

1) What is R0 set to in the following code:

```
.ORIG    x3000
ADD     R0,R1,R1
ADD     R0,R0,R0
ADD     R0,R0,R1
ADD     R0,R0,R0
HALT
```

2) What is R0 set to in the following code:

```
        .ORIG    x3000
pop     AND     R0,R0,#0
        ADD     R1,R1,#0        ;; test the msb
        BRzp    skipf
        ADD     R0,R0,#1
skipf   AND     R2,R2,#0
        ADD     R2,R2,#15
loop    ADD     R1,R1,R1        ;; now test the other 15
        BRzp    skip
        ADD     R0,R0,#1
skip    ADD     R2,R2,#-1
        BRp     loop
        HALT
        .END
```

3) What does the following code do:

```
.ORIG    x3000
        LEA     R0,FILE        ;; R0 is beginning of string
        ADD     R1,R0,#-1
LOOP1   LDR     R3,R1,#1
        BRz     DONE1
        ADD     R1,R1,#1
        BR     LOOP1

DONE1   NOT     R2,R0
        ADD     R2,R2,R1

LOOP2   ADD     R2,R2,#0
        BRn    DONE2
        LDR     R3,R0,#0
        LDR     R4,R1,#0
        STR     R4,R0,#0
        STR     R3,R1,#0
        ADD     R0,R0,#1
        ADD     R1,R1,#-1
        ADD     R2,R2,#-2
        BR     LOOP2

DONE2   HALT

FILE    .STRINGZ "This is so much fun!"
        .END
```