

APCSA MCT 40Q Practice No. 2 - May 2019**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. How many values can a variable store at one time?
a. 1 d. 10
b. 2 e. Unlimited
c. 5
- _____ 2. Which operator is used to assign a new value to a variable?
a. += d. -
b. == e. =
c. *
- _____ 3. Which data type is most appropriate to record a person's best distance in the track and field long jump event?
a. int d. char
b. double e. long
c. boolean
- _____ 4. A variable declared with a class is called a(n)
a. method. d. object.
b. identifier. e. primitive.
c. keyword.
- _____ 5. Which statement is used to make the members of a package accessible to an application?
a. class d. static
b. public e. final
c. import
- _____ 6. Which operator is used for modulus division?
a. / d. #
b. \ e. !
c. %
- _____ 7. What is the result of the following expression when `x` is 125?
`x % 6`
a. 0 d. 20.5
b. 5 e. 750
c. 20
- _____ 8. Which expression does not evaluate to 0.6?
a. `6.0 / 10;` d. `(int) 6.5 / (int) 10;`
b. `6 / 10.0;` e. `(double) (6 / 10);`
c. `(int) 6.5 / (double) 10;`
- _____ 9. Which statement declares a constant named `PRICE` with a value of 5.25?
a. `final PRICE = 5.25;`
b. `double PRICE = $5.25;`
c. `static double PRICE = 5.25;`
d. `final double PRICE = 5.25;`
e. `private int PRICE = 5.25;`

- _____ 10. Which code segment displays the circle area when the radius is a positive value?
- `if(radius != 0) {
 System.out.println("The radius is: " + radius * radius * Math.PI);
}`
 - `if(radius >= 0) {
 System.out.println("The radius is: " + radius * radius * Math.PI);
}`
 - `if(radius > 0) {
 System.out.println("The radius is: " + radius * radius * Math.PI);
}`
 - `if(radius == 0) {
 System.out.println("The radius is: " + radius * radius * Math.PI);
}`
 - `if(radius < 0) {
 System.out.println("The radius is: " + radius * radius * Math.PI);
}`

- _____ 11. Given the following code segment:

```
if( guess == selected )
    System.out.println( "Correct" );
else
    System.out.println("Incorrect");
```

Which is displayed when guess is 8 and selected is 9?

- Correct
 - Incorrect
 - No message would be displayed.
 - Correct on one line and Incorrect on the next line
 - Correct Incorrect
- _____ 12. Given the following code segment:

```
if( x > 0 )
{
    if( y > 0 )
        System.out.println( "x and y" );
    else if( z > 0 )
        System.out.println( "x and z" );
}
```

Which is displayed when x = 56, y = -234, and z = -45?

- x and y
 - x and z
 - 56 and -45
 - No output will be displayed.
 - y and z
- _____ 13. Which is equivalent to the expression `!(x && y)`?
- `!(!x) || (!y)`
 - `!(x || y)`
 - `(x || y) && (x && y)`
 - `(x || y)`
 - `(!x) || (!y)`

_____ 14. Given the following code segment:

```
int x = 4;
int num = 10;
while( num > x )
{
    x = x + 2;
    System.out.println( x );
}
```

Which will be displayed when the code segment is executed?

- a. 4
6
8
10
- b. 4
6
8
- c. 6
8
10
- d. 10
- e. 10
8
6

_____ 15. Given the following code segment:

```
int x = 0;
while( x < 10 )
    x = x + 2;
```

How many times will the body of the loop execute?

- a. 0
- b. 2
- c. 5
- d. 9
- e. 10

_____ 16. Given the following code segment:

```
int x = 0;
int num = 10;
while( num > x )
{
    num = num + 2;
}
```

How many times will the body of the loop execute?

- a. 0
- b. 2
- c. 5
- d. 10
- e. an infinite number

_____ 17. Which String class method returns an integer corresponding to the number of characters in the string?

- a. length()
- b. substring()
- c. trim()
- d. toLowerCase()
- e. equals()

- _____ 18. Which String class method returns true if the string length is 0?
- a. length()
 - b. isEmpty()
 - c. trim()
 - d. substring()
 - e. equals()

- _____ 19. Given the following code segment:

```
String greeting = "HELLO";
String greeting2 = "Hello";
int value;
value = greeting.compareToIgnoreCase( greeting2 );
```

Which is stored in `value` after the statements execute?

- a. the value 0
 - b. a positive number
 - c. a negative number
 - d. True
 - e. False
- _____ 20. How many parameters are declared in the statement
- ```
public static void checkGuess(int length, int width)?
```
- a. 1
  - b. 2
  - c. 3
  - d. 4
  - e. 0

- \_\_\_\_\_ 21. Given the following code segment:

```
public static void prob(int x, int y)
{
 System.out.print(x + " ");
 if(x <= y)
 System.out.println(x + y);
}
```

Which will be displayed when `prob( 6, 7 )` is called?

- a. 6 7
  - b. x + 6
  - c. x + 7
  - d. 6 13
  - e. 6 7 13
- \_\_\_\_\_ 22. When more than one method of the same name is included in a class, it is referred to as method
- a. passing.
  - b. duplicating.
  - c. overloading.
  - d. voiding.
  - e. overriding

\_\_\_\_\_ 23. Given the following code segment:

```
public static int prob2(int x, int y)
{
 y += x * 2;
 return(y);
}

public static void main(String[] args)
{
 int j = 6
 k = 4;
 j = prob2(j, k);
 System.out.println(j);
}
```

Which will be displayed after the code executes?

- |        |       |
|--------|-------|
| a. 4 6 | d. 20 |
| b. 12  | e. 24 |
| c. 16  |       |
- \_\_\_\_\_ 24. How many values can a `return` statement return?
- |      |                         |
|------|-------------------------|
| a. 0 | d. 3                    |
| b. 1 | e. An unlimited number. |
| c. 2 |                         |
- \_\_\_\_\_ 25. A statement of what must be true at the end of the execution of a procedure is called a(n)
- |                   |                     |
|-------------------|---------------------|
| a. precondition.  | d. procedure        |
| b. postcondition. | e. return statement |
| c. comment        |                     |
- \_\_\_\_\_ 26. Which is true about objects?
- |                                         |  |
|-----------------------------------------|--|
| I. Objects can store data.              |  |
| II. Objects can perform actions.        |  |
| III. Objects can provide communication. |  |
- |                   |                   |
|-------------------|-------------------|
| a. I only         | d. I, II, and III |
| b. I and II only  | e. II only        |
| c. II and II only |                   |
- \_\_\_\_\_ 27. Which is a data type that defines variables for the state of an object and methods for an object's behavior?
- |                  |         |
|------------------|---------|
| a. String        | d. int  |
| b. class         | e. char |
| c. encapsulation |         |
- \_\_\_\_\_ 28. Which are called from within a class by other methods?
- |                     |                        |
|---------------------|------------------------|
| a. accessor methods | d. constructor methods |
| b. modifier methods | e. overloaded methods  |
| c. helper methods   |                        |
- \_\_\_\_\_ 29. Classes that are derived from existing classes demonstrate a(n)
- |                            |                        |
|----------------------------|------------------------|
| a. has-a relationship.     | d. was-a relationship. |
| b. is-a relationship.      | e. not-a relationship. |
| c. derived-a relationship. |                        |

- \_\_\_\_\_ 30. Which is an object-oriented programming feature in which objects have the ability to assume different types?
- a. inheritance
  - b. methods
  - c. constructors
  - d. polymorphism
  - e. abstraction

*Given the following code segment:*

```
public class Box extends Square
{
 private double sides;

 // other class code present but not visible
}
```

- \_\_\_\_\_ 31. Which is the superclass?
- a. Square
  - b. Box
  - c. sides
  - d. extends
  - e. Cube
- \_\_\_\_\_ 32. A data item in an array is called a(n)
- a. index.
  - b. unit.
  - c. data.
  - d. pointer.
  - e. element.
- \_\_\_\_\_ 33. *Given the following code segment:*

```
public class Test
{
 public static void main(String[] args)
 {
 int[] i = new int[10];
 System.out.println("The value of i[2] is: " + i[2]);
 }
}
```

Which will be displayed after the code executes?

- a. The value of i[2] is i.
  - b. The value of i[2] is 0.
  - c. The value of i[2] is 2.
  - d. The value of i[2] is 10.
  - e. A run-time error is generated because i[2] is not assigned a value.
- \_\_\_\_\_ 34. When an array is passed to a method, the method receives
- a. a copy of the array.
  - b. a copy of the first element.
  - c. the reference to the elements.
  - d. the data stored in each element.
  - e. the actual array.
- \_\_\_\_\_ 35. Which is stored when a letter is assigned a char variable?
- a. the binary representation of the letter
  - b. the Unicode representation of the letter
  - c. the actual letter
  - d. an index value between 1 and 26
  - e. the String representation of the letter

- \_\_\_\_\_ 36. In Unicode, uppercase letters from A to Z have values
- a. 0 through 64
  - b. 65 through 90
  - c. 97 through 122
  - d. 122 through 150
  - e. A through Z
- \_\_\_\_\_ 37. The Comparable interface must be implemented if objects are to be
- a. sorted.
  - b. searched.
  - c. deleted.
  - d. represented graphically.
  - e. represented numerically.
- \_\_\_\_\_ 38. The process when a method calls itself is referred to as
- a. polymorphism.
  - b. inheritance.
  - c. recursion.
  - d. sorting.
  - e. searching.
- \_\_\_\_\_ 39. *Given the following code segment:*

```
public static void main(String[] args)
{
 Queue q = new Queue(10);
 q.enqueue(55);
 q.enqueue(84);
 q.enqueue(24);
 System.out.println(q.size());
 q.enqueue(14);
 q.dequeue();
 System.out.println(q.front());
 System.out.println(q.size());
}
```

Which will be displayed when the code is run?

- a. 3  
84  
3
  - b. 10  
55  
4
  - c. 3  
55  
4
  - d. 3  
84  
4
  - e. 3  
24  
4
- \_\_\_\_\_ 40. Which sorting algorithm repeatedly finds the lowest item from a portion of a list and swaps it with the item at index?
- a. merge sort
  - b. selection sort
  - c. insertion sort
  - d. linear sort
  - e. binary sort

## APCSA MCT 40Q Practice No. 2 - May 2019

## Answer Section

## MULTIPLE CHOICE

|            |        |                                               |
|------------|--------|-----------------------------------------------|
| 1. ANS: A  | PTS: 1 | TOP: Using Variables                          |
| 2. ANS: E  | PTS: 1 | TOP: Using Variables                          |
| 3. ANS: B  | PTS: 1 | TOP: Primitive Data Types                     |
| 4. ANS: D  | PTS: 1 | TOP: Abstract Data Types                      |
| 5. ANS: C  | PTS: 1 | TOP: Java Packages                            |
| 6. ANS: C  | PTS: 1 | TOP: Numeric Expressions                      |
| 7. ANS: B  | PTS: 1 | TOP: Numeric Expressions                      |
| 8. ANS: E  | PTS: 1 | TOP: Type Casting                             |
| 9. ANS: D  | PTS: 1 | TOP: Using Named Constants                    |
| 10. ANS: C | PTS: 1 | TOP: The if Statement   The Math Class        |
| 11. ANS: B | PTS: 1 | TOP: The if-else Statement                    |
| 12. ANS: D | PTS: 1 | TOP: The if-else if Statement                 |
| 13. ANS: E | PTS: 1 | TOP: Compound Boolean Expressions             |
| 14. ANS: C | PTS: 1 | TOP: The while Statement                      |
| 15. ANS: C | PTS: 1 | TOP: The do-while Statement                   |
| 16. ANS: E | PTS: 1 | TOP: Infinite Loops                           |
| 17. ANS: A | PTS: 1 | TOP: The String Class                         |
| 18. ANS: B | PTS: 1 | TOP: The String Class                         |
| 19. ANS: A | PTS: 1 | TOP: Comparing Strings                        |
| 20. ANS: B | PTS: 1 | TOP: Method Parameters                        |
| 21. ANS: D | PTS: 1 | TOP: Method Parameters                        |
| 22. ANS: C | PTS: 1 | TOP: Method Overloading                       |
| 23. ANS: C | PTS: 1 | TOP: Method Parameters   The return Statement |
| 24. ANS: B | PTS: 1 | TOP: The return Statement                     |
| 25. ANS: B | PTS: 1 | TOP: Documenting Methods                      |
| 26. ANS: D | PTS: 1 | TOP: What is an Object?                       |
| 27. ANS: B | PTS: 1 | TOP: What is an Object?                       |
| 28. ANS: C | PTS: 1 | TOP: Designing and Writing a Class            |
| 29. ANS: B | PTS: 1 | TOP: Extending a Class                        |
| 30. ANS: D | PTS: 1 | TOP: Polymorphism                             |
| 31. ANS: A | PTS: 1 | TOP: Implementing a Subclass                  |
| 32. ANS: E | PTS: 1 | TOP: Declaring Arrays                         |
| 33. ANS: B | PTS: 1 | TOP: Declaring Arrays                         |
| 34. ANS: C | PTS: 1 | TOP: Array Parameters                         |
| 35. ANS: B | PTS: 1 | TOP: Characters and Arrays                    |
| 36. ANS: B | PTS: 1 | TOP: Characters and Arrays                    |
| 37. ANS: A | PTS: 1 | TOP: Sorting Objects                          |
| 38. ANS: C | PTS: 1 | TOP: Recursion                                |
| 39. ANS: A | PTS: 1 | TOP: The Queue Class                          |
| 40. ANS: B | PTS: 1 | TOP: Selection Sort                           |