

Test Bank for Problem Solving with C++: The Object of Programming, 10/e
Chapter 3 More Flow of Control

TRUE/FALSE

1. A boolean expression may evaluate to more than 2 values
ANSWER: FALSE
2. A function may return a boolean value.
ANSWER: TRUE
3. In an enumerated data type, different constants may not have the same value.
ANSWER: FALSE
4. The compiler always pairs an else with _____
ANSWER: the nearest previous if not already paired with an else.
5. All switch statements can be converted into nested if-else statements
ANSWER: TRUE
6. All nested if-else statements can be converted into switch statements.
ANSWER: FALSE
7. A break statement in a switch stops your program.
ANSWER: FALSE
8. It is illegal to make function calls inside a switch statement.
ANSWER: FALSE
9. A semicolon by itself is a valid C++ statement.
ANSWER: TRUE
10. The break statement causes all loops to exit.
ANSWER: FALSE

Short Answer

1. A _____ expression is an expression that can be thought of as being true or false.
ANSWER: boolean
2. _____ is a type whose values are defined by a list of constants of type int.
ANSWER: enumerated data type
3. The code following the _____ case is executed if none of the other cases are matched in a switch statement.
ANSWER: default
4. A compound statement that contains variable declarations is called a _____.
ANSWER: block
5. Variables defined inside a set of braces are said to be _____ to that block of code.
ANSWER: local
6. Each repetition of a loop body is called _____.
ANSWER: an iteration
7. A _____ loop always executes the loop body at least once, irregardless of the loop condition.
ANSWER: do-while
8. A switch statement variable must be _____.
ANSWER: an integer, bool, char or enumerated type
9. A loop that iterates one too many or one too few times is said to be _____.
ANSWER: off by one

Multiple Choice

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1. Which boolean operation is described by the following table?

A	B	Operation
True	True	True
True	False	True
False	True	True
False	False	False

- a. or
- b. and
- c. not
- d. none of the above

ANSWER: A

2. Which boolean operation is described by the following table?

A	B	Operation
True	True	True
True	False	False
False	True	False
False	False	False

- a. or
- b. and
- c. not
- d. none of the above

ANSWER: B

3. Which of the following symbols has the highest precedence?

- a. ++
- b. ||
- c. &&
- d. -

ANSWER: A

4. If a programming language does not use short-circuit evaluation, what is the output of the following code fragment if the value of myInt is 0?

```
int other=3, myInt;  
if(myInt !=0 && other % myInt !=0)  
    cout << "other is odd\n";  
else  
    cout << "other is even\n";
```

- a. other is even
- b. other is odd
- c. 0
- d. run-time error, no output

ANSWER: D

5. What is the value of the following expression?

(true && (4/3 || !(6)))

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- a. true
- b. false
- c. 0
- d. illegal syntax

ANSWER: A

6. if x is 0, what is the value of (!x ==0)?
- a. false
 - b. true
 - c. unable to determine
 - d. A

ANSWER: A

7. Which of the following are equivalent to (!(x<15 && y>=3))?
- a. (x>15 && y<=3)
 - b. (x>=15 && y < 3)
 - c. (x>=15 || y < 3)
 - d. (x>15 || y < 3)
 - e. C and D

ANSWER: C

8. Which of the following boolean expressions tests to see if x is between 2 and 15 (including 2 and 15)?
- a. (x<=15 || x>=2)
 - b. (2 <=x || x <=15)
 - c. (x >=2 && x <=15)
 - d. (2 <= x <= 15)

ANSWER: C

9. Given the following enumerated data type definition, what is the value of SAT?
- ```
enum myType{SUN,MON,TUE,WED,THUR,FRI,SAT,NumDays};
```
- a. 7
  - b. 6
  - c. 8
  - d. 5
  - e. unknown

ANSWER: b

10. Given the following enumerated data type definition, what is the value of SAT?
- ```
enum myType{SUN=3,MON=1,TUE=3,WED,THUR,FRI,SAT,NumDays};
```
- a. 7
 - b. 6
 - c. 8
 - d. 5
 - e. unknown

ANSWER: A

11. What is the output of the following code fragment if x is 15?
- ```
if(x < 20)
 if(x <10)
 cout << "less than 10 ";
else
```

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```
cout << "large\n";
```

- a. less than 10
- b. nothing
- c. large
- d. no output, syntax error

ANSWER: C

12. What is the output of the following code fragment?

```
int i=5;
switch(i)
{
 case 0: i=15;break;
 case 1: i=25;break;
 case 2: i=35;break;
 case 3: i=40;
 default: i=0;
}
cout << i <<endl;
```

- a. 15
- b. 25
- c. 35
- d. 40
- e. 0
- f. 5

ANSWER: E

13. What is wrong with the following switch statement?

```
int ans;
cout <<"Type y for yes on n for no\n";
cin >> ans;
switch (ans)
{
 case 'y':
 case 'Y': cout << "You said yes\n"; break;
 case 'n':
 case 'N': cout << "You said no\n"; break;
 default: cout <<"invalid answer\n";
}
}
```

- a. ans is a int
- b. break; is illegal syntax
- c. nothing
- d. there are no break statements on 2 cases.

ANSWER: A

14. Which of the following data types can be used in a switch controlling expression?

- a. int
- b. char

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- c. float
- d. enum
- e. double
- f. d and e
- g. a and b
- h. a,b and d
- i. all of the above

ANSWER: H

15. What is the output of the following code fragment?

```
int x=0;
{
 int x=13;
 cout << x <<" ";
}
cout << x << endl;
```

- a. 13,13
- b. 0,13
- c. 13,0
- d. nothing, there is a syntax error.

ANSWER: C

16. What is the output of the following code fragment?

```
{
 int x=13;
 cout << x <<" ";
}
cout << x << endl;
```

- a. 13,13
- b. 0,13
- c. 13,0
- d. nothing, there is a syntax error.

ANSWER: D

17. What is the value of x after the following code executes?

```
int x=10;
if(x++ >10)
{
 x =13;
}
```

- a. 10
- b. 9
- c. 13
- d. 11

ANSWER: A

18. What is the value of x after the following code executes?

```
int x=10;
if(++x >10)
{
```

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```
 x =13;
 }
```

- a. 10
- b. 9
- c. 13
- d. 11

ANSWER: C

19. How many times is "Hi" printed to the screen

```
for(int i=0;i<14;i++);
 cout <<"Hi\n";
```

- a. 13
- b. 15
- c. 14
- d. 1

ANSWER: D

20. Given the following code, what is the final value of i?

```
int i;
for(i=0; i<=4;i++)
{
 cout << i << endl;
}
```

- a. 3
- b. 4
- c. 5
- d. 0

ANSWER: C

21. Given the following code, what is the final value of i?

```
int i,j;
for(i=0;i<4;i++)
{
 for(j=0;j<3;j++)
 {
 if(i==2)
 break;
 }
}
```

- a. 3
- b. 4
- c. 5
- d. 0

ANSWER: B

22. Which of the following is not a good reason for choosing a certain loop control?

- a. What the loop does
- b. The minimum number of iterations of the loop
- c. The condition for ending the loop
- d. If the loop is in a function

ANSWER: D

23. If you want a loop to quit iterating if  $x < 10$  and  $y > 3$ , what would be the proper loop condition test?
- $(x < 10 \ \&\& \ y > 3)$
  - $(x > 10 \ || \ y < 3)$
  - $(x \geq 10 \ \&\& \ y \leq 3)$
  - $(x \geq 10 \ || \ y \leq 3)$

ANSWER: D

24. If you need to write a do-while loop that will ask the user to enter a number between 2 and 5 inclusive, and will keep asking until the user enters a correct number, what is the loop condition?
- $(2 \leq \text{num} \leq 5)$
  - $(2 < 5 < \text{number})$
  - $(2 \leq \text{number} \ \&\& \ \text{number} \leq 5)$
  - $(2 < \text{number} \ || \ \text{number} > 5)$
  - $(2 > \text{number} \ \&\& \ \text{number} > 5)$

ANSWER: D

25. Which loop structure always executes at least once?
- do-while
  - for
  - while
  - sentinel

ANSWER: A

26. Which of the following are allowed in the third section of the for loop statement?
- $i++$
  - $i--$
  - $i += 2$
  - `cout << "Hello\n"`
  - all of the above
  - none of the above

ANSWER: E

27. Which of the following data types may be used in a switch statement?
- int
  - char
  - enum
  - long
  - all of the above
  - a and d

ANSWER: E

28. Which of the following are valid case statements in a switch?
- case 1:
  - case  $x < 4$ :
  - case 'ab':
  - case 1.5:

ANSWER: A

29. When testing a program with a loop, which of the following tests should be done?

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- a. no iterations of the loops
- b. one less than the maximum number of iterations
- c. the maximum number of iterations
- d. one more than the maximum number of iterations
- e. A and B
- f. A, B and C

ANSWER: F

30. What is wrong with the following for loop?

```
for(int i=0;i<10;i--)
{
 cout << "Hello\n";
}
```

- a. can not use a for-loop for this
- b. i is not initialized
- c. infinite loop
- d. off-by-one error

ANSWER: C

31. What is NOT an advantage of an enum class over a standard enum?

- a. Doesn't map to an integer
- b. Values are not global in scope
- c. Occupies less memory

ANSWER: C