

Com S 327  
Fall 2016  
Midterm Exam

1. (a) You remind me of the babe.  
(b) In nine hours and twenty-three minutes... you'll be mine  
(c) Error: Attempt to modify constant data  
(d) against the rules  
(e) Error: Run past the beginning of the array (no null at beginning!)  
(f) No output

2. (a) `void swap(int *a, int *b)`  
    {  
        int tmp;  
  
        tmp = \*a;  
        \*a = \*b;  
        \*b = tmp;  
    }

- (b) `void freeplusplus(void **p)`  
    {  
        free(\*p);  
        \*p = NULL;  
    }

5 points each  
partial credit:  
b: 3 for wrong order  
c: 1 for "sense of smell"  
d: 3 for miscount  
e: 2 for "!nwod esohc shS"  
3 for "!nwod esohc shS" + ...  
f: 1 for reversed string  
4 for type of a  
4 for type of b  
2 for swapping  
-6 failure to dereference  
-2 illegal function

6 for type of p  
2 for single pointer  
2 for free call  
2 for assignment  
-2 return a value  
-2 arg not void  
-2 illegal function

```

(c) char *strndup(const char *s, size_t n)
{
    char *o;
    int i;

    /* Extra byte for null terminator */
    if ((o = malloc(n + 1))) {
        for (i = 0; i < n && *s; i++, s++) {
            o[i] = *s;
        }
        o[i] = '\0';
    }

    return o;
}

```

3 points each for:  
 call malloc()  
 argument to malloc()  
 write null terminator  
 return pointer  
 return NULL  
 3 for the first and 2  
 for the second of:  
 loop terminates at  
 n  
 loop terminates at  
 end of s  
 -2 leak  
 -2 illegal function  
 -6 strdup()

3. (a) b: a was never allocated.  
 (b) b: i was never allocated.  
 (c) a  
 (d) a  
 (e) b: double free().  
 (f) b or c: \*i was never allocated. i is leaked. Type error.  
 (g) c: Cannot assign a character pointer to an array.  
 (h) b: No storage allocated for copy, and s points into read-only memory.  
 (i) a  
 (j) a

3 points each  
 No partial credit

4. You have no power over me!

give point if at  
 least half of letters  
 are correct