Name: MOHD ABBAS ZAIDI Section: B-2 Rollno: 150415

3 -> Marks on cover page is 10 however at the question (Bg 7)

11 marks have been awarded for it. ESC101: Fundamentals of Computing (Mid Semester Exam)

18 September, 2015 (1-3pm)

Total Number of Pages: 12

Instructions

- 1. Read these instructions carefully.
- 2. Write you name, section and roll number on all the pages of the answer book, including the ROUGH pages.
- 3. Write the answers cleanly in the space provided. Space is given for rough work in the answer book.
- 4. Using pens (blue/black ink) and not pencils. Do not use red pens for answering.
- 5. Do not exchange question books or change the seat after obtaining question paper.
- 6. Even if no answers are written, the answer book has to be returned back with name and roll number written.
- 7. Sign the attendance sheet.

Total Points 65

Question	Points	Score		
1	13	12		
2	10	10	١.	
3	12	104	211	
4	10	10		
5	10	P		
6	10	10		
Total:	65	63.	1 2	(

I PLEDGE MY HONOUR THAT DURING THE EXAMINATION I HAVE NEITHER GIVEN NOR RECEIVED ASSISTANCE.

Signature

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Name: MOHD ABBAS ZAIDI Question 1. (a) (7 points) Consider the following C declarations and assignments.

int x,y; float z; char ch; x=1, y=2, z=4, ch='5';

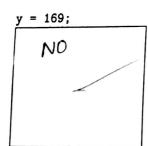
Using the above write the output of each of the following program snippets. (Note: Consider each snippet independent of the other.)

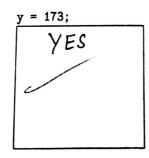
snippet independent of the		
Statement	Output	
printf("%d", 4/y+x);	3	
printf("%2.2f", x/y*0.5);	0.00	
printf("%c", x*=y+ch);	7	
printf("%d", y+++-x);		
printf("%d", y+++x);	2	
printf("%d", (z, !z));	0	
printf("%d",(z>y>x);	0	

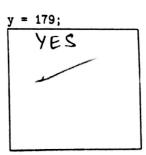
(b) (6 points) Consider the following code segment.

```
int x=2, y, z=1;
for( ; x*x<=y ; x++ )
    y\%x ? 1 : (z=0);
z ? printf("YES") : printf("NO") ;
```

What is the output of the above code segment for the following values of y?







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Section: B-2 Name: MOHD ABBAS ZAIDI

Question 2. (10 points) Complete the following program which computes the largest sum of a pair of numbers in an error of size 10. For example, if the appropriate of the numbers {4, 3, 7, 6, 5, 8, 2, 4, 9, 3} than or

```
in an array of size 10. For example, if the array consists of the numbers {4, 3, 7, 6, 5, 8, 2, 4, 9, 3} then the
output of the program should be 17.
```

```
| #include < stdio.h>
       int sumPair(int a[], int \gamma ) {
         int i,x,y;
         if (a[0] > <u>a[1]</u>
              x = a[0];
         else {
    10
    11
             x = a[1];
             y = a[0];
   12
   13
   14
        for (i = 2; i<n; \hat{L}^{\dagger} + \sqrt{ }) {
if (a[i] > x) {
   15
   16
   17
                             x = a[i];
   18
   19
             else if (a[i]) \xrightarrow{\sum y} & & a[i] != \frac{y}{y}
   20
  21
  22
  23
  24
  25
  26
  27
    int main() {
       int n, i, <u>c[0]</u>
 28
 29
 30
       printf("Input 10 numbers\n");
       for(i=0;i<10;i++)
 31
 32
         scanf (" % d ", C+i
 33
34
35
      printf("Sum=%d", sumPair(c,10));
36
     return 0;
38
```

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37

Question 3. (12 points) Ceepee has learnt C programming not very long ago. Ceepee wants to put his skills to test by writing a program to converted. test by writing a program to compute the gcd (greatest common divisor) of a given array of integers.

He attempted to debug the program and could now use your help. His program is produced below. He has a suspicion that something is supported by the correct a suspicion that something is wrong in the specified line numbers. Your task is to either give the correct statement, with minimal chargest statement, with minimal changes, or report OK. (Note: Changing a statement that is already correct, or changing a statement by an indicate of the statement by changing a statement by an unnecessary amount, will be penalized.)

```
define S 4 //S is the array size #tdefine S 4
      #include <stdio.h>
                                           int ged (icts, inty) {
      void gcd(int x, int y) {
          int r;
          //make them non-negative
          x = (x < 0)? x:-x;
          y = (y<0)? -y:y;
   10
   11
          if(x < y) {
   12
              r = x:
              x = y;
   13
              y=r;
   14
   15
          //handle the case y=0
   17
          if(!y) return : 1
   19
          while (r = x \% y) {
  20
              x = y;
  21
              y = r;
  22
  23
         return y;
  24
  25 }
  26
    int main() {
                       - int A[5] :
  27
         int A[];
  28
         int g, i;
  29
  30
         for (i = 0; i \le S; i++)
 - 31
             scanf("%d", A+i); ()K
 - 32
  33
         for (g = A[0]; i < S; i++) {
 . 34
             g = gcd(g, *(A+i));
___ 35
             /* printf("gcd till i=%d is: %d\n", i, g);
 36
 37
 38
        printf("The gcd is: %d\n", &g);
 39
 40
 41
        return 0;
 42 }
```

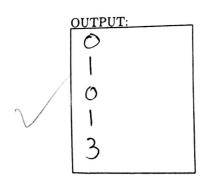
Suspicion in	Your response
line 2	# define S 4 (;)
line 4	int gcd (int x, inty) {
line 8	x = (x < 0)? - x : x;
line 18	if (!y) return ax;
line 20	while (r = x%y) {
line 28	int A[s];
line 31	for (i=0; i< S; i++)
line 32	OK
line 34	for (g=Alo], i=1) i < S; i++) }
line 35	OK
line 36	/* gcd till itainder is g */
line 39	printf ("The gcd is: %d\r", g);

B. 2

Name: MOHD AMBAS ZAIDI Question 4. (10 points) Ceepee again managed to write a convoluted code to test name scopes in C. Help i

```
figure out the five output values.
#include <stdio.h>
int x=0;
int fill
     return x++;
int f2(){
     int x=-1;
     return ++x;
int f3(){
     int x=100, y=10;
     return f1();
}
 int f4(){
     _static int y=0;
      return y+=x;
 }
 int main() {
      int x=-20, y=-10;
      printf("%d\n", f1() ); ()
printf("%d\n", f4() ); 4
      printf("%d\n", f2() ); 0
printf("%d\n", f3() ); |
            int x=-1;
           printf("%d\n", f4() ); 9
      }
      return 0;
 }
```

Neatly fill in the output in the box.



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Question 5. (10 points) Complete the following program which does the following: Given an array of 10 positive integers, replace every element by the largest number to its right in the array. Since the last number in the array does not have any other number to its right, replace the last number by -1.

For example, if the array consists of the numbers {4, 3, 7, 6, 5, 8, 9, 2, 4, 3} then the output of the program should be {9, 9, 9, 9, 9, 9, 4, 4, 3, -1}.

```
#include <stdio.h>
  void modifyArray(int a[], int n) {
    m = \alpha [n-1];
11
12
13
14
15
16
17
  }
18
19
  int main() {
20
    int i, x[10];
21
^{22}
    printf("Input 10 numbers\n");
23
    for(i=0;i<10;i++)
24
    scanf ("od", X+1)
25
26
27
    modifyArray(x,10);
28
29
    printf ("Modified array \n");
30
    for (i=0;i<10;i++)
31
32
       printf("%d ", X[i]);
33
34
    printf("\n");
35
36
     return 0;
37
  }
38
```