\*2.1\*

a) {, }

b) if

c) //

d) space, tab, newline

e) keywords

f) main

g) System.out.print, System.out.println, System.out.printf

\*2.2\*

a) False

b) True

c) False

d) True

e) False

\*2.4

2A: if (c < 7) {

System.out.println("c is less than 7");

}

2B: if (c >= 7) {

System.out.println("c is equal to or greater than 7");

}

2.7:

a) Comments are used to document a program and improve its readability.

b) A decision can be made in a Java program with a(n) if statement.

c) Calculations are normally performed by assignment statements.

d) The arithmetic operators with the same precedence as multiplication are division and modulus.

e) When parentheses in an arithmetic expression are nested, the innermost set of parentheses is evaluated first.

f) A location in the computer’s memory that may contain different values at various times throughout the execution of a program is called a(n) variable.

2.8 Write Java statements:

2a) Display the message "Enter an integer: ", leaving the cursor on the same line:

System.out.print("Enter an integer: ");

2b) Assign the product of variables b and c to variable a:

a = b \* c;

2c) Use a comment to state that a program performs a sample payroll calculation:

// This program performs a sample payroll calculation

2.9 State whether each of the following is true or false (with explanation):

a) Java operators are evaluated from left to right.

False – Operator precedence determines the order; multiplication, division, and modulus have higher precedence than addition and subtraction.

b) The following are all valid variable names: \_under\_bar, m928134, t5, j7, her\_sales$, his$account\_total, a, b$, c, z, and z2.

True – These follow Java’s variable naming rules (letters, digits, underscores, and dollar signs are allowed, and they can't start with a digit).

c) A valid Java arithmetic expression with no parentheses is evaluated from left to right.

False – Operator precedence determines the evaluation order, not left-to-right order.

d) The following are all invalid variable names: 3g, 87, 67h2, h22, and 2h.

True – Variables can't start with a digit and can't contain characters like h2 or 2h after a digit

2.10 Assuming that x = 2 and y = 3, what does each statement display?

a) System.out.printf("x = %d%n", x);

This will display:

x = 2

b) System.out.printf("Value of %d + %d is %d%n", x, x, (x + x));

This will display:

Value of 2 + 2 is 4

c) System.out.printf("x ="); System.out.printf("%d = %d%n", (x + y), (y + x));

This will display:

x =

5 = 5

2.11 Which of the following Java statements contain variables whose values are modified?

a) p = i + j + k + 7;

Yes – The value of p is modified.

b) System.out.println("variables whose values are modified");

No – This only prints a message; no variable value is changed.

c) System.out.println("a = 5");

No – This only prints a message; no variable value is changed.

d) value = input.nextInt();

Yes – The value of value is modified based on user input.

2.12 a) y = a \* x \* x \* x + 7;

Correct – This follows the correct order of operations for the equation.

b) y = a \* x \* x \* (x + 7);

Incorrect – This adds 7 to x before multiplying, which is not part of the equation.

c) y = (a \* x) \* x \* (x + 7);

Incorrect – This introduces an extra multiplication and addition, which changes the equation.

d) y = (a \* x) \* x \* x + 7;

Correct – This follows the correct order of operations for the equation.

e) y = a \* (x \* x \* x) + 7;

Correct – This is equivalent to ax³ + 7, which is correct.

f) y = a \* x \* (x \* x + 7);

Incorrect – This adds 7 inside the multiplication, which changes the equation.