

1 Exam Questions

1. (1 point) 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 }  
9 }
```

A. 4 1

B. 41

C. 5

D. 5 tuna

E. 5tuna

F. 51tuna

G. The code does not compile. [//cant convert from int to string](#)

****String anotherFish = numFish + "1";**

Output:

41 tuna

4 1

2. (1 point) Which of the following are output by this code? (Choose all that apply)

```
1 String s = " Hello ";  
2 String t = new String ( s ) ;  
3 if ( " Hello ". equals ( s ) ) System . out . println ( " one " ) ; 4 if ( t == s )  
System . out . println ( " two " ) ;  
5 if ( t . equals ( s ) ) System . out . println ( " three " ) ; 6 if ( " Hello "  
== s ) System . out . println ( " four " ) ; 7 if ( " Hello " == t ) System  
. out . println ( " five " ) ;
```

A. one

B. two

C. three

D. four

E. five

F. The code does not compile.

3. (1 point) Which are true statements? (Choose all that apply)

A. An immutable object can be modified.

B. An immutable object cannot be modified.

C. An immutable object can be garbage collected.

D. An immutable object cannot be garbage collected.

E. String is immutable.

F. StringBuffer is immutable.

G. StringBuilder is immutable.

4. (1 point) What is the result of the following code?

```
1 StringBuilder sb = new StringBuilder ();
2 sb . append ( " aaa " ) . insert ( 1 , " bb " ) . insert ( 4 , " ccc " ) ;
3 System . out . println ( sb ) ;
```

A. abbaaccc

B. abbaccca

C. bbaaaccc

D. bbaaccca

E. An exception is thrown.

F. The code does not compile.

5. (1 point) What is the result of the following code?

```
1 String s1 = " java " ;
2 StringBuilder s2 = new StringBuilder ( " java " ) ;
3 if ( s1 == s2 )
4 System . out . print ( "1" ) ;
5 if ( s1 . equals ( s2 ) )
6 System . out . print ( "2" ) ;
```

A. 1

B. 2

C. 12

D. No output is printed.

E. An exception is thrown.

F. The code does not compile.

→ s1.equals(s2.toString())

6. (1 point) What is the result of the following code?

```
1 public class Lion {
2 public void roar ( String roar1 , StringBuilder roar2 ) {
3 roar1 . concat ( "!!!" ) ;
4 roar2 . append ( "!!!" ) ;
5 }
6 public static void main ( String [] args ) {
7 String roar1 = " roar
";
8 StringBuilder roar2 = new StringBuilder ( " roar " ) ;
9 new Lion () . roar ( roar1 ,
roar2 ) ;
```

```
10 System . out . println ( roar1 + " " + roar2 ) ; 11 }  
12 }
```

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A. roar roar

B. roar roar!!!

C. roar!!! roar

D. roar!!! roar!!!

E. An exception is thrown.

F. The code does not compile.

7. (1 point) Which are the results of the following code? (Choose all that apply)

```
1 String letters = " abcdef ";  
2 System . out . println ( letters . length ( ) ) ;  
3 System . out . println ( letters . charAt ( 3 ) ) ;  
4 System . out . println ( letters . charAt ( 6 ) ) ;
```

A. 5

B. 6

C. c

D. d

E. An exception is thrown. → line 4 (index until 5)

F. The code does not compile.

8. (1 point) Which are the results of the following code? (Choose all that apply)

```
1 String numbers = "012345678";  
2 System . out . println ( numbers . substring ( 1 , 3 ) ); // 12  
3 System . out . println ( numbers . substring ( 7 , 7 ) ); // no  
output  
4 System . out . println ( numbers . substring ( 7 ) ); //78
```

A. 12

B. 123

C. 7

D. 78

E. A blank line.

F. An exception is thrown.

G. The code does not compile.

9. (1 point) What is the result of the following code?

```
1 String s = " purr ";  
2 s . toUpperCase ( ) ;
```

```
3 s . trim ( ) ;  
4 s . substring ( 1 , 3 ) ;  
5 s += " two " ;  
6 System . out . println ( s . length ( ) ) ;
```

- A. 2
- B. 4
- C. 8
- D. 10
- E. An exception is thrown.
- F. The code does not compile.

10. (1 point) What is the result of the following code? (Choose all that apply)

```
1 String a = "" ;  
2 a += 2 ;  
3 a += ' c ' ;  
4 a += false ;  
5 if ( a == " 2 cfalse " ) System . out . println ( " == " ) ;  
6 if ( a . equals ( " 2 cfalse " ) )  
System . out . println ( " equals " ) ;
```

- A. Compile error on line 2.
- B. Compile error on line 3.
- C. Compile error on line 4.
- D. Compile error on another line.
- E. ==
- F. equals
- G. An exception is thrown.

11. (1 point) What is the result of the following code?

```
1 int total = 0 ;  
2 StringBuilder letters = new StringBuilder ( " abcdefg " ) ;  
3 total += letters . substring ( 1 , 2 ) . length ( ) ;  
4 total += letters . substring ( 6 , 6 ) . length ( ) ;  
5 total += letters . substring ( 6 , 5 ) . length ( ) ;  
6 System . out . println ( total ) ;
```

- A. 1
- B. 2
- C. 3
- D. 7
- E. An exception is thrown.
- F. The code does not compile.

12. (1 point) What is the result of the following code? (Choose all that apply)

```
1 StringBuilder numbers = new StringBuilder ( " 0123456789 " ) ;  
2 numbers .
```

```
delete (2 , 8) ;
3 numbers . append ( " -" ) . insert (2 , "+" ) ;
4 System . out . println ( numbers ) ;
```

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A. 01+89—

B. 012+9—

C. 012+—9

D. 0123456789

E. An exception is thrown.

F. The code does not compile.

13. (1 point) What is the result of the following code?

```
1 StringBuilder b = " rumble ";
2 b . append (4) . deleteCharAt (3) . delete (3 , b . length () - 1) ;
3 System . out . println ( b ) ;
```

A. rum

B. rum4

C. rumb4

D. rumble4

E. An exception is thrown. //String cannot be converted to StringBuilder

F. The code does not compile.

14. (1 point) Which of the following can replace the comment to print "avaJ"? (Choose all that apply)

```
1 StringBuilder puzzle = new StringBuilder ( " Java " ) ;
2 // INSERT CODE HERE
3 System . out . println ( puzzle ) ;
```

A. puzzle.reverse();

B. puzzle.append("vaJ\$").substring(0, 4);

Java vaJ\$

C. puzzle.append("vaJ\$").delete(0, 3).deleteCharAt(puzzle.length() - 1);

va vaJ

D. puzzle.append("vaJ\$").delete(0, 3).deleteCharAt(puzzle.length());

.StringIndexOutOfBoundsException

E. None of the above.

15. (1 point) Which of these array declarations is 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];`
- D. `java.util.Date[] dates[] = new java.util.Date[2][];`
- E. `int[][] types = new int[];`
- F. `int[][] java = new int[][];`

16. (1 point) Which of these compile when replacing the comment? (Choose all that apply)

```
1 char [] c = new char [2];  
2 // INSERT CODE HERE
```

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- A. `int length = c.capacity;`
- B. `int length = c.capacity();`
- C. `int length = c.length;`
- D. `int length = c.length();`
- E. `int length = c.size;`
- F. `int length = c.size();`
- G. None of the above.

17. (1 point) Which of these compile when replacing the comment? (Choose all that apply)

```
1 ArrayList l = new ArrayList () ;  
2 // INSERT CODE HERE
```

- A. `int length = l.capacity;`
- B. `int length = l.capacity();`
- C. `int length = l.length;`
- D. `int length = l.length();`
- E. `int length = l.size;`
- F. `int length = l.size();`
- G. None of the above.

18. (1 point) Which of the following are true? (Choose all that apply)

- A. An array has a fixed size.
- B. An ArrayList has a fixed size.
- C. An array allows multiple dimensions.
- D. An array is ordered.
- E. An ArrayList is ordered.
- F. An array is immutable.
- G. An ArrayList is immutable.

19. (1 point) Which of the following are true? (Choose all that apply)

- A. Two arrays with the same content are equal.
- B. Two ArrayLists with the same content are equal.
- C. If you call remove(0) using an empty ArrayList object, it will compile successfully.
- D. If you call remove(0) using an empty ArrayList object, it will run successfully.
- E. None of the above.

20. (1 point) What is the result of the following statements?

```
1 List < String > list = new ArrayList < String >();  
2 list . add ( " one " );  
3 list . add ( " two " );  
4 list . add ( 7 );  
5 for ( String s : list ) System . out . print ( s );
```

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- A. onetwo
- B. onetwo7
- C. onetwo followed by an exception
- D. Compiler error on line 4. // list.add("7")
- E. Compiler error on line 5.

21. (1 point) What is the result of the following statements?

```
1 ArrayList < Integer > values = new ArrayList < >();  
2 values . add ( 4 ); // 4  
3 values . add ( 5 ); // 4 5  
4 values . set ( 1 , 6 ); // 4 6  
5 values . remove ( 0 ); // 6  
6 for ( Integer v : values ) System . out . print ( v );
```

- A. 4
- B. 5
- C. 6
- D. 46
- E. 45
- F. An exception is thrown.
- G. The code does not compile.

22. (1 point) What is the result of the following?

```
1 int [] random = { 6 , -4 , 12 , 0 , -10 };  
2 int x = 12;  
3 int y = Arrays . binarySearch ( random , x ); // 必须是  
已经排好序的数组（升序），位置12在2 但要有sort
```

4 System . out . println (y) ;

A. 2

B. 4

C. 6

D. The result is undefined.

E. An exception is thrown.

F. The code does not compile.

23. (1 point) What is the result of the following?

```
1 List < Integer > list = Arrays . asList (10 , 4 , -1 , 5) ; 2 Collections .  
sort ( list ) ;  
3 Integer array [] = list . toArray ( new Integer [4]) ; 4 System . out .  
println ( array [0]) ;
```

A. -1

B. 10

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C. Compiler error on line 1.

D. Compiler error on line 2.

E. Compiler error on line 3.

F. An exception is thrown.

24. (1 point) What is the result of the following?

```
1 String [] names = { " Tom " , " Dick " , " Harry " } ;  
2 List < String > list = names . asList ( ) ;  
3 list . set (0 , " Sue " ) ;  
4 System . out . println ( names [0]) ;
```

A. Sue

B. Tom

C. Compiler error on line 2.

D. Compiler error on line 3.

E. An exception is thrown.

```
String [] names = { " Tom " , " Dick " , " Harry " } ;  
List < String > list = Arrays.asList(names) ;  
list . set (0 , " Sue " ) ;  
System . out . println ( names [0]) ;
```

25. (1 point) What is the result of the following?


```

1 List < String > hex = Arrays . asList ( "30" , "8" , "3 A " , " FF " ) ;
2 Collections .
sort ( hex ) ;
3 int x = Collections . binarySearch ( hex , "8" ) ;
4 int y = Collections . binarySearch ( hex , "3 A " ) ;
5 int z = Collections . binarySearch ( hex , "4 F " ) ;
6 System . out . println ( x + " " + y + " " + z ) ;

```

A. 1 –2

B. 0 1 –3

C. 2 1 –2

D. 2 1 –3

E. None of the above. // 3 1 -4

F. The code doesn't compile.

26. (1 point) Which of the following are true statements about the following code? (Choose all that apply)

```

1 List < Integer > ages = new ArrayList < >() ;
2 ages . add ( Integer . parseInt ( "5" ) ) ;
3 ages . add ( Integer . valueOf ( "6" ) ) ;
4 ages . add ( 7 ) ;
5 ages . add ( null ) ;
6 for ( int age : ages ) System . out . print ( age ) ;

```

A. The code compiles..

B. The code throws a runtime exception. // 5 6 7 exception

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C. Exactly one of the add statements uses autoboxing.

D. Exactly two of the add statements use autoboxing.

E. Exactly three of the add statements use autoboxing.

27. (1 point) What is the result of the following?

```

1 List < String > one = new ArrayList < String >() ;
2 one . add ( " abc " ) ;
3 List < String > two = new ArrayList < >() ;
4 two . add ( " abc " ) ;
5 if ( one == two )
6 System . out . println ( " A " ) ;
7 else if ( one . equals ( two ) )
8 System . out . println ( " B " ) ;
9 else
10 System . out . println ( " C " ) ;

```

A. A

B. B

- C. C
- D. An exception is thrown.
- E. The code does not compile.

28. (1 point) Which of the following can replace the comment to create a date of June 21, 2014? (Choose all that apply)

```
1 import java . time . * ;  
2 public class StartOfSummer {  
3     public static void main ( String [] args ) {  
4         LocalDate date = /* replace this comment */  
5     }  
6 }
```

- A. new LocalDate(2014, 5, 21);
- B. new LocalDate(2014, 6, 21);
- C. LocalDate.of(2014, 5, 21);
- D. LocalDate.of(2014, 6, 21);**
- E. LocalDate.of(2014, Calendar.JUNE, 21);
- F. LocalDate.of(2014, Month.JUNE, 21);

29. (1 point) What is the output of the following code?

```
LocalDate date = LocalDate . parse ( "2018 -04 -30" , DateTimeFormatter .  
    ISO_LOCAL_DATE ) ;  
date . plusDays ( 2 ) ;  
date . plusHours ( 3 ) ;  
System . out . println ( date . getYear () + " " + date . getMonth () + " " + date .  
    getDayOfMonth () ) ;
```

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- A. 2018 APRIL 2
- B. 2018 APRIL 30
- C. 2018 MAY 2
- D. The code does not compile.**
- E. A runtime exception is thrown.

30. (1 point) What is the output of the following code?

```
LocalDate date = LocalDate . of ( 2018 , Month . APRIL , 40 ) ; System . out . println ( date .  
    getYear () + " " + date . getMonth () + " " + date . getDayOfMonth () ) ;
```

- A. 2018 APRIL 4
- B. 2018 APRIL 30
- C. 2018 MAY 10
- D. Another date.
- E. The code does not compile.

F. A runtime exception is thrown.

31. (1 point) What is the output of the following code?

```
LocalDate date = LocalDate . of (2018 , Month . APRIL , 30) ; date .  
plusDays (2) ;  
date . plusYears (3) ;  
System . out . println ( date . getYear () + " " + date . getMonth () + " " + date .  
getDayOfMonth () ) ;
```

A. 2018 APRIL 2

B. 2018 APRIL 30

C. 2018 MAY 2

D. 2021 APRIL 2

E. 2021 APRIL 30

F. 2021 MAY 2

G. A runtime exception is thrown.

32. (1 point) What is the output of the following code?

```
1 LocalDateTime d = LocalDateTime . of (2015 , 5 , 10 , 11 , 22 , 33) ; 2 Period p =  
Period . of (1 , 2 , 3) ;  
3 d = d . minus ( p ) ;  
4 DateTimeFormatter f = DateTimeFormatter . ofLocalizedTime ( FormatStyle .  
SHORT ) ;  
5 System . out . println ( d . format ( f ) ) ;
```

A. 3/7/14 11:22 AM

B. 5/10/15 11:22 AM

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C. 3/7/14

D. 5/10/15

E. 11:22 AM

F. The code does not compile.

G. A runtime exception is thrown.

33. (1 point) What is the output of the following code?

```
LocalDateTime d = LocalDateTime . of (2015 , 5 , 10 , 11 , 22 , 33) ; Period p =  
Period . ofDays (1) . ofYears (2) ;  
d = d . minus ( p ) ;  
DateTimeFormatter f = DateTimeFormatter . ofLocalizedDateTime ( FormatStyle .  
SHORT ) ;  
System . out . println ( f . format ( d ) ) ;
```

A. 5/9/13 11:22 AM

B. 5/10/13 11:22 AM

- C. 5/9/14
- D. 5/10/14
- E. The code does not compile.
- F. A runtime exception is thrown.

2 Programming Questions

1. (a) Create a program that manages a list of student names using an ArrayList. (b) Implement the following functionalities:

1. Add a student
2. Remove a student
3. Display all students

```
package question1;

import java.util.ArrayList;

public class student {
    //Create a program that manages a list of student names using an
    ArrayList.
    ArrayList<String> studentNames;

    public student(){
        this.studentNames = new ArrayList<>();
    }

    // add student
    public void addStudent(String name){
        if(studentNames.contains(name)){
            System.out.println("Student " + name + " already exists.");
        }else{
            studentNames.add(name);
            System.out.println("Student " + name + " is added.");
        }
    }

    // remove student
    public void deleteStudent(String name){
        if (studentNames.remove(name)) {
            System.out.println("Student " + name + " is removed.");
        } else {
            System.out.println("Student " + name + " not found.");
        }
    }

    //display student
```

```
public void displayStudents() {
    System.out.println("Dsiplay All Students: ");
    for(int i=0;i<studentNames.size();i++){
        System.out.println(studentNames.get(i));
    }
    /*
        for(String name : studentNames) {
            System.out.println(name);
        } */
}

public static void main(String[] args) {
    student s = new student();
    s.addStudent("TPY0");
    s.addStudent("TPY1");
    s.addStudent("TPY2");
    s.addStudent("TPY3");

    s.displayStudents();

    s.deleteStudent("null");
    s.deleteStudent("TPY2");
    System.out.println("After removing TPY2: ");
    s.displayStudents();

}
}

/*
 * O U T P U T:
Dsiplay All Students:
TPY0
TPY1
TPY2
TPY3
After removing TPY2:
Dsiplay All Students:
TPY0
TPY1
TPY3
 */
```

2. (a) Ask the user to enter their birth date (yyyy-MM-dd format).using an ArrayList.

(b) Display:

1. The day of the week they were born on.
2. Their age.
3. The date 100 days from today.

```
package question2;

import java.time.LocalDateTime;
import java.util.ArrayList;
import java.util.Scanner;

public class date {
    /*
     * . (a) Ask the user to enter their birth date (yyyy-MM-dd format).using
    an ArrayList.
     * (b) Display:
     *     1. The day of the week they were born on.
     *     2. Their age.
     *     3. The date 100 days from today.
     */

    ArrayList<String> DOB;

    public date(){
        this.DOB = new ArrayList<>();
    }

    // display date of week
    public void displayDayOfWeek(String DOB){
        int year = Integer.parseInt(DOB.substring(0, 4));
        int month = Integer.parseInt(DOB.substring(5, 7));
        int day = Integer.parseInt(DOB.substring(8, 10));

        LocalDateTime date = LocalDateTime.of(year, month, day, 0, 0);
        String dayOfWeek = date.getDayOfWeek().toString();
        System.out.println("You were born on a: " + dayOfWeek);
    }
}
```

```
// display age
public int age(String DOB) {
    int year = Integer.parseInt(DOB.substring(0, 4));
    int currentYear = LocalDateTime.now().getYear();
    int age = currentYear - year;
    return age;
}

//display 100 day from today
public void display100DaysFromToday() {
    int hundred = LocalDateTime.now().getDayOfMonth();
    System.out.println("100 Days from today: " + (hundred +100));
}

public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    date d = new date();

    System.out.print("Enter your birth date (yyyy-MM-dd): ");
    String date = sc.next()+sc.nextLine();

    d.displayDayOfWeek(date);

    System.out.println("Your age is: " + d.age(date) + " years.");

    d.display100DaysFromToday();
}
}
```


