Kelvin Abrokwa-Johnson 28 February 2015 Principles of Programming Languages

Homework 3

1.

B:
$$< x, 2 >$$
, $< y, 3 >$, $< x, 4 >$, $< a, 5 >$

A:
$$\langle x, 0 \rangle$$
, $\langle z, 2 \rangle$, $\langle y, 3 \rangle$, $\langle a, 10 \rangle$

C:
$$< y, 9 >$$
, $< x, 1 >$, $< z, 4 >$, $< a, 5 >$

A:
$$\langle x, 0 \rangle$$
, $\langle y, 3 \rangle$, $\langle a, 9 \rangle$, $\langle z, 4 \rangle$

D:
$$< a, 6 >$$
, $< y, 3 >$, $< a, 9 >$, $< z, 4 >$

2.

a. (a)
$$+*a \ b*/c \ d \ 3$$

(b)
$$a \ b * c \ d \ / \ 3 * +$$

(c)
$$(+(*a b)(*(/c d) 3))$$

b. (a)
$$-* + a b c * d - e 2$$

(b)
$$a b + c * d e 2 - * -$$

(c)
$$(-(*(+a b) c)(*d(-e 2)))$$

c. (a)
$$-a * b + c / - d + e = 7$$

(b)
$$a b c d 1 - e 7 + / + * -$$

(c)
$$(-a(*b(+c(/(-d\ 1)(+e\ 7)))))$$

3. 0 < 3 == 3 < 2

a. Python:
$$(0 < 3)$$
 and $(3 == 3)$ and $(3 < 2)$ - **FALSE**

b. C-like:
$$(0 < (3 == 3) < 2)$$
 - **TRUE**

c. Fortran:
$$((0 < 3) == 3) < 2$$
 - **TRUE**

4.

FileNotFound

ValueError

IsADirectoryError

IOError - Permission Denied