



University of Maryland College Park

Dept of Computer Science

CMSC216 Spring 2011

Midterm III

First Name (PRINT): _____

Last Name (PRINT): _____

University ID: _____

I pledge on my honor that I have not given or received any unauthorized assistance on this examination.

Your signature: _____

Instructions

- This exam is a closed-book and closed-notes exam.
- Total point value is 100 points.
- The exam is a 50 minutes exam.
- Please use a pencil to complete the exam.
- **WRITE NEATLY.** If we cannot understand your answer, we will not grade it (i.e., 0 credit).

Grader Use Only

| | | | |
|--------------|------------------------|-------|--|
| #1 | Problem 1 (Process) | (25) | |
| #2 | Problem 2 (AssemblyI) | (25) | |
| #3 | Problem 3 (AssemblyII) | (50) | |
| Total | Total (100) | (100) | |

Problem1 Process (25 pts)

Write a C program that will create a child process that will execute the command “ls -l”. The parent process will wait for the child to finish, and then it will execute the command “date”.

Use `err(EX_OSERR, “messagehere”)` in case any system call fails.

Problem2 AssemblyI (25 pts)

Write an assembly program that corresponds to the following C code. The code prints the even numbers between 0 (inclusive) and the value provided. You do not need to implement any functions. You can assume limit will be greater than or equal to 0. Make sure you provide comments describing what your code is doing otherwise you will lose significant credit.

```
int limit, i = 0; /* use registers for these variables */
scanf("%d", &limit);
do {
    printf("%d\n", i);
    i = i + 2;
} while (i <= limit);
```

Problem3 AssemblyII (50 pts)

Write an assembly program that corresponds to the following C code. The function returns 'N' if the first value is not divisible by the second and 'Y' otherwise. The ASCII code for 'N' is 78 and 89 for 'Y'. You only need to implement one function (isDivisible). Make sure you provide comments describing what your code is doing otherwise you will lose significant credit.

```
char isDivisible(int a, int b) {
    if (a % b)
        return 'N';
    return 'Y';
}

int x, y; /* use registers for these variables */
scanf("%d%d", &x, &y);
printf("%c", isDivisible(x, y));
```

EXTRA PAGE IN CASE YOU NEED IT