

## Midterm #1

This is an open book exam. You are to turn in this exam at 4:20 PM.

**Problem 1: 5 points.**

List 3 reserved words in Pascal.

**Problem 2: 6 points.**

Which of the following are valid reals in Pascal? Circle your choices.

15E+6 3. 0.3

**Problem 3: 24 points.**

Give the type and value of each of the following expressions.

1000 MOD 1001

CHR(105)

4.0 \* (5 DIV 2)

21.3 / 7.1 \* 3.0

([3..5] + [7]) > [3,5,7]

TRUE AND FALSE OR NOT TRUE

**Problem 4: 10 points.**

The signal-to-noise ratio of a signal  $S$  to a noise  $N$  is commonly expressed in decibels as the quantity  $10 \log_{10}(S/N)$ . Assume that  $S$  and  $N$  have been declared to be reals and  $SN$  to be an integer. Write a Pascal statement to assign to  $SN$  the signal-to-noise ratio for  $S$  and  $N$ .

[Hint: Look at page 64. Another hint:  $\log_{10}(x) = \log_e(x) \log_e(10)$ .]

**Problem 5: 10 points.**

Suppose the REAL variable ``TEMP'' contains a body temperature reading. Give a Pascal statement that will write the temperature in the following format:

Your temperature is 98.6 degrees.

In this case, the value of TEMP was 98.62. (In other words, display only one digit after the decimal point.)

**Problem 6: 25 points.**

In this problem you are to complete a function NumFever. NumFever takes as its single argument an array of temperature readings and returns as its result the number of values in the array that are greater than 98.6.

```

TYPE
  RealArrType = ARRAY[1..30] OF REAL;
FUNCTION NumFever(T: RealArrType): INTEGER;
VAR

BEGIN

END { NumFever } ;

```

**Problem 7: 10 points.**

Define a record type that could be used to store the name and temperature of a child. You need only store the first name of the child.

**Problem 8: 10 points.**

If Pascal variables P, Q, and R are pointers to integers, what is printed when the following statements are executed?

```

NEW(P);
NEW(Q);
P^ := 5;
Q^ := 6;
R := P;
WRITELN(OUTPUT, P^, Q^, R^);
DISPOSE(R);
P := Q;
NEW(R);
Q := R;
Q^ := 7;
WRITELN(OUTPUT, P^, Q^, R^);

```