IEEE UVCE SUN MICROSYSTEMS

C CODING CONTEST

Instructions:

1]The test duration is one hour.
2]The test is for a maximum of 50 marks.
3]20 marks is for C puzzles,20 marks coding and 10 marks on Solaris(It is a variant of UNIX).
4]The questions asked about Solaris apply to any UNIX variants.
5]The C compiler used is GCC. Comments are must in programs.
6] The questions marked * are tie breakers.
7]The answers will be put up on notice board and also mailed to your email id by tomorrow.
8] The reason for any error must be specified in part 1.

Part 1:Select the expected output of the below programs
Write the expected output for those questions not having choices.

1]
```
#include<stdio.h>
 void main( )
 {
  extern int i;
  i=20;
  printf("%d",sizeof(i));
  }
```

a] 2 b] 4 c] Cannot be said d] None of the above

2]
```
#include<stdio.h>
 void main( )
 {
  int i=5.99999;
  printf("%d",i);
  }
```

a] 6 b] 5 c] Error cannot assign float to integer
d] None of the above

3]#include<stdio.h>
```
  void main( )
   {
    display( );
    }
    void display( )
    {
     printf("Cliffhanger\n");
     }
```

4]#include<stdio.h>
```
  void main( )
   {
    union a
     {
          int i;
          char ch[2];
      };
      union a u;
      u.ch[0]=3;
      u.ch[1]=2;
      printf("%d",u.i);
     }
```

a] 515 b] 770 c] 0 d] Error: u.i is uninitialized

5]#include<stdio.h>
```
  void main( )
   {
    float a=0.7;
    if(0.7>a)
       printf("Hi");
    else
       printf("Hello");
    }
```
a] Hi b] Hello c]Hi Hello d] None of the above

6]#include<stdio.h>
```
  void main( )
   {
```

```
    int i=2;
    int j=i+(1,2,3,4,5);
    printf("%d", j);
    }
```

a] 3 b] Error: j is undefined c]Error: Use of unknown operator
d] 7

```
7]#include<stdio.h>
  void main( )
   {
    printf("%d %d %d",sizeof(3.14f),sizeof(3.14),sizeof(3.14l));
    }
```

a]8 8 10 b]4 8 8 c]4 8 10 d]4 8 12

```
8]#include<stdio.h>
  void main( )
   {
    /*This program attempts to find what happens when/*-32768 to +32768*/
    is exceeded*/
    int a =330000;
    float b=3.4e100;
    printf("a=%d b=%f\n",a,b);
    }

9]#include<stdio.h>
  void main( )
   {
    printf("%d",4%3);
    printf("%d",4%-3);
    printf("%d",-4%3);
    printf("%d",-4%-3);    }

10]#include<stdio.h>
  void main( )
   {
    int a=30,b=40,x;
    x=(a!=10)&&(b=50);
    printf("x=%d",x);
    }

11]#include<stdio.h>
```

```
  void main( )
   {
    int i;
    printf("Enter any number");
    scanf("%d",&i);
    switch(i)
    {
     case 1:
                        printf("do");
     case 2:
                        printf("re");
     case 3:
                        printf("me");
     case default:
                        printf("fa so la ti do");
    }
    }
```

12]

```
#include<stdio.h>
  void main( )
     {
    int area;
    float radius=2.0;
    area=areacircle(radius);
    printf("area= %f ", area);
      }
  areacircle(r)
  float r;
   {
    float a=3.14*r*r;
    printf("a=%f\n",a);
    return(a);
    }
```

13]

```
#include<stdio.h>
  void main( )
     {
    int a=33000;
    float b=3.4e100;
    printf("%d %d", sizeof(a),sizeof(b));
    }
```

14]#include<stdio.h>
```
  void main( )
   {
    int i=1;
    if(!i)
            printf("recursive calls are painful\n");
    else
    {
          i=0;
          printf("recursive calls are challenging\n");
          main( );
    }
    }
```
a] recursive calls are challenging
recursive calls are painful

b] recursive calls are painful
recursive calls are challenging

c] recursive calls are painful
d] recursive calls are challenging (infinitely.....)

15]#include<stdio.h>
```
  void main( )
   {
    printf("%d",main( ));
    }
```
a] prints garbage value infinitely
b] it runs an infinite loop without printing anything
c] compiler reports an error since main cannot be called recursively
d] address of main gets printed infinitely

16]#include<stdio.h>
```
     int reverse(int);
     void main( )
   {
    int no=5;
    reverse(no);
   }
   reverse (int no)
```

```
    {
     if(no= =0)
                        return 0;
     else
                        printf("%d",no);
     reverse(no--);
    }
```

a]program outputs values 5 4 3 2 1
b]program outputs values 1 2 3 4 5
c]program outputs values 5 4 3 2 1 0
d]program runs in an infinite loop

17]

```
#include<stdio.h>
    #define SWAP(a,b,c) (c t;t=a,a=b,b=t;)
    void main( )

     {
        int x=10,y=20;
        SWAP(x,y,int);
        printf("%d %d",x,y);
     }
```

18]

```
#include<stdio.h>
    #define MAX(a,b,c) (a>b?a>c?a:c:b>c?b:c)  /*  ? : has right to left
                                                  associativity */

     void main( )
    {
      int x;
      x= MAX(3+2,2+7,3+7);
      printf("%d",x);
    }
```

a] 5
b]9
c]10
d]3+7

19]

```
#include<stdio.h>
   void main( )
    {
     int i=3;
```

```
    switch(i)
    {
            case 1:
             printf("au revoir");
            case 2:
             printf("adieu");
           break;
            case 3:
             continue;
            default:
             printf("plain simple goodbye");  }}
```

```
20]#include<stdio.h>
  void main( )
   {
   int b=20;
   printf("%d",b);
   {
    int a=10;
    printf("%d",a);
    }
    }
```

a] Error in declaration. All definitions must be at start of code.
b] Linker error:Undefined symbol a.
c] 20 10
d] None of the above

Part 2:Programs

1] Write a program to multiply two matrices. The program must be such that multiplication takes place in separate function and not in main function. The two matrices should be passed to a function which multiplies them and sends result back to function main. * (20 marks)

OR

2] Design a Bubble sort to sort the following set in most efficient way:
1 2 3 4 5 6 8 7 * (20 marks)

3] Write a program to swap two numbers without using temporary variable. (5 marks)

4] What is difference between singly linked list if we use structure or union. Explain with an example. (5 marks)

Part 3: Solaris(UNIX Fundamentals)

1] Given that "uptime" is the time between two consecutive crashes in an operating system. Arrange the following operating systems according to their relative uptime (greatest first):
a] Windows
b] Solaris
c] Linux (3 marks)

2] Dtrace is a dynamic tracing tool in Solaris Operating System.

a] Do running of any dynamic programs need memory or can they run directly from hard disk ?
b] Can a plug-in be added to a application in progress? (2 marks)

3] a]Name a few viruses that could attack Solaris system. Name the type of file they attack.
b]Name a few viruses that could attack Windows system. Name the type of file they attack.(Atleast two examples). (4 marks)

4] What is Thunderbird or Outlook?(Exact terminology is must)
(1 mark)