CS 1014
PRACTICE QUESTIONS SET # 2

1. **Fortran Arithmetic.** Evaluate the following Fortran expressions:

a) 2 / 3 + 12 / 3 * 2

b) 9 / (5 / 2) + 4 * * (5 / 2)

c) 7 / 2.0 * 4 + 5 / 2

d) INT(7/2.0) * 4 + REAL(5) / 2

Note: INT is an intrinsic function to convert from a real number to an integer and REAL is an intrinsic function to convert from an integer to a real number.

e) (7.0 / 2.0 - 5.0 / 2) * 2 / 2. 0

2. **Fortran Arithemetic.** Assume the following declarations to evaluate the expressions given below:

```
INTEGER, PARAMETER :: num1 = 8,  num2 = 2,  num3 = 5
REAL, PARAMETER :: x = 2.0,  y = 3.0, z = 5
```

a) num3 / x + y / num2

b) z / num2 + y / x / num2 * num1

c) num1 * num2 / z - INT(z) / REAL (num1)

d) y ** num2 / x + num1 / num3 - z / x

e) num1 / 3 + num3 * z / 2.0 + y / 2 + z / 2

3. **Fortran Arithmetic and Assignment Operator.** Assume the following declarations for variables i, j, x, and y:

```
INTEGER :: i, j
REAL :: x, y
```

a) What is the value of i after execution of the following statement?

```
i = 5.0 / 2 + 8 / 3.0
```

b) What is the value of j after execution of the following two lines of code?

```
i = 10 / 3.0
j = i * 2.5 + 5 / 2.0
```

c) What is the value of j after execution of the following three lines of code?

```
j = 10 / 3.0
j = j ** j
j = j + 9
```

d) What is the value of x after execution of the following code segment?

```
x = 2
i = 3
j = 4
x = i / x + x * 5 / j
```

e) What is the value of y after execution of the following code?

```
x = 4
y = 5
y =  y / x + x / y
```

4. **Input Statements.** Assume the following declarations:

```
INTEGER :: i, j
REAL :: x, y
```

a) **Unformatted READ.** Assume, the input file contains:

20	**10**	**5.2**	**9**	**10.5**

What are the values of i, j , x, and y after the following READ operation on the file?

```
READ(9, *) j, i, y, x
```

b) **Formatted READ with decimals in data.** Assume, the input file contains:

28911004.5612.455676577898787878987879134343442 44

What are the values of i, j, x, and y after the following READ on the file?

```
READ(9, 20) i, j, x, y
20   FORMAT(I4, I3, F4.2, F5.2)
```

c) **Formatted READ with no decimals in data.** Assume, the input file contains:

2891100456124556765778987878789878791343434424 4

What are the values of i, j, x, and y after the following READ on the file?

```
READ(9, 20) i, j, x, y
20   FORMAT(I4, I3, F4.2, F5.2)
```

d) **Formatted READ with spaces in data.** Assume, the input file contains:

□□9110□45□□1245567657789878787898787912 44

What are the values of i, j, x, and y after the following READ on the file?

```
READ(9, 20) i, j, x, y
20   FORMAT(I4, I3, F4.2, F5.2)
```

e) **Formatted READ with overriding decimals in data.** Assume, the input file contains:

28911004.561.24556765778987878789878791343434424 4

What are the values of i, j, x, and y after the following READ on the file?

```
READ(9, 20) i, j, x, y
20   FORMAT(I4, I3, F4.2, F5.2)
```

f) **Formatted READ with tabs.** Assume, the input file contains:

28911004.561.24556765778987878789878791343434424 4

What are the values of i, j, x, and y after the following READ on the file?

```
READ(9, 20) i, j, x, y
20   FORMAT(TR9, I3, TR3, I3, TR2,  F4.2, TR5, F5.2)
```

g) **Formatted READ with some repeating factor:** Assume, the input file contains:

2891100456124556765778987878789878791343434424 4

What are the values of i, j, x, and y after the following READ on the file?

```
READ(9, 20) i, j, x, y
20   FORMAT(2I4, 2 F4.2)
```

h) **Formatted READ with tabs and repeating factor:** Assume, the input file contains:

2891100456124556765778987878789878791343434424 4

What are the values of i, j, x, and y after the following READ on the file?

```
READ(9, 20) i, x, i, y
20   FORMAT(2(I4, TR3, F4.2))
```