CS 416 - Self Assessment C Quiz

Name:

NetID:

Due date: (Not graded and no hard deadline)

Please solve manually with pen and paper.

What is the output of the following code snippet?

```
uint32_t v = 0xdeadbeef;
printf("%02x", (char *)v[0]);
```

1. de
2. ad
3. be
4. ef
5. 00

> *ANSWER:*

What is the output of the following code snippet?

```
int64_t v = 0xdeadbeef;
printf("%02x", (char *)v[0]);
```

1. de
2. ad

3. be

4. ef

5. 00

What is the output of the following code snippet?

```
printf("%d", abs(-2147483648));
```

1. 0
2. -2147483648
3. 2147483648
4. NaN
5. depending on 32/64-bit arch

What does the expression, 1 > 0, evaluate to (on 64-bit)

1. 0
2. 1
3. NaN
4. -1
5. depending on operating systems

Which value does this code snippet print in x86

(32-bit)?

```
printf("char=%d, int=%d, long=%d", \
    sizeof(char), sizeof(int), sizeof(long));
```

1. char=4, int=4, long=4
2. char=1, int=4, long=4
3. char=1, int=4, long=8
4. char=1, int=8, long=8
5. compilation error

ANSWER:

Which value does this code snippet print?

unsigned int i = 0;

printf("%u", i–);

1. 0
2. -1
3. 65535
4. 4294967295
5. compilation error

ANSWER:

What is the output of the following program?

```
int main ()
{
    int i, j, *p, *q;
```

```
    p = &i;
    q = &j;
    *p = 5;
    *q = *p + i;
    printf("i = %d, j = %d\n", i, j);
    return 0;
}
```

1. i = 5, j = 10
2. i = 5, j = 5
3. i = 10, j = 5
4. i = 10, j = 10
5. Nothing. The program will most likely crash.

> *ANSWER:*

What's the value of NULL?

1. 0xffffffff
2. 0x11111111
3. 0xf5f5f5f5
4. 0x00000000
5. 0x00000001

> *ANSWER:*

What is the output of the following program (32-bit)?

```
main() {
```

```
  int x[5];

  printf("1 = %p\n", x);

  printf("2 = %p\n", x+1);

  printf("3 = %p\n", &x);

  printf("4 = %p\n", &x+1);

  return 0;

}
```

(assuming the first printf results in the follow string)

"1 = 0x7fffdfbf7f00"

ANSWER: 2 = 0x7fffdfbf7f01

ANSWER: 3 = 0x7fffdfbf7f00

ANSWER: 4 = 0x7fffdfbf7f01

Where does the string, "hello world", reside?

```
main() {

  const char *str = "hello world";

  printf("%s\n", str);

}
```

1. .text section
2. .data section
3. .bss section
4. stack
5. heap

Where does the variable 'str' reside?

```
main() {

   const char *str = "hello world";

   printf("%s\n", str);

}
```

1. .text section

2. .data section

3. .bss section

4. stack

5. heap

Where does the function 'main' locate?

```
main() {

   const char *str = "hello world";

   printf("%s\n", str);

}
```

1. .text section

2. .data section

3. .bss section

4. stack

5. heap

Where does the arga locate relative to func's ebp (32-bit)?

```
func(arga, argb, argc, Argo);
```

1. ebp - 4
2. ebp + 0
3. ebp + 4
4. **ebp + 8**
5. ebp + 12

What is the output of the following program?

```
main() {
    char array[] = {1, 2, 3, 4, 5};
    int i = 4;
    printf("%d", array[i++]);
}
```

1. 1
2. 2
3. 3
4. 5
5. **compilation error**

What is the output of the following program?

```
#define PTXSHIFT 12

#define PTX(va)  (((uint)(va) >> PTXSHIFT) & 0x3FF)


printf("0x%x", PTX(0x12345678))
```

1. 0x123
2. 0x4561
3. 0x234
4. 0x2345
5. 0x345

?

ANSWER:

What is the output of the following program?

```
#define PGSIZE          4096
#define CONVERT(sz)     (((sz)+PGSIZE-1) & ~(PGSIZE-1))


printf("0x%x", CONVERT(0x123456));
```

1. 0x023456
2. 0x234560
3. 0x123000
4. 0x124000
5. 0x120000

?

ANSWER:

What is the correct usage of this macro?

```
#define ASSERT(a, b) do { switch (0) case 0: case (a): ; }
  while (0)
```

1. ASSERT(1, 2)
2. ASSERT(1, 2);
3. ASSERT(1 == 2, "error: should be equal");
4. ASSERT(1 != 2, "error: should be equal");
5. ASSERT("error: should be equal", 1 != 2);

?

ANSWER: