**Review Questions**

**Multiple Choice**

1. A \_\_\_\_\_\_\_\_\_\_ structure can execute a set of statements only under certain circumstances.

a. sequence

b. circumstantial

c. decision

d. Boolean

2. A \_\_\_\_\_\_\_\_\_\_ structure provides one alternative path of execution.

a. sequence

b. single alternative decision

c. one path alternative

d. single execution decision

3. A(n) \_\_\_\_\_\_\_\_\_\_ expression has a value of either true or false.

a. binary

b. decision

c. unconditional

d. Boolean

4. The symbols \_, \_, and == are all \_\_\_\_\_\_\_\_\_\_ operators.

a. relational

b. logical

c. conditional

d. ternary

5. A(n) \_\_\_\_\_\_\_\_\_ structure tests a condition and then takes one path if the condition is

true, or another path if the condition is false.

a. if statement

b. single alternative decision

c. dual alternative decision

d. sequence

6. You use a(n) \_\_\_\_\_\_\_\_\_\_ statement to write a single alternative decision structure.

a. test-jump

b. if

c. if-else

d. if-call

7. You use a(n) \_\_\_\_\_\_\_\_\_\_ statement to write a dual alternative decision structure.

a. test-jump

b. if

c. if-else

d. if-call

8. and, or, and not are \_\_\_\_\_\_\_\_\_\_ operators.

a. relational

b. logical

c. conditional

d. ternary

9. A compound Boolean expression created with the \_\_\_\_\_\_\_\_\_\_ operator is true only if

both of its subexpressions are true.

a. and

b. or

c. not

d. both

10. A compound Boolean expression created with the \_\_\_\_\_\_\_\_\_ operator is true if either

of its subexpressions is true.

a. and

b. or

c. not

d. either

11. The \_\_\_\_\_\_\_\_\_\_\_ operator takes a Boolean expression as its operand and reverses its

logical value.

a. and

b. or

c. not

d. either

12. A \_\_\_\_\_\_\_\_\_\_\_ is a Boolean variable that signals when some condition exists in the

program.

a. flag

b. signal

c. sentinel

d. siren

**True or False**

1. You can write any program using only sequence structures.

2. A program can be made of only one type of control structure. You cannot combine

structures.

3. A single alternative decision structure tests a condition and then takes one path if the

condition is true, or another path if the condition is false.

4. A decision structure can be nested inside another decision structure.

5. A compound Boolean expression created with the and operator is true only when both

subexpressions are true.

**Short Answer**

1. Explain what is meant by the term “conditionally executed.”

2. You need to test a condition and then execute one set of statements if the condition is

true. If the condition is false, you need to execute a different set of statements. What

structure will you use?

3. Briefly describe how the and operator works.

4. Briefly describe how the or operator works.

5. When determining whether a number is inside a range, which logical operator is it best

to use?

6. What is a flag and how does it work?

**Algorithm Workbench**

1. Write an if statement that assigns 20 to the variable y and assigns 40 to the variable

z if the variable x is greater than 100.

2. Write an if statement that assigns 0 to the variable b and assigns 1 to the variable c if

the variable a is less than 10.

3. Write an if-else statement that assigns 0 to the variable b if the variable a is less than

10. Otherwise, it should assign 99 to the variable b.

4. The following code contains several nested if-else statements. Unfortunately, it was

written without proper alignment and indentation. Rewrite the code and use the proper

conventions of alignment and indentation.

if score >= A\_SCORE:

print('Your grade is A.')

else:

if score >= B\_SCORE:

print('Your grade is B.')

else:

if score >= C\_SCORE:

print('Your grade is C.')

else:

if score >= D\_SCORE:

print('Your grade is D.')

else:

print('Your grade is F.')

5. Write nested decision structures that perform the following: If amount1 is greater than 10

and amount2 is less than 100, display the greater of amount1 and amount2.

6. Write an if-else statement that displays 'Speed is normal' if the speed variable

is within the range of 24 to 56. If the speed variable’s value is outside this range,

display 'Speed is abnormal'.

7. Write an if-else statement that determines whether the points variable is outside the

range of 9 to 51. If the variable’s value is outside this range it should display “Invalid

points.” Otherwise, it should display “Valid points.”