COMP1411 FINAL EXAM

Question 1:

printf("Inside fun: x = %d\n",% x); => 5

printf("Inside fun: y = %d\n", y); => 7

printf("Inside foo: x = %d\n", x); => -1

printf("Inside foo: y = %d\n", y); => 7

Question 2:

The function int fun(int&x) {} will be called twice. Each time the printf statement will output: 1

Question 3:

printf("Inside foo : Before fun\n");	Inside foo : Before fun
printf("x = %d\n", x);	x = 1

for(int i = 0; i < n; i++)
printf("%d ", A[i]);
printf("\n");
	Array A[i] will not print because n=-4

printf("Inside fun: \n");	Inside fun:
printf("x = %d\n", x);	x = 2

for(int i = 0; i < n; i++)
printf("%d ", A[i]);
printf("\n");
	2
	4
	6
	8

printf("Inside foo : After fun\n");	Inside foo : After fun
printf("x = %d\n", x);	x = 1

Question 4:

a) False
b) False
c) False

Question 5:

.....

.....

```
float x = 5.8;
int y = 3;
float *p = &x;
int *q = &y;
printf("x = %f\n", *p);
printf("y = %d\n", y);
```

Question 6:

rintf("*p = %d\n", *p);	*p = -4 (value increment)
printf("p = %d\n",&p);	Address of p
printf("arr = %d\n", arr);	100
printf("*p = %d\n",&*p);	112
printf("p = %d\n", p);	112
printf("arr = %d\n",&arr);	100
printf("**q = %d\n", **q);	-2
for(int i = 0; i < 6; i++) printf("%d ",-arr[i]);	-4 -4 -3 -2 -1 10

Question 7:

a) struct BallonDor input[3];
b) Code to read entire file and store in structure array

```
void getRecord(struct BallonDor s[3]){
int i=0;
FILE *data;
data = fopen("data.txt","r");
if(data == NULL){
      printf("Error in file opening\n");
      return;
}
char fullname[10];
char lastname[10];
while(fscanf(data, "%s %s %d ",fullname,
lastname, &s[i].numBorWon) != EOF){
       strcat(fullname,lastname);
       strcpy(s[i].name,fullname);
       i++;
}
      fclose(data);
}
```

c) Code to write data stored in struct into output.txt file

```
void storeRecord(struct BallonDor s[3]){
int i;

FILE *data;
data = fopen("output.txt","w");
if(data == NULL){
        printf("Error in file opening\n");
        return;
}

for(i=0;i<3;i++){
    fprintf(data, "%s
%d\n",s[i].name,s[i].numBorWon);
}
fclose(data);
}
```

```
int main(void){
   struct BallonDor input[3];
   getRecord(input);
   storerecord(input);
   return 0;
}
```

Question 8:

```
int countWord(char sentence[]){
   int length=0,words=1;
   length = strlen(sentence);
   for(int i=0;i<length;i++){
      if(sentence[i] == ' ')
         words = words+1;
   }
   return words;
}
```

Question 9:

Definition of topScorer function:

```
int topScorer(int result[60][4]){
int average[60];
int topscoreindex = 0;
for (int i = 0; i<60; i++){
  average[i] = (result[i][1] + result[i][2] + result[i][3])/3;
  if(average[i] > average[topscoreindex])
      topscoreindex = i;
  }
  return (result[topscoreindex][0]);
}
int main(void){
int topscore = topScorer(result);
return 0;
}
```

Definition of searchStudent function

```
void searchStudent(int id, int result[60][4], int *score){
 for (int i = 0; i<60; i++){
    if(result[i][0] == id)
      *score = result[i][1] + result[i][2] + result[i][3];
  }
}

int main(void){
searchstudent(1111,result,&targetscore);
return 0;
}
```