**Test Collection(30mins)**

**Question 1.**

Consider the following class:

public class IntPair

{

private int a;

private int b;

public void setA(int i){ this.a = i; }

public int getA(){ return this.a; }

public void setB(int i){ this.b = i; }

public int getB(int b){ return b; }

public boolean equals(Object obj)

{

return ( obj instanceof IntPair && this.a == ((IntPair) obj).a );

}

public int hashCode()

{

//1

}

}

Which of the following options would be valid at //1?

Select 4 correct options

a return 0;

b return a;

c return a+b;

d return a\*a;

e return a/2;

**Question 2.**

Which of the following interfaces can be used to store a collection of non-duplicate objects in an unordered fashion ?

Select 1 correct option.

a List

b Map

c Set

d SortedList

e SortedSet

**Question 3.**

Following is a program to capture words from command line and create two collections. One that keeps only unique words and one that keeps all the words in the order that they were entered. What should replace AAA and BBB?

import java.util.\*;

import java.io.\*;

public class TestClass

{

static Collection unique = new AAA();

static Collection ordered = new BBB();

public static void main(String args[]) throws Exception

{

BufferedReader bfr = new BufferedReader( new InputStreamReader( System.in

));

String s = bfr.readLine();

while(s != null && s.length() >0)

{

unique.add(s);

ordered.add(s);

s = bfr.readLine();

}

System.out.println(unique);

System.out.println(ordered);

}

}

Select 2 correct options

a Set, List

b LinkedList, HashSet

c HashSet, LinkedList

d HashSet, Vector

e Vector, TreeSet

**Question 4.**

Which of the following statements are correct?

Select 1 correct option.

a A List stores elements in a Sorted Order.

b A Set keeps the elements sorted and a List keeps the elements ordered.

c A SortedSet keeps the elements ordered.

d An OrderedSet keeps the elements sorted.

e An OrderedList keeps the elements ordered.

**Question 5.**

Given:

11. public class Person {

12. private name;

13. public Person(String name) {

14. this.name = name;

15. }

16. public boolean equals(Object o) {

17. if( !o instanceof Person ) return false;

18. Person p = (Person) o;

19. return p.name.equals(this.name);

20. }

21. }

Which is true?

A. Compilation fails because the hashCode method is not overridden.

B. A HashSet could contain multiple Person objects with the same

name.

C. All Person objects will have the same hash code because the

hashCode method is not overridden.

D. If a HashSet contains more than one Person object with

name=”Fred”, then removing another Person, also with name=”Fred”,

will remove them all.

**Question 6.**

Consider the following class:

public class IntPair

{

private int a;

private int b;

public void setA(int i){ this.a = i; }

public int getA(){ return this.a; }

public void setB(int i){ this.b = i; }

public int getB(int b){ return b; }

public boolean equals(Object obj)

{

return ( obj instanceof obj && this.a == ((IntPair) obj).a && this.b == ((IntPair) obj).b );

}

public int hashCode()

{

//1

}

}

Which of the following options would NOT be valid at //1?

Select 1 correct option.

a return a;

b return a\*b;

c return a+b;

d return b;

e None of these is invalid.

**Question 7.**

You are designing a class that will cache objects. This class should work by tracking the "last accessed times" of the objects.

Which collection class would you use to store the objects?

Select 1 correct option.

a HashSet

b ArrayList

c LinkedHashMap

d LinkedList

e TreeMap

**Question 8.**

Which of the following are valid implementation of equals() method of a class TestClass?

1.

public boolean equals(TestClass tc)

{

return this == tc;

}

2.

public boolean equals(TestClass tc)

{

return this != tc;

}

3.

public boolean equals(Object tc)

{

return this == tc;

}

4.

public boolean equals(Object tc)

{

if( tc instanceof TestClass && this.someVar == ( (TestClass)tc).someVar )

{

if(this != tc) return true;

else return false;

}

else return false;

}

Select 1 correct option.

a 1

b 2

c 3

d 4

e None of these.

**Question 9.**

Which of the following statments are correct regarding the equals() method?

Select 1 correct option.

a It must be symmetric but need not be transitive.

b It must be reflexive but need not be transitive.

c It must be symmetric and transitive but not reflexive.

d If passed a null, it must return false.

e None of these.

**Question 10.**

Which of these statements concerning the collection interfaces are true?

Select 3 correct options

a Set extends Collection.

b List extends Collection.

c All methods defined in Collection are also defined in List.

d HashMap implements SortedMap.

e HashMap extends Hashtable

**Question 11.**

What classes can be used to store key - value pairs?

Select correct options

a java.util.Hashtable

b java.util.Set

c java.util.SortedSet

d java.util.Map

e java.util.SortedMap

**Question 12.**

1.import java.util.\*;

2. public class TestSet{

3. enum Example {one, Two , Three}

4. public static void main(String[] args)

{

5. Collection coll= new ArrayList();

6. coll.add(Example.Three);

7. coll.add(Example.Three);

8. coll.add(Example.Three);

9. coll.add(Example.Two);

10. coll.add(Example.Two);

11. coll.add(Example.One);

12. Set set=new HashSet(coll);

13.}

14.}

Which statement is true about the Set variable on line no 12?

A. The set variable contains all six elements from the coll collection, and the order is

guaranteed to be

preserved.

B. The set variable contains only three elements from the coll collection, and the order is

guaranteed to be preserved.

C. The set variable contains all six elements from the coll collection, but the order is NOT

guaranteed to be preserved.

D. The set variable contains only three elements from the coll collection, but the order is

NOT guaranteed to be preserved.

**Question 13.**

What will be the output of the program?

package foo;

import java.util.Vector; /\* Line 2 \*/

private class MyVector extends Vector //line 3

{

int i = 1; /\* Line 5 \*/

public MyVector()

{

i = 2;

}

}

public class MyNewVector extends MyVector

{

public MyNewVector ()

{

i = 4; /\* Line 15 \*/

}

public static void main (String args [])

{

MyVector v = new MyNewVector(); /\* Line 19 \*/

}

}

A. Compilation will succeed.

B. Compilation will fail at line 3.

C. Compilation will fail at line 5.

D. Compilation will fail at line 15.

**Question 14.**

Given:

public static Iterator reverse(List list) {

Collections.reverse(list);

return list.iterator();

}

public static void main(String[] args) {

List list = new ArrayList();

list.add("1"); list.add("2"); list.add("3");

for (Object obj: reverse(list))

System.out.print(obj + ", ");

}

What is the result?

A. 3, 2, 1,

B. 1, 2, 3,

C. Compilation fails.

D. The code runs with no output.

E. An exception is thrown at runtime.

**Question 15.**

Which of these methods from the Collection interface return the value true if the collection object was actually modified by the call?

Select 3 correct options

a add( )

b retainAll( )

c containsAll( )

d contains( )

e remove()

**Question 16**

Given:

23. Object [] myObjects = {

24. new integer(12),

25. new String(”foo”),

26. new integer(5),

27. new Boolean(true)

28. };

29. Arrays.sort(myObjects);

30. for( int i=0; i<myObjects.length; i++) {

31. System.out.print(myObjects[i].toString());

32. System.out.print(” “);

33. }

What is the result?

A. Compilation fails due to an error in line 23.

B. Compilation fails due to an error in line 29.

C. A ClassCastException occurs in line 29.

D. A ClassCastException occurs in line 31.

E. The value of all four objects prints in natural order.

**Question 17**

Given:

1. import java.util.\*;

2. public class Example {

3. public static void main(String[] args) {

4. // insert code here

5. set.add(new integer(2));

6. set.add(new integer(l));

7. System.out.println(set);

8. }

9. }

Which code, inserted at line 4, guarantees that this program will

output [1, 2]?

A. Set set = new TreeSet();

B. Set set = new HashSet();

C. Set set = new SortedSet();

D. List set = new SortedList();

E. Set set = new LinkedHashSet();

**Question 18**

Given:

1. import java.util.\*;

2. public class PQ {

3. public static void main(String[] args) {

4. PriorityQueue<String> pq = new PriorityQueue<String>();

5. pq.add(”carrot”);

6. pq.add(”apple”);

7. pq.add(”banana”);

8. System.out.println(pq.poll() +”:” + pq.peek());

9. }

10. }

What is the result?

A. apple:apple

B. carrot:apple

C. apple:banana

D. banana:apple

E. carrot:carrot

F. carrot:banana

**Question 19**

Given:

11. public class Person {

12. private String name, comment;

13. private int age;

14. public Person(String n, int a, String c) {

15. name = n; age = a; comment = c;

16. }

17. public boolean equals(Object o) {

18. if(! (o instanceof Person)) return false;

19, Person p = (Person)o;

20. return age == p.age && name.equals(p.name);

21. }

22. }

What is the appropriate definition of the hashCode method in class

Person?

A. return super.hashCode();

B. return name.hashCode() + age \* 7;

C. return name.hashCode() + comment.hashCode() /2;

D. return name.hashCode() + comment.hashCode() / 2 - age \* 3;

**Question 20**

Given:

11. public class Key {

12. private long id1;

13. private long 1d2;

14.

15. // class Key methods

16. }

A programmer is developing a class Key, that will be used as a key in

a standard java.util.HashMap. Which two methods should be

overridden to assure that Key works correctly as a key? (Choose two.)

A. public int hashCode()

B. public boolean equals(Key k)

C. public int compareTo(Object o)

D. public boolean equals(Object o)

E. public boolean compareTo(Key k)