1. Suppose that you have a collection of products for sale in a database and you need to

display those products. The products are not unique. Which of the following collections

classes in the java.util package best suit your needs for this scenario?

A. Arrays

B. ArrayList

C. HashMap

D. HashSet

E. LinkedList

2. Suppose that you need to work with a collection of elements that need to be sorted in their

natural order, and each element has a unique string associated with its value. Which of the

following collections classes in the java.util package best suit your needs for this scenario?

A. ArrayList

B. HashMap

C. HashSet

D. TreeMap

E. TreeSet

F. Vector

3. What is the result of the following statements?

3: List list = new ArrayList();

4: list.add("one");

5: list.add("two");

6: list.add(7);

7: for (String s: list)

8: System.out.print(s);

A. onetwo

B. onetwo7

C. onetwo followed by an exception

D. Compiler error on line 6

E. Compiler error on line 7

4. What is the result of the following statements?

3: ArrayDeque<String> greetings = new ArrayDeque<String>();

4: greetings.push("hello");

5: greetings.push("hi");

6: greetings.push("ola");

7: greetings.pop();

8: greetings.peek();

9: while (greetings.peek() != null)

10: System.out.print(greetings.pop());

A. hello

B. hellohi

C. hellohiola

D. hi

E. hihello

F. The code does not compile.

G. An exception is thrown.

5. Which of these statements compile? (Choose all that apply.)

A. HashSet<Number> hs = new HashSet<Integer>();

B. HashSet<? super ClassCastException> set = new HashSet<Exception>();

C. List<String> list = new Vector<String>();

D. List<Object> values = new HashSet<Object>();

E. List<Object> objects = new ArrayList<? extends Object>();

F. Map<String, ? extends Number> hm = new HashMap<String, Integer>();

6. What is the result of the following code?

1: public class Hello<T> {

2: T t;

3: public Hello(T t) { this.t = t; }

4: public String toString() { return t.toString(); }

5: public static void main(String[] args) {

6: System.out.print(new Hello<String>("hi"));

7: System.out.print(new Hello("there"));

8: } }

A. hi

B. hi followed by a runtime exception

C. hithere

D. Compiler error on line 4

E. Compiler error on line 6

F. Compiler error on line 7

7. Which of the following statements are true? (Select two.)

3: Set<Number> numbers = new HashSet<>();

4: numbers.add(new Integer(86));

5: numbers.add(75);

6: numbers.add(new Integer(86));

7: numbers.add(null);

8: numbers.add(309L);

9: Iterator iter = numbers.iterator();

10: while (iter.hasNext())

11: System.out.print(iter.next());

A. The code compiles successfully.

B. The output is 8675null309.

C. The output is 867586null309.

D. The output is indeterminate.

E. There is a compiler error on line 3.

F. There is a compiler error on line 9.

G. An exception is thrown.

8. What is the result of the following code?

TreeSet<String> tree = new TreeSet<String>();

tree.add("one");

tree.add("One");

tree.add("ONE");

System.out.println(tree.ceiling("On"));

A. On

B. one

C. One

D. ONE

E. The code does not compile.

F. An exception is thrown.

9. Which of the answer choices are valid given the following declaration?

Map<String, Double> map = new HashMap<>();

A. map.add("pi", 3.14159);

B. map.add("e", 2L);

C. map.add("log(1)", new Double(0.0));

D. map.add('x', new Double(123.4));

E. None of the above

10. What is the result of the following program?

import java.util.\*;

public class MyComparator implements Comparator<String> {

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public int compare(String a, String b) {

return b.toLowerCase().compareTo(a.toLowerCase());

}

public static void main(String[] args) {

String[] values = { "123", "Abb", "aab" };

Arrays.sort(values, new MyComparator());

for (String s: values)

System.out.print(s + " ");

}

}

A. Abb aab 123

B. aab Abb 123

C. 123 Abb aab

D. 123 aab Abb

E. The code does not compile.

F. A runtime exception is thrown.

11. What is the result of the following code?

3: Map<Integer, Integer> map = new HashMap<>(10);

4: for (int i = 1; i <= 10; i++) {

5: map.put(i, i \* i);

6: }

7: System.out.println(map.get(4));

A. 16

B. 25

C. Compiler error on line 3.

D. Compiler error on line 5.

E. Compiler error on line 7.

F. A runtime exception is thrown.

12. Which of these statements can fill in the blank so that the Helper class compiles

successfully? (Choose all that apply.)

3: public class Helper {

4: public static <U extends Exception> void printException(U u) {

5: System.out.println(u.getMessage());

6: }

7: public static void main(String[] args) {

8: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9: } }

A. Helper.printException(new FileNotFoundException("A"));

B. Helper.printException(new Exception("B"));

C. Helper.<Throwable>printException(new Exception("C"));

D. Helper.<NullPointerException>printException(new NullPointerException

("D"));

E. Helper.printException(new Throwable("E"));

13. Which of these statements can fill in the blank so that the Wildcard class compiles

successfully? (Choose all that apply.)

import java.util.\*;

public class Wildcard {

public void showSize(List<?> list) {

System.out.println(list.size());

}

public static void main(String[] args) {

Wildcard card = new Wildcard();

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

card.showSize(list);

} }

A. ArrayDeque<?> list = new ArrayDeque<String>();

B. ArrayList<? super Date> list = new ArrayList<Date>();

C. List<?> list = new ArrayList<?>();

D. List<Exception> list = new LinkedList<java.io.IOException>();

E. Vector<? extends Number> list = new Vector<Integer>();

F. None of the above

14. What is the result of the following program?

import java.util.\*;

public class Sorted implements Comparable<Sorted>, Comparator<Sorted> {

private int num;

private String text;

Sorted(int n, String t) {

this.num = n;

this.text = t;

}

public String toString() { return "" + num; }

public int compareTo(Sorted s) { return text.compareTo(s.text); }

public int compare(Sorted s1, Sorted s2) { return s1.num – s2.num; }

public static void main(String[] args) {

Sorted s1 = new Sorted(88, "a");

Sorted s2 = new Sorted(55, "b");

TreeSet<Sorted> t1 = new TreeSet<>();

t1.add(s1); t1.add(s2);

TreeSet<Sorted> t2 = new TreeSet<>(s1);

t2.add(s1); t2.add(s2);

System.out.println(t1 + " " + t2);

} }

A. [55. 88] [55, 88]

B. [55. 88] [88, 55]

C. [88. 55] [55, 88]

D. [88. 55] [88, 55]

E. The code does not compile.

F. A runtime exception is thrown.

15. What is the result of the following code?

Comparator<Integer> c = (o1, o2) -> o2—o1;

List<Integer> list = Arrays.asList(5, 4, 7, 1);

Collections.sort(list, c);

System.out.println(Collections.binarySearch(list, 1));

A. 0

B. 1

C. 2

D. The result is undefined.

E. The code does not compile.

F. A runtime exception is thrown.

16. Which of the following statements are true? (Choose all that apply.)

A. Comparable is in the java.util package.

B. Comparator is in the java.util package.

C. compare() is in the Comparable interface.

D. compare() is in the Comparator interface.

E. compare() takes one method parameter.

F. compare() takes two method parameters.

17. Which two options can fill in the blanks to make this code compile? (Choose all that apply.)

1: public class Generic\_\_\_\_\_\_\_\_ {

2: public static void main(String[] args) {

3: Generic<String> g = new Generic\_\_\_\_\_\_\_();

4: Generic<Object> g2 = new Generic();

5: }

6: }

A. On line 1, fill in with <>.

B. On line 1, fill in with <T>.

C. On line 1, fill in with <?>.

D. On line 3, fill in with <>.

E. On line 3, fill in with <T>.

F. On line 3, fill in with <?>.

18. Which of the following lines can be inserted to make the code compile? (Choose all that apply.)

class A {}

class B extends A {}

class C extends B {}

class D<C> {

// INSERT CODE HERE

}

A. A a1 = new A();

B. A a2 = new B();

C. A a3 = new C();

D. C c1 = new A();

E. C c2 = new B();

F. C c1 = new C();

19. Which options are true of the following code? (Choose all that apply.)

3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_<Integer> q = new LinkedList<>();

4: q.add(10);

5: q.add(12);

6: q.remove(1);

7: System.out.print(q);

A. If we fill in the blank with List, the output is [10].

B. If we fill in the blank with List, the output is [10, 12].

C. If we fill in the blank with Queue, the output is [10].

D. If we fill in the blank with Queue, the output is [10, 12].

E. The code does not compile in either scenario.

F. A runtime exception is thrown.

20. What is the result of the following code?

4: Map m = new HashMap();

5: m.put(123, "456");

6: m.put("abc", "def");

7: System.out.println(m.contains("123"));

A. false

B. true

C. Compiler error on line 4.

D. Compiler error on line 5.

E. Compiler error on line 7.

F. A runtime exception is thrown.

21. Fill in the blanks to make this code compile and print 123. (Choose all that apply.)

4: List<String> list = Arrays.asList("1", "2", "3");

5: Iterator iter = list.iterator();

6: while(iter.\_\_\_\_\_\_\_\_\_\_())

7: System.out.print(iter.\_\_\_\_\_\_\_\_\_());

A. On line 6, fill in the blank with hasNext().

B. On line 6, fill in the blank with isNext().

C. On line 6, fill in the blank with next().

D. On line 7, fill in the blank with getNext().

E. On line 7, fill in the blank with hasNext().

F. On line 7, fill in the blank with next().

22. What code change is needed to make the method compile?

public static T identity(T t) {

return t;

}

A. Add <T> after the public keyword.

B. Add <T> after the static keyword.

C. Add <T> after T.

D. Add <?> after the public keyword.

E. Add <?> after the static keyword.

F. No change required. The code already compiles.

23. Which of the answer choices make sense to implement with a lambda? (Choose all that apply.)

A. Comparable interface

B. Comparator interface

C. remove method on a Collection

D. removeAll method on a Collection

E. removeIf method on a Collection

24. Which of the following compiles and print outs the entire set? (Choose all that apply.)

Set<String> s = new HashSet<>();

s.add("lion");

s.add("tiger");

s.add("bear");

s.forEach( );

A. () -> System.out.println(s)

B. s -> System.out.println(s)

C. (s) -> System.out.println(s)

D. System.out.println(s)

E. System::out::println

F. System.out::println

25. What is the result of the following?

Map<Integer, Integer> map = new HashMap<>();

map.put(1, 10);

map.put(2, 20);

map.put(3, null);

map.merge(1, 3, (a,b) -> a + b);

map.merge(3, 3, (a,b) -> a + b);

System.out.println(map);

A. {1=10, 2=20}

B. {1=10, 2=20, 3=null}

C. {1=10, 2=20, 3=3}

D. {1=13, 2=20}

E. {1=13, 2=20, 3=null}

F. {1=13, 2=20, 3=3}

G. The code does not compile.

H. An exception is thrown