Chapter 4: Core API's

1. What is output by the following code? (Choose all that apply.)

```
1: public class Fish {
2:     public static void main(String[] args) {
3:         int numFish = 4;
4:         String fishType = "tuna";
5:         String anotherFish = numFish + 1;
6:         System.out.println(anotherFish + " " + fishType);
7:         System.out.println(numFish + " " + 1);
8: } }
```

A. 4 1
B. 5
C. 5 tuna
D. 5tuna
E. 51tuna
F. The code does not compile.
//En la linea 5, un String no puede contener valores de tipo int

2. Which of these array declarations are not legal? (Choose all that apply.)

```
A. int[][] scores = new int[5][];
B. Object[][][] cubbies = new Object[3][0][5];
C. String beans[] = new beans[6];
//Debería ser new String[6]
D. java.util.Date[] dates[] = new java.util.Date[2][];
E. int[][] types = new int[];
F. int[][] java = new int[][];
//No se declara el tamaño de los arreglos
```

3. Note that March 13, 2022 is the weekend when we spring forward, and
    November 6, 2022 is when we fall back for daylight saving time. Which of the

following can fill in the blank without the code throwing an exception? (Choose all that apply.)

```java
var zone = ZoneId.of("US/Eastern");
var date = ;
var time = LocalTime.of(2, 15);
var z = ZonedDateTime.of(date, time, zone);
```

A. LocalDate.of(2022, 3, 13)
B. LocalDate.of(2022, 3, 40)
//No hay 40 días en un mes
C. LocalDate.of(2022, 11, 6)
D. LocalDate.of(2022, 11, 7)
E. LocalDate.of(2023, 2, 29)
//No hay 29 de febrero.
F. LocalDate.of(2022, MonthEnum.MARCH, 13);

4. Which of the following are output by this code? (Choose all that apply.)

```java
3: var s = "Hello";
4: var t = new String(s);
5: if ("Hello".equals(s)) System.out.println("one"); //true
6: if (t == s) System.out.println("two");
         //false: son diferentes objetos
7: if (t.intern() == s) System.out.println("three"); //true
8: if ("Hello" == s) System.out.println("four"); //true
9: if ("Hello".intern() == t) System.out.println("five");
          //false son diferentes objetos
```

A. one
B. two
C. three
D. four
E. five

F. The code does not compile.

G. None of the above

5. What is the result of the following code?

```
7: var sb = new StringBuilder();
8: sb.append("aaa").insert(1, "bb").insert(4, "ccc");
//aaa -> abbaa -> abbaccca
9: System.out.println(sb);

A. abbaaccc
B. abbaccca
C. bbaaaccc
D. bbaaccca
E. An empty line
F. The code does not compile.
```

6. How many of these lines contain a compiler error? (Choose all that apply.)

```
23: double one = Math.pow(1, 2);
24: int two = Math.round(1.0);
    //Es un int pero se llama a un float por el round.
25: float three = Math.random();
    //Un valor random no puede ser float.
26: var doubles = new double[] {one, two, three};

A. 0
B. 1
C. 2
D. 3
E. 4
```

7. Which of these statements is true of the two values? (Choose all that apply.)

```
2022-08-28T05:00 GMT-04:00
2022-08-28T09:00 GMT-06:00
```

A. The first date/time is earlier.
B. The second date/time is earlier.
C. Both date/times are the same.
D. The date/times are two hours apart.
E. The date/times are six hours apart.
//Se suma la diferencia de horas y las zonas horarias.
F. The date/times are 10 hours apart.

8. Which of the following return 5 when run independently? (Choose all that apply.)

```
var string = "12345";
var builder = new StringBuilder("12345");
```

A. builder.charAt(4)
//5 se encuentra en el indice 4.
B. builder.replace(2, 4, "6").charAt(3)
//Cambia y añade valores,
   por lo que 5 se encuetra ahora en el indice 3.
C. builder.replace(2, 5, "6").charAt(2)
D. string.charAt(5)
E. string.length
F. string.replace("123", "1").charAt(2)
//Se remplazan los primeros 3 valores con un valor uno,
   5 toma el indice 2.
G. None of the above

9. Which of the following are true about arrays? (Choose all that apply.)

A. The first element is index 0.
B. The first element is index 1.
C. Arrays are fixed size.

D. Arrays are immutable.
E. Calling equals() on two different arrays containing the same primitive values always returns true.
F. Calling equals() on two different arrays containing the same primitive values always returns false.
G. Calling equals() on two different arrays containing the same primitive values can return true or false.

10. How many of these lines contain a compiler error? (Choose all that apply.)

```
23: int one = Math.min(5, 3);
24: long two = Math.round(5.5);
25: double three = Math.floor(6.6);
26: var doubles = new double[] {one, two, three};
```

A. 0
//Todas las lineas de codígo compilaran.
B. 1
C. 2
D. 3
E. 4

11. What is the output of the following code?

```
var date = LocalDate.of(2022, 4, 3);
date.plusDays(2);
date.plusHours(3);
System.out.println(date.getYear() + " "
+ date.getMonth() + " " + date.getDayOfMonth());
```

A. 2022 MARCH 4
B. 2022 MARCH 6
C. 2022 APRIL 3
D. 2022 APRIL 5
E. The code does not compile.

```
//No contiene elementos de tiempo en horas.
F. A runtime exception is thrown.
```

12. What is output by the following code? (Choose all that apply.)

```
var numbers = "012345678".indent(1);
numbers = numbers.stripLeading();
System.out.println(numbers.substring(1, 3)); //012345678
System.out.println(numbers.substring(7, 7)); //0123456 78
System.out.print(numbers.substring(7)); //012345678

A. 12
B. 123
C. 7
D. 78
E. A blank line
F. The code does not compile.
G. An exception is thrown.
```

13. What is the result of the following code?

```
public class Lion {
    public void roar(String roar1, StringBuilder roar2) {
        roar1.concat("!!!");
        roar2.append("!!!");
}
    public static void main(String[] args) {
        var roar1 = "roar";
        var roar2 = new StringBuilder("roar");
        new Lion().roar(roar1, roar2);
        System.out.println(roar1 + " " + roar2);
} }

A. roar roar
B. roar roar!!!
```

```
//roar1 se mantiene igual porque es inmutable
    roar2 añade !!! porque es StringBuilder.
```
C. roar!!! roar

D. roar!!! roar!!!

E. An exception is thrown.

F. The code does not compile.

14. Given the following, which can correctly fill in the blank? (Choose all that apply.)

```
var date = LocalDate.now();
var time = LocalTime.now();
var dateTime = LocalDateTime.now();
var zoneId = ZoneId.systemDefault();
var zonedDateTime = ZonedDateTime.of(dateTime, zoneId);
Instant instant = ----------------;
```

A. Instant.now()
//Crea instant.

B. new Instant()

C. date.toInstant()

D. dateTime.toInstant()

E. time.toInstant()

F. zonedDateTime.toInstant()

15. What is the output of the following? (Choose all that apply.)

```
var arr = new String[] { "PIG", "pig", "123"};
Arrays.sort(arr);
System.out.println(Arrays.toString(arr));
System.out.println(Arrays.binarySearch(arr, "Pippa"));
```

A. [pig, PIG, 123]

B. [PIG, pig, 123]

C. [123, PIG, pig]

```
//Como se utilizó sort, se ordena el array
    por números, mayúsculas y minúsculas.
D. [123, pig, PIG]
E. -3
F. -2
G. The results of binarySearch() are undefined in this example.
```

16. What is included in the output of the following code? (Choose all that apply.)

```
var base = "ewe\nsheep\\t"; //11 carácteres
int length = base.length();
int indent = base.indent(2).length();
int translate = base.translateEscapes().length();
var formatted = "%s %s %s".formatted(length, indent, translate)
System.out.format(formatted);

A. 10
//translateEscapes transforma a carácteres de escape,
    eliminando 5 carácteres.
B. 11
//Cántidad de carácteres en base.
C. 12
D. 13
E. 14
F. 15
G. 16
//11 carácteres + 2 de incide en cada linea + un salto de linea
```

17. Which of these statements are true? (Choose all that apply.)

```
var letters = new StringBuilder("abcdefg");

A. letters.substring(1, 2) returns a single-character
    String.
//Toma los íncides de inicio y final.
```

B. `letters.substring(2, 2)` returns a single-character
   String.
C. `letters.substring(6, 5)` returns a single-character
   String.
D. `letters.substring(6, 6)` returns a single-character
   String.
E. `letters.substring(1, 2)` throws an exception.
F. `letters.substring(2, 2)` throws an exception.
G. `letters.substring(6, 5)` throws an exception.
   //El índice de inicio toma un posición despues del índice final
H. `letters.substring(6, 6)` throws an exception.

18. What is the result of the following code? (Choose all that apply.)

```
13: String s1 = """
14: purr""";
15: String s2 = "";
16:
17: s1.toUpperCase();
18: s1.trim();
19: s1.substring(1, 3);
20: s1 += "two";
21:
22: s2 += 2;
23: s2 += 'c';
24: s2 += false;
25:
26: if ( s2 == "2cfalse") System.out.println("==");
27: if ( s2.equals("2cfalse")) System.out.println("equals");
28: System.out.println(s1.length());
```

A. 2
B. 4
C. 7
   //purr + two.

```
D. 10
E. ==
F. equals
//2 + c + false.
G. An exception is thrown.
H. The code does not compile.
```

19. Which of the following fill in the blank to print a positive integer? (Choose all that apply.)

```
String[] s1 = { "Camel", "Peacock", "Llama"};
String[] s2 = { "Camel", "Llama", "Peacock"};
String[] s3 = { "Camel"};
String[] s4 = { "Camel", null};
System.out.println(Arrays._____ );
A. compare(s1, s2)
B. mismatch(s1, s2)
C. compare(s3, s4)
D. mismatch (s3, s4)
E. compare(s4, s4)
F. mismatch (s4, s4)
//mismatch y compare retorna valores númericos
    cuando los arrays son diferentes
```

20. Note that March 13, 2022 is the weekend that clocks spring ahead for daylight saving time. What is the output of the following? (Choose all that apply.)

```
var date = LocalDate.of(2022, Month.MARCH, 13);
var time = LocalTime.of(1, 30);
var zone = ZoneId.of("US/Eastern");
var dateTime1 = ZonedDateTime.of(date, time, zone);
var dateTime2 = dateTime1.plus(1, ChronoUnit.HOURS);

long diff = ChronoUnit.HOURS.between(dateTime1, dateTime2);
int hour = dateTime2.getHour();
```

```
boolean offset = dateTime1.getOffset()
    == dateTime2.getOffset();
System.out.println("diff = " + diff);
System.out.println("hour = " + hour);
System.out.println("offset = " + offset);
```

A. diff = 1
//La diferencia es de 1 hora comparado con dateTime2.
B. diff = 2
C. hour = 2
D. hour = 3
E. offset = true
F. The code does not compile.
G. A runtime exception is thrown.

21. Which of the following can fill in the blank to print avaJ? (Choose all that apply.)

```
3: var puzzle = new StringBuilder("Java");
4: puzzle. ;
5: System.out.println(puzzle);
```

A. reverse()
//Método para voltear cadenas de texto.
B. append("vaJ$").substring(0, 4)
C. append("vaJ$").delete(0, 3).deleteCharAt(puzzle.length() -1)
//Java + vaJ$ = JavavaJ$ -> avaJ$ -> avaJ
D. append("vaJ$").delete(0, 3).deleteCharAt(puzzle.length())
E. None of the above

22. What is the output of the following code?

```
var date = LocalDate.of(2022, Month.APRIL, 30);
date.plusDays(2);
date.plusYears(3);
```

```
System.out.println(date.getYear() + " " + date.getMonth()
+ " " + date.getDayOfMonth());
```

A. 2022 APRIL 30
//Las fechas son inmutables
B. 2022 MAY 2
C. 2025 APRIL 2
D. 2025 APRIL 30
E. 2025 MAY 2
F. The code does not compile.
G. A runtime exception is thrown.