Name: _____

Directions: **Work only on this sheet** (on both sides, if needed). MAKE SURE TO COPY YOUR ANSWERS TO A SEPARATE SHEET FOR SENDING ME AN ELECTRONIC COPY LATER.

In all Test problems, assume 32-bit words unless stated otherwise.

1. (20) Consider the code

```
.data
.rept 2
.string "abc"
.endr
```

At what offset will the second 'c' be stored?

2. Consider the following code, which multiplies a word labeled **x** in the **.data** segment by 9.

```
.text
.globl _start
_start:
    movl blank (a), %edx
    movl blank (b), %ecx
    shll blank (c), %edx
    addl blank (d)
    movl %edx, blank (e)
```

(a) (10) State what goes in blank (a).

(b) (10) State what goes in blank (b).

(c) (15) State what goes in blank (c).

(d) (15) State what goes in blank (d).

(e) (10) State what goes in blank (e).

3. (20) Give a single assembly instruction that places 1s in bit positions 0, 1 and 4 of EAX.