**2.7**

1. Program statements\_\_ 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) The arithmetic operators with the same precedence as \_\_multiplication are modulus and division.

d) When parentheses in an arithmetic expression are nested, the \_\_innermost set of parentheses is evaluated first.

e) 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

2.9

State whether each of the following is true or false.

1. If false, explain why. a) Addition is executed first in the following expression: a \* b / (c + d) \* 5.

Attempt:

* True; because it is enclosed in parenthesis and according to the law of BODMAS, parenthesis are evaluated first.

1. The following are all valid variable names: AccountValue, $value, value\_in\_$, ac count\_no\_1234, US$, her\_sales\_in\_$, his\_$checking\_account, X!, \_$\_, a@b, and \_name.
2. In 2 + 3 + 5 / 4, addition has the highest precedence.

* Attempt: The division has higher precedence as it has the same precedence with multiplication and modulus.

1. The following are all invalid variable names: name@email.com, 87, x%, 99er, and 2\_.

* Attempt: True; because they contain characters that is not recognized in java as variables. E.g. %, 2,.

**2.10** Assuming that x = 5 and y = 1, what does each of the following statements display?

a) System.out.printf("x = %d%n", x + 5);

x = 10

1. System.out.printf("Value of %d \*%d is %d\n", x, y, (x \* y) );

Value of 5 4 5

1. System.out.printf("x is %d and y is %d", x, y); X is 5 and y is 1
2. System.out.printf("%d is not equal to %d\n", (x + y), (x \* y) );

6 is not equal to

5

**2.11** Which of the following Java statements contain variables whose values are not modified?

a) int m = (p + 2) + 3;

b) System.out.println("m = m + 1");

c) int m = p / 2;

d) int j = k + 2;

**2.12** Given that y = ax2 + 5x + 2, which of the following are correct Java statements for this equation?

a) y = a \* x \* x + 5 \* x + 2;

b) y = a \* x \* x + (5 \* x) + 2;

c) y = a \* x \* x + 5 \* (x + 2);

d) y = a \* (x \* x) + 5 \* x + 2;

e) y = a \* x \* (x + 5 \* x) + 2;

f) y = a \* (x \* x + 5 \* x + 2);

**2.13** What is the output that will be printed after execution of the following Java code snippet? Explain why.

int p = 5;

System.out.printf("%d", p + 2 \* 4);

* Attempt: It print 13. Because the values of higher precedence is evaluated first. Which means 2 \* 4 = 8, + 5 = 13

System.out.printf("%d", p \* 2 + 4);

Attempt: It would print 14. Because 5 \* 2 = 10, + 4 = 14.

**2.19** What does the following code print?

System.out.printf(" \*\*\*\*%n \*\*\*\*\*\*%n\*\*\*\*\*\*\*%n \*\*\*\*\*\*%n \*\*\*\*%n");

**2.20** What does the following code print?

System.out.println("\*");

System.out.println("\*\*\*");

System.out.println("\*\*\*\*\*");

System.out.println("\*\*\*\*");

System.out.println("\*\*");

**2.21** What does the following code print?

System.out.print("\*");

System.out.print("\*\*\*");

System.out.print("\*\*\*\*\*");

System.out.print("\*\*\*\*");

System.out.println("\*\*")