CSC 111—Fall 2013
Quiz 3 Solutions

1. In programming language C, which of the following denotes the address of the variable "var"?

   a. *var
   b. address(var)
   c. %var
   d. &var

2. In the programming language C, the operator used to dereference a pointer variable is:

   a. *
   b. ||
   c. &
   d. ->

3. What is the effect of `**q = 17;` in the following syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main(void){
      int k = 0;
      int *p = NULL;
      int **q = NULL;
      q = &p; /* address of var p */
      p = &k; /* address of var k */
      **q = 17;
      return EXIT_SUCCESS;
} /*main*/
```

   a. Dereferences q and stores a value in p
   b. Dereferences p and stores a value in k
   c. Dereferences q and p and stores a value in p
   d. Dereferences q and p and stores a value in k

4. What is a pointer in the programming language C?

   a. A keyword used to create variables
   b. A variable that stores the address of an instruction
   c. A variable that stores the address of another variable
   d. A recursive function call

5. What is the output of the following syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main(void) {
      int a = -6;
      int b = 5;
      printf("%d\n", a/b);
      return EXIT_SUCCESS;
} /* main */
```

   a. 1.25
   b. -1.25
   c. 1
   d. -1

6. What is the output of the following syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main(void) {
     int a=6;
     int b;
     b=a*7/3-4*2;
     printf("a = %d,  b = %d\n", a, b);
     return EXIT_SUCCESS;
} /* main */
```

   a. a = 6, b = 20
   b. a = 6, b = 12
   c. a = 6, b = 16
   d. a = 6, b = 6

7. What is the output of the following syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
void f4(){
     printf("live ");
}
void f2(){
     f4();
}
void f3(){
     printf("live ");
}
void f1(){
     f2();
     printf("and ");
}
int main(void){
     f1();
     printf("let ");
     f3();
     return EXIT_SUCCESS;
}
```

a. let live
b. live and live
c. live and let live
d. let live and live

8. What is the output of the following syntactically correct C program?

```
#include <stdio.h>
#include<stdlib.h>
int main(void) {
      int k,a;
      k = 5;
      a = 10;
      a += (k=10);
      k++;
      k = k*10;
      printf("a = %d  k = %d\n", a, k);
      return EXIT_SUCCESS;;
} /* main */
```

a. a = 10 k = 20
b. a = 10 k = 100
c. a = 20 k = 110
d. a = 20 k = 100

9. What is the output of the following program syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main (void) {
      int i = 0;  int j = 0;
      int *p = NULL;
      int *q = NULL;
      p = &i;
      q = &j;
      *p = 5;
      *q = *p + i;
      printf("i = %d,  j = %d\n",  i,  j);
      return EXIT_SUCCESS;
}/*main*/
```

a. i = 5, j = 5
b. i = 10, j = 5
c. i = 5, j = 10
d. No output. The program will likely crash.

10. What is the output of following syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main(void) {
     float a;
     a = 2.554348246;
     printf ("%.4f %.6f", a, a);
     return EXIT_SUCCESS;
} /* main */
```

a. 2.5543 2.0
b. 2.0000 2.554348
c. 2.5543 2.554348
d. 2.554348246 2.554348246

11. What is the output of the following program syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main (void) {
     int i = 23;
     int j = 72;
     int *p1=NULL;
     int *p2=NULL;
     p1 = &i;
     p2 = &j;
     *p1 = *p2;
     printf("i = %d and j = %d\n", i, j);
     return EXIT_SUCCESS;
}/*main*/
```

a. i = 23 and j = 23
b. i = 23 and j = 72
c. i = 72 and j = 23
d. i = 72 and j = 72

12. What is the output of the following syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main(void) {
      int k = 17;
      int *p = NULL;
      p = &k;
      *p = 88;
      printf("Value of k = %d\n", k);
      printf("Value of k or *p = %d\n", *p);
      return EXIT_SUCCESS;
}/*main*/
```

a. Value of k = 17
   Value of k or *p = 88

b. Value of k = 88
   Value of k or *p = 88

c. Value of k = 88
   Value of k or *p = 17

d. Value of K will be 88
   Value of *p will have some garbage value.

13. What is the output of the following syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main(void) {
      int k = 17;
      int* p1 = &k;         int** p2 = &p1;
      int*** p3 = &p2;      int**** p4 = &p3;
      *p1 = 18;             **p2 = 81;
      ***p3 = 44;           ***p4 = 48;
      printf("k = %d\n", k);
      return EXIT_SUCCESS;
}/*main*/
```

a. k = 17

b. k = 48

c. k = 44

d. k = 81

14. What is the output of the following syntactically correct C program?

```
#include <stdio.h>
#include <stdlib.h>
int main(void) {
   int sum = 0;
   int n = 7;
   int k = 1;
   int* p = &k;
   while (*p <= n) {
      sum = sum + *p;
       *p = *p + 1;
   }
   printf("Sum of first %d integers is %d\n",  n,  sum);
   printf("Value of k is %d\n",  k);
   return EXIT_SUCCESS;
}/*main*/
```

a. Sum of first 5 integers is 15
   Value of k is 6
b. Sum of first 6 integers is 21
   Value of k is 7
c. Sum of first 7 integers is 28
   Value of k is 8
d. Sum of first 8 integers is 36
e. Value of k is 9