      int i,n,num;
      int a[MAX],b[MAX];
      FILE * ifp1, * ifp2, * ofp;

      ifp1 = open_a_file("input1.txt", "r");
      ifp2 = open_a_file("input2.txt", "r");
      ofp = open_a_file("output.txt", "w");

      for (i=0; i<MAX; i++)  b[i] = 0;
      num = 0;
      while ( fscanf(ifp1, "%d", &n) == 1 )  {
      /*NOTE: fscanf() return the actual number of data which have been read in.*/
```

```
            for (i=0; i<num; i++)  if  (n == _______(7)_______)  break;
            if  ( i == num ) {
                a[num] = n;
                b[num]++;
                num++;
            }  else {
                _______(8)_________;
            }
        }

        while ( fscanf(ifp2, "%d", &n) == 1 )  {
            i = _______(9)_________;
            if ( i != -1 ) b[i]++;
        }

        for (i=0; i<num; i++) {
            if (b[i] > 1) fprintf(_______(10)_________, "(%d,%d)", a[i], b[i]);
        }

        fclose(ifp1);
        fclose(ifp2);
        fclose(ofp);
}
```