Name: KEY   **Id#**

ICS 103, Term 083

Computer Programming in C
Quiz# 3

Date: Tuesday, August 18, 2009

Find the output of the following programs:

Program	Output

(i)   **6 points**
 	
`#include <stdio.h>`
 	
`void test1(int x, char htable[]);`
`int main(void)`
`{`
`  int x=125;`
`  char htable[]={'0','1','2','3',`
`'4','5','6','7','8','9','A','B',`
`'C','D','E','F'};`
 	
`  test1(x, htable);`
`  printf("\n");`
`  return 0;`
`}`
 	
`void test1(int x, char htable[]){`
 	
`    if (!x) return;`
`    else   test1(x/16, htable);`
`    printf("%c", htable[x%16]);`
`}`
	7D
	
	First call since the value of x=125 is not 0, the function will be called again with argument 125/16=7.
	Since 7 is not 0, the function will be called with argument 7/16=0.
	Now since x is 0 it will return without doing anything. This will be the return of the 2nd call so it will print htable[7%16=7]='7'.
	Then, it returns to the first call which will print htable [125%16=13]='D'.

(ii)   **6 points**

```
#include <stdio.h>
#define SIZE 10
void test2 (int x[], int n){
     int i;
     for (i=0; i<n; i++)
        x[i]=i*i;
}
void test3 (int x[], int n){
     int i,j;
     for (i=0; i<n/2; i++){
        j=x[i];
        x[i]=x[n-i-1];
        x[n-i-1]=j;
     }
}
void test4 (int x[], int n){
     int i;
     for (i=0; i<n; i++)
        printf("%d ",x[i]);
     printf("\n");
}
int main(void)
{
  int x[SIZE];
  test2(x, SIZE);
  test3(x, SIZE);
  test4(x, SIZE);
  return 0;
}
```

81 64 49 36 25 16 9 4 1 0

Call of function test2 will initialize the array x to:
0 1 4 9 16 25 36 49 64 81

Call of function test3 will reverse the array x to:
81 64 49 36 25 16 9 4 1 0

Call of function test4 will print the elements of array x separated by spaces.