

**Unit 2 AP Computer Science A Practice Exam**  
**Objects, Classes, and the String and Math Classes**

Section I – Multiple Choice

Optional Time – 25 minutes

20 Questions

- 1) Java is known as a(n) \_\_\_\_\_ - oriented programming language.
  - (A) class
  - (B) object
  - (C) field
  - (D) code
- 2) Complete the analogy:  
Blueprints are to houses as \_\_\_\_\_ are to \_\_\_\_\_.
  - (A) classes, fields
  - (B) objects, classes
  - (C) objects, methods
  - (D) classes, objects
- 3) In Java, objects:
  - I. Do the actual “work”.
  - II. Are derived (created from) classes.
  - III. Are limited to only 100 per program.
  - (A) I only
  - (B) II only
  - (C) I and II
  - (D) II and III
  - (E) I, II, and III
- 4) What part of a Java class defines the behavior of a class (what it can do)?
  - (A) Fields
  - (B) Constructors
  - (C) Methods
  - (D) Main methods
- 5) Which of the following are true about constructors of a Java class?
  - I. Constructors “construct” classes.
  - II. Constructors initialize the fields of a newly created object.
  - III. Constructors have the same name of the class they are in.
  - (A) I only
  - (B) II only
  - (C) I and II
  - (D) II and III
  - (E) I, II, and III
- 6) Class names usually begin with a(n)?
  - A) Lowercase letter
  - B) Capital letter
  - C) Number
  - D) Underscore
- 7) Classes \_\_\_\_\_ in Java.
  - (A) define a type.
  - (B) do the actual work.
  - (C) convert Java code into binary for the computer to understand.
  - (D) define what a field knows and what that field can do.
- 8) When a method does not return anything, it is considered \_\_\_\_\_.
  - (A) static
  - (B) void
  - (C) the main method
  - (D) Main methods

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9) APIs stand for?

- (A) Application Profile Instantiation
- (B) Application Program Interface
- (C) Applicable Program Interface
- (D) None of the above

10) Which of the following are true about String objects?

- I. String objects are immutable, meaning that their methods do not modify the object itself.
- II. String objects can be concatenated together using the + operator.
- III. Primitive values, such as integers and doubles, can be concatenated to string objects, and in doing so, are also converting to into the string type.

- (A) I only
- (B) II only
- (C) I and II
- (D) II and III
- (E) I, II, and III

11) Which of the following associations between escape characters and their purpose are false?

- I. \" – Allows for double quotes inside of string literals.
- II. \\ – Allows for new lines inside of string literals.
- III. \n – Allows for tabs inside of string literals.

- (A) I only
- (B) II only
- (C) I and II
- (D) II and III
- (E) I, II, and III

12) Given any string, at which index is the string's first character located?

- (A) 0
- (B) 1
- (C) Length of the string
- (D) Length of the string – 1

13) What is the output of the code below?

```
String myString = "Hello, world!";  
System.out.println(myString.length());
```

- (A) 10
- (B) 12
- (C) 13
- (D) 15

14) What is the output of the code below?

```
String myString = "Hello, world!";  
System.out.println(myString.substring(1,2));
```

- (A) H
- (B) e
- (C) He
- (D) el

15) What is the output of the code below?

```
String myString = "Hello, world!";  
System.out.println(myString.indexOf("!"));
```

- (A) 11
- (B) 12
- (C) 13
- (D) 14

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16) What is the output of the code below?

```
String apple = "apple";  
String android = "android";  
  
System.out.println(apple.compareTo(android));
```

- (A) true
- (B) false
- (C) 1
- (D) 2

17) What is the output of the code below?

```
double myDouble = Math.pow(2, 3);  
  
System.out.println(myDouble);
```

- (A) 8
- (B) 8.0
- (C) 9
- (D) 9.0

18) Which of the following outputs is not possible from the code below?

```
double myDouble = Math.random();  
  
System.out.println(myDouble);
```

- (A) 0.6620460321590499
- (B) 0.007017489720703707
- (C) 0.0
- (D) 1.0

19) Which package are both the Math and String class part of?

- (A) java.classes
- (B) java.util
- (C) java.lang
- (D) java.pkgs

20) Which of the following are true about static methods?

- I. Static methods are used on objects not initialized.
- II. All of the methods from the String class are static methods.
- III. Only the .random( ) and .pow( ) methods from the Math class are static, and the rest are not.

- (A) I only
- (B) II only
- (C) I and II
- (D) II and III
- (E) I, II, and III

## END OF SECTION I

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Good luck!

Section II – Free Response Section

Optional Time – 25 minutes

1 Question

1) In the space below, design a class from scratch named `Car` that contains the following fields:

1. The class must contain the following fields:

Field Name	Field Description
<code>make</code>	Describes the brand name of the car.
<code>Model</code>	Describes the model name of the car.
<code>isConvertible</code>	Describes whether or not the car is a convertible.
<code>numPassengers</code>	Describes the number of passengers in the car.

2. Design and implement a constructor for your new `Car` class that takes in values for all four fields and initializes them.

3. Design and implement the following fields to your `Car` class:

Method Name	Field Description
<code>addNumPassengers</code> <code>(int newPassengersToAdd)</code>	The method adds the number of passengers passed into the parameter to the <code>numPassengers</code> field.
<code>printMakeModel</code> <code>()</code>	The method prints the make and then the model of the car, with a space separating them.

4. You must use the appropriate keywords and fully complete the class to receive full credit.

Complete the `Car` class below.

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```
/** Defines the Car type. */  
public class Car
```

**END OF SECTION II**

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