1z0-809

Number: 000-000
Passing Score: 800
Time Limit: 120 min
File Version: 1.0

1z0-809

Java SE 8 Programmer II

Version 7.0

QUESTION 1
Given the definition of the Vehicle class:

```
Class Vehhicle {
    int distance;        //line n1
    Vehicle (int x) {
        this distance = x;
    }
    public void increSpeed(int time)   {    //line n2
        int timeTravel = time;           //line n3
        class Car {
            int value = 0;
            public void speed () {
                value = distance /timeTravel;
                System.out.println ("Velocity with new speed"+value+"kmph");
            }
        }
        new Car().speed();
    }
}
```

and this code fragment:

```
Vehicle v = new Vehicle (100);
v.increSpeed(60);
```

What is the result?

A. `Velocity with new speed`
B. A compilation error occurs at `line n1`.
C. A compilation error occurs at `line n2`.
D. A compilation error occurs at `line n3`.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 2
Given:

```
IntStream stream = IntStream.of (1,2,3);
IntFunction<Integer> inFu= x -> y -> x*y;            //line n1
IntStream newStream = stream.map(inFu.apply(10));    //line n2
newStream.forEach(System.output::print);
```

Which modification enables the code fragment to compile?

A. Replace `line n1` with:
   `IntFunction<UnaryOperator> inFu = x -> y -> x*y;`
B. Replace `line n1` with:
   `IntFunction<IntUnaryOperator> inFu = x -> y -> x*y;`
C. Replace `line n1` with:

```
BiFunction<IntUnaryOperator> inFu = x -> y -> x*y;
```

D. Replace `line n2` with:
```
IntStream newStream = stream.map(inFu.applyAsInt (10));
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 3
Given the code fragment:

```
List<Integer> values = Arrays.asList (1, 2, 3);
values.stream ()
    .map(n -> n*2)        //line n1
    .peek(System.out::print)    //line n2
    .count();
```

What is the result?

A. 246
B. The code produces no output.
C. A compilation error occurs at `line n1.`
D. A compilation error occurs at `line n2.`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 4
Given the code fragment:

```
public class Foo {
    public static void main (String [ ] args) {
        Map<Integer, String> unsortMap = new HashMap< > ( );
        unsortMap.put (10, “z”);
        unsortMap.put (5, “b”);
        unsortMap.put (1, “d”);
        unsortMap.put (7, “e”);
        unsortMap.put (50, “j”);

        Map<Integer, String> treeMap = new TreeMap <Integer, String> (new
        Comparator<Integer> ( )  {
           @Override public int compare (Integer o1, Integer o2) {return
      o2.compareTo
      (o1); }  } );

      treeMap.putAll (unsortMap);

      for (Map.Entry<Integer, String> entry : treeMap.entrySet () ) {
          System.out.print (entry.getValue () + “ “);
      }
    }
```

```
}
```

What is the result?

A. A compilation error occurs.
B. d b e z j
C. j z e b d
D. z b d e j

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 5
Which two reasons should you use interfaces instead of abstract classes? (Choose two.)

A. You expect that classes that implement your interfaces have many common methods or fields, or require access modifiers other than public.
B. You expect that unrelated classes would implement your interfaces.
C. You want to share code among several closely related classes.
D. You want to declare non-static on non-final fields.
E. You want to take advantage of multiple inheritance of type.

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:
Reference: https://books.google.com.br/books?id=nS2tBQAAQBAJ&pg=PT235&lpg=PT235&dq=You+want+to+share+code+among+several+closely+related+classes.&source=bl&ots=3oYOu2XXN-&sig=uVFS0KB15BqyEgghXnnjJSUdcrE&hl=pt-BR&sa=X&ved=0ahUKEwjlsKe-n6baAhVEhZAKHeiEDTgQ6AEIMDAB#v=onepage&q=You%20want%20to%20share%20code%20among%20several%20closely%20related%20classes.&f=false

QUESTION 6
Given:

```
public class Counter  {
    public static void main (String[ ] args) {
        int a = 10;
        int b = -1;
        assert (b >=1) : “Invalid Denominator”;
        int c = a / b;
        System.out.println (c);
    }
}
```

What is the result of running the code with the –ea option?

A. -10
B. 0

C. An `AssertionError` is thrown.
D. A compilation error occurs.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 7
Given:

```
class Bird  {
    public void fly ()  {  System.out.print(“Can fly”); }
}
class Penguin extends Bird  {
    public void fly ()  {  System.out.print(“Cannot fly”); }
}
```

and the code fragment:

```
class Birdie {
  public static void main (String [ ] args)  {
        fly( ( ) -> new Bird ( ));
        fly (Penguin : : new);
    }
    /* line n1 */
}
```

Which code fragment, when inserted at `line n1`, enables the `Birdie` class to compile?

A.
```
static void fly (Consumer<Bird> bird)  {
      bird :: fly ();
    }
```
B.
```
static void fly (Consumer<? extends Bird> bird)  {
      bird.accept( ) fly ();
    }
```
C.
```
static void fly (Supplier<Bird> bird)  {
      bird.get( ) fly ();
    }
```
D.
```
static void fly (Supplier<? extends Bird> bird)  {
```
LOST

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 8
Given:

```
1. abstract class Shape  {
2.     Shape ( )   { System.out.println  (“Shape”);     }
3.     protected void area ( ) { System.out.println  (“Shape”);     }
4. }
```

```
5.
6. class Square extends Shape  {
7.     int side;
8.     Square int side {
9.        /* insert code here */
10.         this.side = side;
11.     }
12.     public void area ( ) { System.out.println  (“Square”);     }
13.     }
14. class Rectangle extends Square {
15.     int len, br;
16.     Rectangle (int x, int y)   {
17.         /* insert code here */
18.         len = x, br = y;
19.     }
20. void area ( ) { System.out.println  (“Rectangle”);     }
21. }
```

Which two modifications enable the code to compile? (Choose two.)

A. At line 1, remove `abstract`
B. At line 9, insert `super ( );`
C. At line 12, remove `public`
D. At line 17, insert `super (x);`
E. At line 17, insert `super (); super.side = x;`
F. At line 20, use `public void area ( ) {`

Correct Answer: DF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 9
Given:

```
class Sum extends RecursiveAction   {                 //line n1
    static final int THRESHOLD_SIZE  = 3;
    int stIndex, lstIndex;
    int [ ] data;
    public Sum (int [ ]data, int start, int end)   {
        this.data = data;
        this stIndex = start;
        this. lstIndex = end;
    }
    protected void compute ( )    {
        int sum = 0;
        if (lstIndex – stIndex <= THRESHOLD_SIZE)  {
            for (int i = stIndex; i < lstIndex; i++)   {
                sum += data [i];
            }
            System.out.println(sum);
        } else {
            new Sum (data, stIndex + THRESHOLD_SIZE, lstIndex).fork( );
            new Sum (data, stIndex,
                    Math.min  (lstIndex, stIndex + THRESHOLD_SIZE)
                    ).compute ();
```

```
        }
    }
}
```

and the code fragment:

```
ForkJoinPool fjPool = new ForkJoinPool ( );
int data [ ] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
fjPool.invoke (new Sum (data, 0, data.length));
```

and given that the sum of all integers from 1 to 10 is 55.
Which statement is true?

A. The program prints several values that total 55.
B. The program prints 55.
C. A compilation error occurs at `line n1`.
D. The program prints several values whose sum exceeds 55.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 10
Given the content of `Operator.java`, `EngineOperator.java`, and `Engine.java` files:

```
Operator.java:
public abstract class Operator {
    protected void turnON();
    protected void turnOFF();
}

EngineOperator.java:
public class EngineOperator extends Operator{
    public final void turnON() { System.out.print("ON "); }
    public final void turnOFF() { System.out.println("OFF"); }
}

Engine.java:
public class Engine{
    Operator m = new EngineOperator();
    public void operate() {
        m.turnON();
        m.turnOFF();
    }
}
```

and the code fragment:

```
Engine carEngine = new Engine();
carEngine.operate();
```

What is the result?

A. The `Engine.java` file fails to compile.
B. The `EngineOperator.java` file fails to compile.
C. The `Operator.java` file fails to compile.
D. `ON OFF`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 11
Given the code fragment:

```
Stream<List<String>> iStr= Stream.of (
    Arrays.asList (“1”, “John”),
    Arrays.asList (“2”, null)0;
Stream<<String> nInSt = iStr.flatMapToInt ((x) -> x.stream ());
nInSt.forEach (System.out :: print);
```

What is the result?

A. `1John2null`
B. `12`
C. A `NullPointerException` is thrown at run time.
D. A compilation error occurs.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 12
Given the code fragment:

```
Path file = Paths.get (“courses.txt”);
// line n1
```

Assume the `courses.txt` is accessible.
Which code fragment can be inserted at `line n1` to enable the code to print the content of the `courses.txt` file?

A.
```
List<String> fc = Files.list(file);
fc.stream().forEach (s - > System.out.println(s));
```
B.
```
Stream<String> fc = Files.readAllLines (file);
fc.forEach (s - > System.out.println(s));
```
C.
```
List<String> fc = readAllLines(file);
fc.stream().forEach (s - > System.out.println(s));
```
D.
```
Stream<String> fc = Files.lines (file);
fc.forEach (s - > System.out.println(s));
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 13
Given the code fragment:

```
public void recDelete (String dirName) throws IOException   {
    File [ ] listOfFiles = new File (dirName) .listFiles();
    if (listOfFiles ! = null && listOfFiles.length >0)   {
        for (File aFile : listOfFiles)   {
            if (aFile.isDirectory ())    {
                recDelete (aFile.getAbsolutePath ());
            }    else   {
                if (aFile.getName ().endsWith (“.class”))
                    aFile.delete ();
            }
        }
    }
}
```

Assume that `Projects` contains subdirectories that contain `.class` files and is passed as an argument to the `recDelete ()` method when it is invoked.
What is the result?

A. The method deletes all the `.class` files in the `Projects` directory and its subdirectories.
B. The method deletes the `.class` files of the `Projects` directory only.
C. The method executes and does not make any changes to the `Projects` directory.
D. The method throws an IOException.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 14
Given the code fragments:

```
4. void doStuff() throws ArithmeticException, NumberFormatException, Exception
{
5.     if (Math.random() >-1 throw new Exception (“Try again”);
6. }
```

and

```
24. try {
25.     doStuff ( ):
26. } catch (ArithmeticException | NumberFormatException | Exception e)  {
27.     System.out.println (e.getMessage()); }
28. catch (Exception e)    {
29.     System.out.println (e.getMessage()); }
30. }
```

Which modification enables the code to print `Try again`?

A. Comment the lines 28, 29 and 30.
B. Replace line 26 with:
```
} catch (Exception | ArithmeticException | NumberFormatException e) {
```
C. Replace line 26 with:
```
} catch (ArithmeticException | NumberFormatException e) {
```
D. Replace line 27 with:
```
throw e;
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 15
Given the definition of the Country class:

```
public class country {
    public enum Continent {ASIA, EUROPE}
    String name;
    Continent region;

    public Country (String na, Continent reg)   {
        name = na, region = reg;
        }
        public String getName () {return name;}
        public Continent getRegion () {return region;}
}
```

and the code fragment:
```
List<Country> couList = Arrays.asList (
    new Country (“Japan”, Country.Continent.ASIA),
    new Country (“Italy”, Country.Continent.EUROPE),
    new Country (“Germany”, Country.Continent.EUROPE));
Map<Country.Continent, List<String>> regionNames = couList.stream ()
    .collect(Collectors.groupingBy (Country ::getRegion,
    Collectors.mapping(Country::getName, Collectors.toList())));
System.out.println(regionNames);
```

A. `{EUROPE = [Italy, Germany], ASIA = [Japan]}`
B. `{ASIA = [Japan], EUROPE = [Italy, Germany]}`
C. `{EUROPE = [Germany, Italy], ASIA = [Japan]}`
D. `{EUROPE = [Germany], EUROPE = [Italy], ASIA = [Japan]}`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 16
Given the code fragment:

```
Map<Integer, String> books = new TreeMap<>();
books.put (1007, “A”);
books.put (1002, “C”);
books.put (1001, “B”);
books.put (1003, “B”);
System.out.println (books);
```

What is the result?

A. `{1007 = A, 1002 = C, 1001 = B, 1003 = B}`
B. `{1001 = B, 1002 = C, 1003 = B, 1007 = A}`
C. `{1002 = C, 1003 = B, 1007 = A}`
D. `{1007 = A, 1001 = B, 1003 = B, 1002 = C}`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: TreeMap inherits SortedMap and automatically sorts the element's key

QUESTION 17
Given:

```
class Book {
    int id;
    String name;
    public Book (int id, String name)  {
        this.id = id;
        this.name = name;
    }
    public boolean equals (Object obj) {           //line n1
        boolean output = false;
        Book b = (Book) obj;
        if (this.name.equals(b name))}
            output = true;
        }
        return output;
    }
}
```

and the code fragment:

```
Book b1 = new Book (101, “Java Programing”);
Book b2 = new Book (102, “Java Programing”);
System.out.println (b1.equals(b2));                 //line n2
```

Which statement is true?

A. The program prints `true`.
B. The program prints `false`.
C. A compilation error occurs. To ensure successful compilation, replace `line n1` with:
   `boolean equals (Book obj)  {`
D. A compilation error occurs. To ensure successful compilation, replace `line n2` with:
   `System.out.println (b1.equals((Object) b2));`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 18
Given the content of `/resourses/Message.properties`:

```
welcome1="Good day!"
```

and given the code fragment:

```
Properties prop = new Properties ();
FileInputStream fis = new FileInputStream ("/resources/Message.properties");
prop.load(fis);
System.out.println(prop.getProperty("welcome1"));
System.out.println(prop.getProperty("welcome2", "Test"));//line n1
System.out.println(prop.getProperty("welcome3"));
```

What is the result?

A.
```
Good day!
Test
```
followed by an `Exception` stack trace

B.
```
Good day!
```
followed by an `Exception` stack trace

C.
```
Good day!
Test
null
```

D. A compilation error occurs at `line n1`.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 19
Which action can be used to load a database driver by using JDBC3.0?

A. Add the driver class to the META-INF/services folder of the JAR file.
B. Include the JDBC driver class in a `jdbc.properties` file.
C. Use the `java.lang.Class.forName` method to load the driver class.
D. Use the `DriverManager.getDriver` method to load the driver class.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 20

Given the code fragment:

```
Path p1 = Paths.get(“/Pics/MyPic.jpeg”);
System.out.println (p1.getNameCount() +
            “:” + p1.getName(1) +
            “:” + p1.getFileName());
```

Assume that the `Pics` directory does NOT exist.
What is the result?

A. An exception is thrown at run time.
B. `2:MyPic.jpeg: MyPic.jpeg`
C. `1:Pics:/Pics/ MyPic.jpeg`
D. `2:Pics: MyPic.jpeg`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 21
Given the code fragments:

```
class MyThread implements Runnable {
    private static AtomicInteger count = new AtomicInteger (0);
    public void run ()   {
        int x = count.incrementAndGet();
        System.out.print (x+” “);
    }
}
```

and

```
Thread thread1 = new Thread(new MyThread());
Thread thread2 = new Thread(new MyThread());
Thread thread3 = new Thread(new MyThread());

Thread [] ta = {thread1, thread2, thread3};
for (int x= 0; x < 3; x++)   {
    ta[x].start();
}
```

Which statement is true?

A. The program prints 1 2 3 and the order is unpredictable.
B. The program prints 1 2 3.
C. The program prints 1 1 1.
D. A compilation error occurs.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 22
Given the code fragment:

```
public static void main (String [ ] args) throws IOException   {
    BufferedReader br = new BufferedReader (new InputStremReader (System.in));
    System.out.print (“Enter GDP: “);
    //line 1
}
```

Which code fragment, when inserted at line 1, enables the code to read the GDP from the user?

A. `int GDP = Integer.parseInt (br.readline());`
B. `int GDP = br.read();`
C. `int GDP = br.nextInt();`
D. `int GDP = Integer.parseInt (br.next());`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 23
Given the code fragment:

```
Path source = Paths.get (“/data/december/log.txt”);
Path destination = Paths.get(“/data”);
Files.copy (source, destination);
```

and assuming that the file `/data/december/log.txt` is accessible and contains:

```
10-Dec-2014 – Executed successfully
```

What is the result?

A. A file with the name `log.txt` is created in the `/data` directory and the content of the `/data/december/log.txt` file is copied to it.
B. The program executes successfully and does NOT change the file system.
C. A `FileNotFoundException` is thrown at run time.
D. A `FileAlreadyExistsException` is thrown at run time.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 24
Given:

```
class Student    {
    String course, name, city;
    public Student (String name, String course, String city)   {
```

```
        this.course = course; this.name = name; this.city = city;
    }
    public String toString()    {
        return course + ":" + name + ":" + city;
    }
```

and the code fragment:

```
List<Student> stds = Arrays.asList(
    new Student ("Jessy", "Java ME", "Chicago"),
    new Student ("Helen", "Java EE", "Houston"),
    new Student ("Mark", "Java ME", "Chicago"));
stds.stream()
    .collect(Collectors.groupingBy(Student::getCourse))
    .forEach(src, res) -> System.out.println(scr));
```

What is the result?

A.
```
[Java EE: Helen:Houston]
[Java ME: Jessy:Chicago, Java ME: Mark:Chicago]
```

B.
```
Java EE
Java ME
```

C.
```
[Java ME: Jessy:Chicago, Java ME: Mark:Chicago]
[Java EE: Helen:Houston]
```

D. A compilation error occurs.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 25
Given the code fragments:

```
interface CourseFilter extends Predicate<String>    {
    public default boolean test (String str)     {
        return str.equals ("Java");
    }
}
```

and

```
List<String> strs = Arrays.asList("Java", "Java EE", "Java ME");
Predicate<String> cf1 = s - > s.length() > 3;
Predicate cf2 = new CourseFilter()   {         //line n1
    public boolean test (String s)  {
        return s.contains ("Java");
    }
};
long c = strs.stream()
    .filter(cf1)
    .filter(cf2                        //line n2
.count();
System.out.println(c);
```

What is the result?

A. 2
B. 3
C. A compilation error occurs at `line n1`.
D. A compilation error occurs at `line n2`.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 26
Given:

```
public class Emp   {
    String fName;
    String lName;
    public Emp (String fn, String ln)  {
        fName = fn;
        lName = ln;
    }
    public String getfName() { return fName; }
    public String getlName() { return lName; }
}
```

and the code fragment:

```
List<Emp> emp = Arrays.asList (
    new Emp (“John”, “Smith”),
    new Emp (“Peter”, “Sam”),
    new Emp (“Thomas”, “Wale”));
emp.stream()
    //line n1
    .collect(Collectors.toList());
```

Which code fragment, when inserted at line n1, sorts the employees list in descending order of `fName` and then ascending order of `lName`?

A. `.sorted (Comparator.comparing(Emp::getfName).reserved().thenComparing (Emp::getlName))`
B. `.sorted (Comparator.comparing(Emp::getfName).thenComparing(Emp::getlName))`
C. `.map(Emp::getfName).sorted(Comparator.reserveOrder())`
D. `.map(Emp::getfName).sorted(Comparator.reserveOrder().map (Emp::getlName).reserved`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 27
Given:

```
public enum USCurrency   {
```

```
    PENNY (1),
    NICKLE(5),
    DIME (10),
    QUARTER(25);

    private int value;

    public USCurrency(int value)   {
        this.value = value;
    }
    public int getValue()    {return value;}
}
public class Coin {
    public static void main (String[] args)   {
        USCurrency usCoin =new USCurrency.DIME;
        System.out.println(usCoin.getValue()):
    }
}
```

Which two modifications enable the given code to compile? (Choose two.)

A. Nest the `USCurrency` enumeration declaration within the `Coin` class.
B. Make the `USCurrency` enumeration constructor `private`.
C. Remove the `new` keyword from the instantion of `usCoin`.
D. Make the getter method of `value` as a `static` method.
E. Add the `final` keyword in the declaration of `value`.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 28
Given:

```
class ImageScanner implements AutoCloseable {
    public void close () throws Exception {
        System.out.print (“Scanner closed.”);
    }
    public void scanImage () throws Exception {
        System.out.print (“Scan.”);
        throw new Exception(“Unable to scan.”);
    }
}
class ImagePrinter implements AutoCloseable {
    public void close () throws Exception {
        System.out.print (“Printer closed.”);
    }
    public void printImage ()  {System.out.print(“Print.”);    }
}
```

and this code fragment:

```
try (ImageScanner ir = new ImageScanner();
        ImagePrinter iw = new ImagePrinter())   {
    ir.scanImage();
    iw.printImage();
```

```
}  catch (Exception e)  {
    System.out.print(e.getMessage());
}
```

What is the result?

A. `Scan.Printer closed. Scanner closed. Unable to scan.`
B. `Scan.Scanner closed. Unable to scan.`
C. `Scan. Unable to scan.`
D. `Scan. Unable to scan. Printer closed.`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 29
Given the structure of the STUDENT table:

```
Student (id INTEGER, name VARCHAR)
```

Given:

```
public class Test   {
    static Connection newConnection =null;
    public static Connection get DBConnection () throws SQLException {
        try (Connection con = DriveManager.getConnection(URL, username,
password))   {
            newConnection = con;
        }
        return newConnection;
    }
    public static void main (String [] args) throws SQLException {
        get DBConnection ();
        Statement st = newConnection.createStatement();
        st.executeUpdate("INSERT INTO student VALUES (102, 'Kelvin')");
    }
}
```

Assume that:
The required database driver is configured in the classpath.
The appropriate database is accessible with the URL, userName, and passWord exists.
The SQL query is valid.

What is the result?

A. The program executes successfully and the STUDENT table is updated with one record.
B. The program executes successfully and the STUDENT table is NOT updated with any record.
C. A `SQLException` is thrown as runtime.
D. A `NullPointerException` is thrown as runtime.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 30
Given the code fragments:

```
class Employee  {
    Optional<Address> address;
    Employee (Optional<Address> address)   {
        this.address = address;
    }
    public  Optional<Address> getAddress()   {   return address;   }
}

class Address   {
    String city = “New York”;
    public String getCity  {   return city:   }
    public String toString()    {
        return city;
    }
}
```

and

```
Address address = null;
Optional<Address> addrs1 = Optional.ofNullable (address);
Employee e1 = new Employee (addrs1);
String eAddress = (addrs1.isPresent()) ? addrs1.get().getCity() : “City Not
available”;
```

What is the result?

A. `New York`
B. `City Not available`
C. `null`
D. `A NoSuchElementException is thrown at run time.`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 31
Given the code fragment:

```
Stream<Path> files = Files.walk(Paths.get(System.getProperty(“user.home”)));
    files.forEach (fName -> {                    //line n1
        try {
            Path aPath = fName.toAbsolutePath();    //line n2
            System.out.println(fName + “:”
                + Files.readAttributes(aPath,
Basic.File.Attributes.class).creationTime
());
        } catch (IOException ex) {
            ex.printStackTrace();

    });
```

What is the result?

A. All files and directories under the home directory are listed along with their attributes.
B. A compilation error occurs at `line n1`.
C. The files in the home directory are listed along with their attributes.
D. A compilation error occurs at `line n2`.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 32
Given:

```
class Vehicle   {
    int vno;
    String name;

    public Vehicle (int vno, String name)   {
        this.vno = vno,;
        this.name = name;
    }
    public String toString ()   {
        return vno + ":" + name;
    }
}
```

and this code fragment:

```
Set<Vehicle>  vehicles = new TreeSet <> ();
vehicles.add(new Vehicle (10123, "Ford"));
vehicles.add(new Vehicle (10124, "BMW"));
System.out.println(vehicles);
```

What is the result?

A.
```
10123 Ford
10124 BMW
```
B.
```
10124 BMW
10123 Ford
```
C. A compilation error occurs.
D. A `ClassCastException` is thrown at run time.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 33
Given that course.txt is accessible and contains:

```
Course : : Java
```

and given the code fragment:

```
public static void main (String[ ] args)    {
    int i;
    char c;
    try (FileInputStream fis = new FileInputStream (“course.txt”);
        InputStreamReader isr = new InputStreamReader(fis);) {
        while (isr.ready())   {   //line n1
            isr.skip(2);
            i = isr.read ();
            c = (char) i;
            System.out.print(c);
        }
    } catch (Exception e)   {
        e.printStackTrace();
    }
}
```

What is the result?

A. `ur :: va`
B. `ueJa`
C. The program prints nothing.
D. A compilation error occurs at `line n1`.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 34
Given:

```
public class Test<T>    {
    private T t;
    public T get ()  {
        return t;
    }
    public void set (T t)    {
        this.t = t;
    }
    public static void main (String args [ ] )    {
        Test<String> type = new Test<>();
        Test type 1 = new Test ();            //line n1
        type.set(“Java”);
        type1.set(100);                //line n2
        System.out.print(type.get() + “ “ + type1.get());
    }
}
```

What is the result?

A. `Java 100`
B. `java.lang.string@<`*`hashcode`*`>java.lang.Integer@<hashcode>`

C. A compilation error occurs. To rectify it, replace `line n1` with:
```
Test<Integer> type1 = new Test<>();
```
D. A compilation error occurs. To rectify it, replace `line n2` with:
```
type1.set (Integer(100));
```

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 35
Given the definition of the Vehicle class:

```
class Vehicle   {
    String name;
        void setName (String name)   {
            this.name = name;
    }
    String getName()   {
        return name;
    }
}
```

Which action encapsulates the Vehicle class?

A. Make the `Vehicle` class `public`.
B. Make the `name` variable `public`.
C. Make the `setName` method `public`.
D. Make the `name` variable `private`.
E. Make the `setName` method `private`.
F. Make the `getName` method `private`.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 36
Given:

```
public class product   {
    int id; int price;
    public Product (int id, int price)   {
        this.id = id;
        this.price = price;
    }
    public String toString()  {   return id + ":" + price;   }
}
```

and the code fragment:

```
List<Product> products = Arrays.asList(new Product(1, 10),
    new Product (2, 30),
```

```
    new Product (2, 30));
Product p = products.stream().reduce(new Product (4, 0), (p1,  p2) -> {
    p1.price+=p2.price;
    return new Product (p1.id, p1.price);});
products.add(p);
products.stream().parallel()
    .reduce((p1, p2) - > p1.price > p2.price ? p1 : p2)
    .ifPresent(System.out: :println);
```

What is the result?

A. `2 : 30`
B. `4 : 0`
C. `4 : 60`
D.
```
4 : 60
2 : 30
3 : 20
1 : 10
```
E. The program prints nothing.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 37
Given the code fragments:

```
public class Book implements Comparator<Book>  {
    String name;
    double price;
    public Book ()   {}
    public Book(String name, double price)    {
        this.name = name;
        this.price = price;
    }
    public int compare(Book b1, Book b2)    {
        return b1.name.compareTo(b2.name);
    }
    public String toString()   {
        return name + ":" + price;
    }
}
```

and

```
List<Book>books = Arrays.asList (new Book ("Beginning with Java", 2), new book
("A
Guide to Java Tour", 3));
    Collections.sort(books, new Book());
    System.out.print(books);
```

What is the result?

A. `[A Guide to Java Tour:3.0, Beginning with Java:2.0]`
B. `[Beginning with Java:2, A Guide to Java Tour:3]`

C. A compilation error occurs because the Book class does not override the abstract method `compareTo()`.
D. An `Exception` is thrown at run time.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 38
Given the code fragment:

```
List<String> listVal = Arrays.asList(“Joe”, “Paul”, “Alice”, “Tom”);
System.out.println (
    // line n1
);
```

Which code fragment, when inserted at line n1, enables the code to print the count of string elements whose length is greater than three?

A. `listVal.stream().filter(x -> x.length()>3).count()`
B. `listVal.stream().map(x -> x.length()>3).count()`
C. `listVal.stream().peek(x -> x.length()>3).count().get()`
D. `listVal.stream().filter(x -> x.length()>3).mapToInt(x -> x).count()`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 39
Given the code fragments:

```
class Caller implements Callable<String>     {
    String str;
    public Caller (String s) {this.str=s;}
    public String call()throws Exception { return str.concat (“Caller”);}
}
class Runner implements Runnable   {
String str;
    public Runner (String s) {this.str=s;}
    public void run () { System.out.println (str.concat (“Runner”));}
}
```

and

```
public static void main (String[] args) InterruptedException, ExecutionException
  {
    ExecutorService es = Executors.newFixedThreadPool(2);
    Future f1 = es.submit (new Caller (“Call”));
    Future f2 = es.submit (new Runner (“Run”));
    String str1 = (String) f1.get();
    String str2 = (String) f2.get();        //line n1
    System.out.println(str1+ “:” + str2);
}
```

What is the result?

A. The program prints:
   `Run Runner`
   `Call Caller : null`
   And the program does not terminate.
B. The program terminates after printing:
   `Run Runner`
   `Call Caller : Run`
C. A compilation error occurs at `line n1`.
D. An `Execution` is thrown at run time.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 40
Given:

```
public class Canvas implements Drawable {
    public void draw ()   { }
}

public abstract class Board extends Canvas {  }

public class Paper extends Canvas {
    protected void draw (int color)   {   }
}
public class Frame extends Canvas implements Drawable {
    public void resize ()   { }
}
public  interface Drawable {
    public abstract void draw ();
}
```

Which statement is true?

A. `Board` does not compile.
B. `Paper` does not compile.
C. `Frame` does not compile.
D. `Drawable` does not compile.
E. All classes compile successfully.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 41
Given the code fragment:

```
List<String> str = Arrays.asList (“my”, “pen”, “is”, “your’, “pen”);
Predicate<String> test = s -> {
    int i = 0;
    boolean result = s.contains (“pen”);
    System.out.print(i++) + “:”);
    return result;
};
str.stream()
        .filter(test)
        .findFirst()
        .ifPresent(System.out ::print);
```

What is the result?

A. `0 : 0 : pen`
B. `0 : 1 : pen`
C. `0 : 0 : 0 : 0 : 0 : pen`
D. `0 : 1 : 2 : 3 : 4 :`
E. A compilation error occurs.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 42
Given the code fragment:

```
List<String> empDetails = Arrays.asList(“100, Robin, HR”,
                                        “200, Mary, AdminServices”,
                                        “101, Peter, HR”);
empDetails.stream()
    .filter(s-> s.contains(“1”))
    .sorted()
    .forEach(System.out::println); //line n1
```

What is the result?

A.
```
100, Robin, HR
101, Peter, HR
```
B. A compilation error occurs at `line n1`.
C.
```
100, Robin, HR
101, Peter, HR
200, Mary, AdminServices
```
D.
```
100, Robin, HR
200, Mary, AdminServices
101, Peter, HR
```

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 43
Given:

```
interface Rideable  {Car getCar (String name);   }

class Car {
    private String name;
    public Car (String name)    {
        this.name = name;
    }
}
```

Which code fragment creates an instance of `Car`?

A. `Car auto = Car (“MyCar”): : new;`
B. `Car auto = Car : : new;`
   `Car vehicle = auto : : getCar(“MyCar”);`
C. `Rideable rider = Car : : new;`
   `Car vehicle = rider.getCar(“MyCar”);`
D. `Car vehicle = Rideable : : new : : getCar(“MyCar”);`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 44
Which statement is true about the single abstract method of the `java.util.function.Function` interface?

A. It accepts one argument and returns `void`.
B. It accepts one argument and returns `boolean`.
C. It accepts one argument and always produces a result of the same type as the argument.
D. It accepts an argument and produces a result of any data type.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 45
Which statement is true about the `DriverManager` class?

A. It returns an instance of `Connection`.
B. it executes SQL statements against the database.
C. It only queries metadata of the database.
D. it is written by different vendors for their specific database.

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:
Explanation:
The DriverManager returns an instance of Doctrine\DBAL\Connection which is a wrapper around the underlying driver connection (which is often a PDO instance).
Reference: https://www.doctrine-project.org/projects/doctrine-dbal/en/2.8/reference/configuration.html

QUESTION 46
Given the code fragment:

```
List<Integer> nums = Arrays.asList (10, 20, 8):
System.out.println (
    //line n1
);
```

Which code fragment must be inserted at `line n1` to enable the code to print the maximum number in the `nums` list?

A. `nums.stream().max(Comparator.comparing(a -> a)).get()`
B. `nums.stream().max(Integer : : max).get()`
C. `nums.stream().max()`
D. `nums.stream().map(a -> a).max()`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 47
Given:

```
public final class IceCream {
    public void prepare()   {}
}
public class Cake {
    public final void bake(int min, int temp)  {}
    public void mix()   {}
}
public class Shop {
    private Cake c = new Cake ();
    private final double discount = 0.25;
    public void makeReady () {  c.bake(10, 120); }
}
public class Bread extends Cake {
    public void bake(int minutes, int temperature)  {}
    public void addToppings()   {}
}
```

Which statement is true?

A. A compilation error occurs in `IceCream`.
B. A compilation error occurs in `Cake`.
C. A compilation error occurs in `Shop`.
D. A compilation error occurs in `Bread`

E. All classes compile successfully.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 48
Which two statements are true about localizing an application? (Choose two.)

A. Support for new regional languages does not require recompilation of the code.
B. Textual elements (messages and GUI labels) are hard-coded in the code.
C. Language and region-specific programs are created using localized data.
D. Resource bundle files include data and currency information.
E. Language codes use lowercase letters and region codes use uppercase letters.

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Reference: http://docs.oracle.com/javase/7/docs/technotes/guides/intl/

QUESTION 49
Which statement is true about `java.util.stream.Stream`?

A. A stream cannot be consumed more than once.
B. The execution mode of streams can be changed during processing.
C. Streams are intended to modify the source data.
D. A parallel stream is always faster than an equivalent sequential stream.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 50
The data.doc, data.txt and data.xml files are accessible and contain text.
Given the code fragment:

```
Stream<Path> paths = Stream.of (Paths. get(“data.doc”),
  Paths. get(“data.txt”),
  Paths. get(“data.xml”));
paths.filter(s-> s.toString().endWith(“txt”)).forEach(
    s -> {
        try {
            Files.readAllLines(s)
                .stream()
                .forEach(System.out::println); //line n1
        } catch (IOException e) {
            System.out.println(“Exception”);
```

```
        }
    }
);
```

What is the result?

A. The program prints the content of `data.txt` file.

B. The program prints:
```
Exception
<<The content of the data.txt file>>
Exception
```

C. A compilation error occurs at `line n1`.

D. The program prints the content of the three files.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 51
Given:

```
final class Folder {        //line n1
    //line n2
    public void open () {
        System.out.print("Open");
    }
}
public class Test {
    public static void main (String [] args) throws Exception   {
        try (Folder f = new Folder())   {
            f.open();
        }
    }
}
```

Which two modifications enable the code to print `Open Close`? (Choose two.)

A. Replace `line n1` with:
```
class Folder implements AutoCloseable {
```

B. Replace `line n1` with:
```
class Folder extends Closeable {
```

C. Replace `line n1` with:
```
class Folder extends Exception {
```

D. At line n2, insert:
```
final void close ()   {
      System.out.print("Close");
}
```

E. At line n2, insert:
```
public void close () throws IOException {
      System.out.print("Close");
}
```

Correct Answer: AE

Section: (none)
Explanation

Explanation/Reference:

QUESTION 52
You want to create a singleton class by using the Singleton design pattern.
Which two statements enforce the singleton nature of the design? (Choose two.)

A. Make the class `static`.
B. Make the constructor `private`.
C. Override `equals`() and `hashCode`() methods of the java.lang.Object class.
D. Use a `static` reference to point to the single instance.
E. Implement the `Serializable` interface.

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 53
Given the code fragment:

```
9. Connection conn = DriveManager.getConnection(dbURL, userName, passWord);
10. String query = "SELECT id FROM Employee";
11. try (Statement stmt = conn.createStatement())   {
12.     ResultSet rs = stmt.executeQuery(query);
13.    stmt.executeQuery("SELECT id FROM Customer");
14.     while (rs.next())  {
15.         //process the results
16.        System.out.println("Employee ID: "+ rs.getInt("id"));
17.    }
18. } catch (Exception e) {
19.     System.out.println ("Error");
20. }
```

Assume that:
The required database driver is configured in the classpath.
The appropriate database is accessible with the `dbURL`, `userName`, and `passWord` exists.
The `Employee` and `Customer` tables are available and each table has id column with a few records and the SQL queries are valid.
What is the result of compiling and executing this code fragment?

A. The program prints employee IDs.
B. The program prints customer IDs.
C. The program prints Error.
D. compilation fails on line 13.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 54
Given the code fragment:

```
List<Integer> codes = Arrays.asList (10, 20);
UnaryOperator<Double> uo = s -> s +10.0;
codes.replaceAll(uo);
codes.forEach(c -> System.out.println(c));
```

What is the result?

A. 20.0
   30.0
B. 10
   20
C. A compilation error occurs.
D. A `NumberFormatException` is thrown at run time.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 55
Given:

```
public class Customer   {
    private String fName;
    private String lName;
    private static int count;
    public customer (String first, String last) {fName = first, lName = last;
    ++count;}
    static  {  count = 0;  }
    public static int getCount()  {return count; }
}

public class App   {
    public static void main (String [] args)   {
        Customer c1 = new Customer(“Larry”, “Smith”);
        Customer c2 = new Customer(“Pedro”, “Gonzales”);
        Customer c3 = new Customer(“Penny”, “Jones”);
        Customer c4 = new Customer(“Lars”, “Svenson”);
        c4 = null;
        c3 = c2;
        System.out.println (Customer.getCount());
    }
}
```

What is the result?

A. 0
B. 2
C. 3
D. 4

E. 5

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 56
Given:

`Item table`

- `ID, INTEGER: PK`
- `DESCRIP, VARCHAR(100)`
- `PRICE, REAL`
- `QUANTITY< INTEGER`

And given the code fragment:

```
9. try {
10.    Connection conn = DriveManager.getConnection(dbURL, username, password);
11.     String query = “Select * FROM Item WHERE ID = 110”;
12.     Statement stmt = conn.createStatement();
13.     ResultSet rs = stmt.executeQuery(query);
14.    while(rs.next())   {
15.        System.out.println(“ID:        “ + rs.getInt(“Id”));
16.        System.out.println(“Description:    “ + rs.getString(“Descrip”));
17.        System.out.println(“Price:        “ + rs.getDouble(“Price”));
18.         System.out.println(Quantity:        “ + rs.getInt(“Quantity”));
19.    }
20. } catch (SQLException se)  {
21.     System.out.println(“Error”);
22. }
```

Assume that:
The required database driver is configured in the classpath.
The appropriate database is accessible with the `dbURL`, `userName`, and `passWord` exists.
The SQL query is valid.

What is the result?

A. An exception is thrown at runtime.
B. Compilation fails.
C. The code prints `Error`.
D. The code prints information about Item 110.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 57
Given:

```
class Worker extends Thread  {
    CyclicBarrier cb;
    public Worker(CyclicBarrier cb) { this.cb = cb; }
    public void run ()  {
        try  {
            cb.await();
            System.out.println("Worker…");
        } catch (Exception ex)  {  }
    }
}
class Master implements Runnable {   //line n1
    public void run ()   {
        System.out.println("Master…");
    }
}
```

and the code fragment:

```
Master master = new Master();
//line n2
Worker worker = new Worker(cb);
worker.start();
```

You have been asked to ensure that the `run` methods of both the `Worker` and `Master` classes are executed.
Which modification meets the requirement?

A. At `line n2`, insert `CyclicBarrier cb = new CyclicBarrier(2, master);`
B. Replace `line n1` with `class Master extends Thread {`
C. At `line n2`, insert `CyclicBarrier cb = new CyclicBarrier(1, master);`
D. At `line n2`, insert `CyclicBarrier cb = new CyclicBarrier(master);`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 58
Given the code fragment:

```
String str = "Java is a programming language";
ToIntFunction<String> indexVal = str: : indexOf;  //line n1
int x = indexVal.applyAsInt("Java");        //line n2
System.out.println(x);
```

What is the result?

A. 0
B. 1
C. A compilation error occurs at `line n1`.
D. A compilation error occurs at `line n2`.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 59
Given the code fragment:

```
List<String> codes = Arrays.asList (“DOC”, “MPEG”, “JPEG”);
codes.forEach (c -> System.out.print(c + “ “));
String fmt = codes.stream()
    .filter (s-> s.contains (“PEG”))
    .reduce((s, t) -> s + t).get();
System.out.println(“\n” + fmt);
```

What is the result?

A.
```
DOC MPEG JPEG
MPEGJPEG
```
B.
```
DOC MPEG MPEGJPEG
MPEGMPEGJPEG
```
C.
```
MPEGJPEG
MPEGJPEG
```
D. The order of the output is unpredictable.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 60
Given the code fragment:

```
List<String> nL = Arrays.asList(“Jim”, “John”, “Jeff”);
Function<String, String> funVal = s -> “Hello : “.contact(s);
nL.Stream()
    .map(funVal)
    .peek(System.out::print);
```

What is the result?

A. `Hello : Jim Hello : John Hello : Jeff`
B. `Jim John Jeff`
C. The program prints nothing.
D. A compilation error occurs.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 61
Given:

```
public interface Moveable<Integer>    {
    public default void walk (Integer distance) {System.out.println(“Walking”);)
    public void run(Integer distance);
}
```

Which statement is true?

A. `Moveable` can be used as below:
```
Moveable<Integer> animal = n - > System.out.println(“Running” + n);
animal.run(100);
animal.walk(20);
```
B. `Moveable` can be used as below:
```
Moveable<Integer> animal = n - > n + 10;
animal.run(100);
animal.walk(20);
```
C. `Moveable` can be used as below:
```
Moveable animal = (Integer n)  - > System.out.println(n);
animal.run(100);
Moveable.walk(20);
```
D. `Movable` cannot be used in a lambda expression.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 62
Which two code blocks correctly initialize a Locale variable? (Choose two.)

A. `Locale loc1 = "UK";`
B. `Locale loc2 = Locale.getInstance("ru");`
C. `Locale loc3 = Locale.getLocaleFactory("RU");`
D. `Locale loc4 = Locale.UK;`
E. `Locale loc5 = new Locale ("ru", "RU");`

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 63
Given:

```
class FuelNotAvailException extends Exception {   }
class Vehicle   {
    void ride() throws FuelNotAvailException  {    //line n1
        System.out.println(“Happy Journey!”);
    }
}
class SolarVehicle extends Vehicle   {
    public void ride () throws Exception   {        //line n2
        super ride ();
  }
```

```
}
```

and the code fragment:

```
public static void main (String[] args) throws FuelNotAvailException, Exception
 {
    Vehicle v = new SolarVehicle ();
    v.ride();
}
```

Which modification enables the code fragment to print `Happy Journey!`?

A. Replace `line n1` with `public void ride() throws FuelNotAvailException {`
B. Replace `line n1` with `protected void ride() throws Exception {`
C. Replace `line n2` with `void ride() throws Exception {`
D. Replace `line n2` with `private void ride() throws FuelNotAvailException {`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 64
Given the definition of the `Emp` class:

```
public class Emp
    private String eName;
    private Integer eAge;

    Emp(String eN, Integer eA)    {
        this.eName = eN;
        this.eAge = eA;
    }
    public Integer getEAge () {return eAge;}
    public String getEName () {return eName;}
}
```

and code fragment:

```
List<Emp>li = Arrays.asList(new Emp("Sam", 20), New Emp("John", 60), New Emp
("Jim", 51));
Predicate<Emp> agVal = s -> s.getEAge() > 50;            //line n1
li = li.stream().filter(agVal).collect(Collectors.toList());
Stream<String> names = li.stream()map.(Emp::getEName);    //line n2
names.forEach(n -> System.out.print(n + " "));
```

What is the result?

A. `Sam John Jim`
B. `John Jim`
C. A compilation error occurs at `line n1`.
D. A compilation error occurs at `line n2`.

Correct Answer: B
Section: (none)

Explanation

Explanation/Reference:

QUESTION 65
For which three objects must a vendor provide implementations in its JDBC driver? (Choose three.)

A. `Time`
B. `Date`
C. `Statement`
D. `ResultSet`
E. `Connection`
F. `SQLException`
G. `DriverManager`

Correct Answer: CDE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Database vendors support JDBC through the JDBC driver interface or through the ODBC connection. Each driver must provide implementations of java.sql.Connection, java.sql.Statement, java.sql.PreparedStatement, java.sql.CallableStatement, and java.sql.Re sultSet. They must also implement the java.sql.Driver interface for use by the generic java.sql.DriverManager interface.

QUESTION 66
Given the code fragment:

```
LocalDate valentinesDay =LocalDate.of(2015, Month.FEBRUARY, 14);
LocalDate nextYear = valentinesDay.plusYears(1);
nextYear.plusDays(15); //line n1
System.out.println(nextYear);
```

What is the result?

A. 2016-02-14
B. A `DateTimeException` is thrown.
C. 2016-02-29
D. A compilation error occurs at `line n1`.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 67
Given the code fragment:

```
BiFunction<Integer, Double, Integer> val = (t1, t2) -> t1 + t2;    //line n1
System.out.println(val.apply(10, 10.5));
```

What is the result?

A. 20
B. 20.5
C. A compilation error occurs at `line n1`.
D. A compilation error occurs at `line n2`.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 68
Which statement is true about `java.time.Duration`?

A. It tracks time zones.
B. It preserves daylight saving time.
C. It defines time-based values.
D. It defines date-based values.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: http://tutorials.jenkov.com/java-date-time/duration.html#accessing-the-time-of-a-duration

QUESTION 69
Given the code fragment:

```
UnaryOperator<Integer> uo1 = s -> s*2;        line n1
List<Double> loanValues = Arrays.asList(1000.0, 2000.0);
loanValues.stream()
    .filter(lv -> lv >= 1500)
    .map(lv -> uo1.apply(lv))
    .forEach(s -> System.out.print(s + " "));
```

What is the result?

A. 4000.0
B. 4000
C. A compilation error occurs at `line n1`.
D. A compilation error occurs at `line n2`.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 70

You have been asked to create a ResourceBundle which uses a properties file to localize an application.
Which code example specifies valid keys of menu1 and menu2 with values of File Menu and View Menu?

A.
```
<key name = ‘menu1”>File Menu</key>
<key name = ‘menu2”>View Menu</key>
```
B.
```
<key>menu1</key><value>File Menu</value>
<key>menu2</key><value>View Menu</value>
```
C.
```
menu1, File Menu, menu2, View Menu Menu
```
D.
```
menu1 = File Menu
menu2 = View Menu
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 71
Given the records from the `Employee` table:

eid	ename
111	Tom
112	Jerry
113	Donald

and given the code fragment:

```
    try {
        Connection conn = DriverManager.getConnection (URL, userName, passWord);
        Statement st = conn.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,
                    ResultSet.CONCUR_UPDATABLE);
    st.execute(“SELECT*FROM Employee”);
    ResultSet rs = st.getResultSet();
    while (rs.next())   {
       if (rs.getInt(1) ==112)   {
          rs.updateString(2, “Jack”);
       }
    }
    rs.absolute(2);
    System.out.println(rs.getInt(1) + “ “ + rs.getString(2));
 } catch (SQLException ex)  {
    System.out.println(“Exception is raised”);
 }
```

Assume that:
The required database driver is configured in the classpath.
The appropriate database accessible with the `URL`, `userName`, and `passWord` exists.
What is the result?

A. The Employee table is updated with the row:
```
112 Jack
```
and the program prints:
```
112 Jerry
```
B. The Employee table is updated with the row:
```
112 Jack
```
and the program prints:

```
112 Jack
```

C. The Employee table is not updated and the program prints:
```
112 Jerry
```

D. The program prints `Exception is raised`.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 72
Given:

```
class RateOfInterest     {
    public static void main (String[]   args)     {
        int rateOfInterest = 0;
        String accountType = “LOAN”;
        switch (accountType)   {
            case “RD”;
                rateOfInterest = 5;
                break;
            case “FD”;
                rateOfInterest = 10;
                break;
            default:
                assert false: “No interest for this account”; //line n1
        }
        System.out.println (“Rate of interest:” + rateOfInterest);
    }
}
```

and the command:

```
java –ea RateOfInterest
```

What is the result?

A. `Rate of interest: 0`
B. An AssertionError is thrown.
C. `No interest for this account`
D. A compilation error occurs at `line n1`.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 73
Given the code fragment:

```
class CallerThread implements Callable<String>   {
    String str;
    public CallerThread(String s)    {this.str=s;}
```

```
    public String call() throws Exception {
        return str.concat("Call");
    }
}
```

and

```
public static void main (String[] args) throws InterruptedException,
ExecutionException
{
    ExecutorService es = Executors.newFixedThreadPool(4);         //line n1
    Future f1 = es.submit (newCallerThread("Call"));
    String str = f1.get().toString();
    System.out.println(str);
}
```

Which statement is true?

A. The program prints `Call Call` and terminates.
B. The program prints `Call Call` and does not terminate.
C. A compilation error occurs at `line n1`.
D. An `ExecutionException` is thrown at run time.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 74
Given the code fragment:

```
public class FileThread implements Runnable  {
    String fName;
    public FileThread(String fName)   { this.fName = fName;  }
    public void run () System.out.println(fName);}
    public static void main (String[] args) throws IOException,
InterruptedException   {
        ExecutorService executor = Executors.newCachedThreadPool();
        Stream<Path> listOfFiles = Files.walk(Paths.get("Java Projects"));
        listOfFiles.forEach(line ->   {
            executor.execute(new FileThread(line.getFileName().toString
()));     //
line n1
        });
        executor.shutdown();
        executor.awaitTermination(5, TimeUnit.DAYS);                    //
line n2
    }
}
```

The `Java Projects` directory exists and contains a list of files.
What is the result?

A. The program throws a runtime exception at `line n2`.
B. The program prints files names concurrently.
C. The program prints files names sequentially.

D. A compilation error occurs at `line n1`.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 75
Given:

```
class CheckClass   {
    public static int checkValue (String s1, String s2)   {
        return s1 length() – s2.length();
    }
}
```

and the code fragment:

```
String[] strArray = new String [] {“Tiger”, “Rat”, “Cat”, “Lion”}
//line n1
for (String s : strArray)   {
    System.out.print (s + “ “);
}
```

Which code fragment should be inserted at line n1 to enable the code to print `Rat Cat Lion Tiger`?

A. `Arrays.sort(strArray, CheckClass : : checkValue);`
B. `Arrays.sort(strArray, (CheckClass : : new) : : checkValue);`
C. `Arrays.sort(strArray, (CheckClass : : new).checkValue);`
D. `Arrays.sort(strArray, CheckClass : : new : : checkValue);`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 76
Given the code fragments:

```
class TechName    {
    String techName;
    TechName (String techName)   {
        this.techName=techName;
    }
}
```

and

```
List<TechName> tech = Arrays.asList   (
    new TechName(“Java-“),
    new TechName(“Oracle DB-“),
new TechName(“J2EE-“)
);
Stream<TechName> stre = tech.stream();
```

```
//line n1
```

Which should be inserted at line n1 to print Java-Oracle DB-J2EE-?

A. `stre.forEach(System.out::print);`
B. `stre.map(a-> a.techName).forEach(System.out::print);`
C. `stre.map(a-> a).forEachOrdered(System.out::print);`
D. `stre.forEachOrdered(System.out::print);`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 77
Given that `/green.txt` and `/colors/yellow.txt` are accessible, and the code fragment:

```
Path source = Paths.get(“/green.txt);
Path target = Paths.get(“/colors/yellow.txt);
Files.move(source, target, StandardCopyOption.ATOMIC_MOVE);
Files.delete(source);
```

Which statement is true?

A. The `green.txt` file content is replaced by the `yellow.txt` file content and the `yellow.txt` file is deleted.
B. The `yellow.txt` file content is replaced by the `green.txt` file content and an exception is thrown.
C. The file `green.txt` is moved to the `/colors` directory.
D. A `FileAlreadyExistsException` is thrown at runtime.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 78
Given:

```
interface Doable {
    public void doSomething (String s);
}
```

Which two class definitions compile? (Choose two.)

A.
```
public abstract class Task implements Doable {
  public void doSomethingElse(String s)    {  }
 }
```
B.
```
public abstract class Work implements Doable {
  public abstract void doSomething(String s)    {  }
  public void doYourThing(Boolean b)    {  }
 }
```
C.
```
public class Job implements Doable {
```

```
    public void doSomething(Integer i)    {  }
   }
```
D.
```
public class Action implements Doable {
    public void doSomething(Integer i)    {  }
    public String doThis(Integer j)    {  }
   }
```
E.
```
public class Do implements Doable {
    public void doSomething(Integer i)    {  }
    public void doSomething(String s)    {  }
    public void doThat (String s)    {  }
   }
```

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 79
Given the code fragment:

```
List<Integer> list1 = Arrays.asList(10, 20);
List<Integer> list2 = Arrays.asList(15, 30);
//line n1
```

Which code fragment, when inserted at line n1, prints 10 20 15 30?

A.
```
Stream.of(list1, list2)
          .flatMap(list -> list.stream())
          .forEach(s -> System.out.print(s + " "));
```
B.
```
Stream.of(list1, list2)
          .flatMap(list -> list.intStream())
          .forEach(s -> System.out.print(s + " "));
```
C.
```
list1.stream()
          .flatMap(list2.stream().flatMap(e1 -> e1.stream())
          .forEach(s -> System.out.println(s + " "));
```
D.
```
Stream.of(list1, list2)
          .flatMapToInt(list -> list.stream())
          .forEach(s -> System.out.print(s + " "));
```

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 80
Given the code fragment:

```
public static void main (String[] args) throws IOException   {
    BufferedReader brCopy = null;
    try (BufferedReader br = new BufferedReader (new FileReader("employee.txt")))
{ //
line n1
        br.lines().forEach(c -> System.out.println(c));
        brCopy = br;        //line n2
```

```
    }
    brCopy.ready();   //line n3;
}
```

Assume that the ready method of the BufferedReader, when called on a closed BufferedReader, throws an exception, and employee.txt is accessible and contains valid text.
What is the result?

A. A compilation error occurs at `line n3`.
B. A compilation error occurs at `line n1`.
C. A compilation error occurs at `line n2`.
D. The code prints the content of the `employee.txt` file and throws an exception at `line n3`.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 81
Given:

```
Book.java:
public class Book   {
    private String read(String bname)    {  return "Read" + bname   }
}
EBook.java:
public class EBook extends Book   {
    public class String read (String url)     {  return "View" + url   }
}

Test.java:
public class Test  {
    public static void main (String[] args)   {
         Book b1 = new Book();
         b1.read("Java Programing");
         Book b2 = new EBook();
         b2.read("http://ebook.com/ebook");
    }
}
```

What is the result?

A.
```
Read Java Programming
View http:/ ebook.com/ebook
```
B.
```
Read Java Programming
Read http:/ ebook.com/ebook
```
C. The `EBook.java` file fails to compile.
D. The `Test.java` file fails to compile.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 82
Given the code fragment:

```
ZonedDateTime depart = ZonedDateTime.of(2015, 1, 15, 3, 0, 0, 0, ZoneID.of(“UTC-7”));
ZonedDateTime arrive = ZonedDateTime.of(2015, 1, 15, 9, 0, 0, 0, ZoneID.of(“UTC-5”));
long hrs = ChronoUnit.HOURS.between(depart, arrive); //line n1
System.out.println(“Travel time is” + hrs + “hours”);
```

What is the result?

A. `Travel time is 4 hours`
B. `Travel time is 6 hours`
C. `Travel time is 8 hours`
D. An exception is thrown at `line n1`.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 83
Given the code fragment:

```
Path path1 = Paths.get(“/app/./sys/”);
Path res1 = path1.resolve(“log”);
Path path2 = Paths.get(“/server/exe/”);
Path res1 = path1.resolve(“/readme/”);
System.out.println(res1);
System.out.println(res2);
```

What is the result?

A. `/app/sys/log`
   `/readme/server/exe`
B. `/app/log/sys`
   `/server/exe/readme`
C. `/app/./sys/log`
   `/readme`
D. `/app/./sys/log`
   `/server/exe/readme`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 84
Given the code fragment:

```
List<String> colors = Arrays.asList(“red”, “green”, “yellow”);
```

```
Predicate<String> test = n - > {
    System.out.println(“Searching…”);
    return n.contains(“red”);
};
colors.stream()
    .filter(c -> c.length() > 3)
    .allMatch(test);
```

What is the result?

A. `Searching...`
B. `Searching...`
   `Searching...`
C. `Searching...`
   `Searching...`
   `Searching...`
D. A compilation error occurs.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 85
Given:

```
class UserException extends Exception    {  }
class AgeOutOfLimitException extends UserException    {  }
```

and the code fragment:

```
class App  {
    public void doRegister(String name, int age)
        throws UserException, AgeOutOfLimitException  {
        if (name.length () < 6)  {
            throw new UserException ();
        } else if (age >= 60)   {
            throw new AgeOutOfLimitException ();
        } else {
            System.out.println(“User is registered.”);
        }
    }
    public static void main(String[ ] args) throws UserException  {

        App t = new App ();
        t.doRegister(“Mathew”, 60);
    }
}
```

What is the result?

A. `User is registered.`
B. An `AgeOutOfLimitException` is thrown.
C. A `UserException` is thrown.
D. A compilation error occurs in the `main` method.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 86
Given the code fragment:

```
Path path1 = Paths.get("/software/./../sys/readme.txt");
Path path2 = path1.normalize();
Path path3 = path2.relativize(path1);
System.out.print(path1.getNameCount());
System.out.print(" : " + path2.getNameCount());
System.out.print(" : " + path3.getNameCount());
```

What is the result?

A. 5 : 3 : 6
B. 6 : 5 : 6
C. 3 : 3 : 4
D. 4 : 4 : 4

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 87
Given:

```
class Product {
    String name;
    int qty;
    public String toString(){
        return name;
    }
    public Product(String name, int qty) {
        this.name = name;
        this.qty = qty;
    }
    static class ProductFilter {
        public boolean isAvailable(Product p) {    // line n1
            return p.qty >= 10;
        }
    }
}
```

and the code fragment:

```
List<Product> products = Arrays.asList(
        new Product("MotherBoard", 5),
        new Product("Speaker", 20));
products.stream()
        .filter(Product.ProductFilter::isAvailable) // line n2
        .forEach(p -> System.out.println(p));
```

Which modification enables the code fragment to print `Speaker`?

A. Implement `Predicate` in the `Product.ProductFilter` class and replace `line n2` with `.filter (p -> p.ProductFilter.test (p))`
B. Replace `line n1` with:
   `public static boolean isAvailable (Product p) {`
C. Replace `line n2` with:
   `.filter (p -> p.ProductFilter: :isAvailable (p))`
D. Replace `line n2` with:
   `.filter (p -> Product: :ProductFilter: :isAvailable ())`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 88
Given the content:

`MessagesBundle.properties` file:

```
username = Enter User Name
password = Enter Password
```

`MessagesBundle_fr_FR.properties` file:

```
username = Entrez le nom d'utilisateur
password = Entrez le mot de passe
```

and the code fragment:

```
Locale currentLocale = new Locale.Builder().setRegion("FR").setLanguage("fr").build();
ResourceBundle messages = ResourceBundle.getBundle("MessagesBundle", currentLocale);
Enumeration<String> names = messages.getKeys();
while (names.hasMoreElements()) {
    String key = names.nextElement();
    String name = messages.getString(key);
    System.out.println(key + " = " + name);
}
```

What is the result?

A.
```
username = Entrez le nom d'utilisateur
password = Entrez le mot de passe
```

B.
```
username = Enter User Name
password = Enter Password
```

C. A compilation error occurs.

D. The program prints nothing.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 89
Given:

```
public class StrMan {
      public static void doStuff(String s) {
            try {
                  if (s == null) {
                        throw new NullPointerException();
                  }
            } finally {
                  System.out.printIn("-finally-");
            }
            System.out.printIn("-doStuff-");
      }
      public static void main (String[] args) {
            try {
                  doStuff(null);
            } catch (NullPointerException npe) {
                  System.out.printIn("-catch-");
            }
      }
}
```

What is the result?

A.
```
-catch-
-finally-
-dostuff-
```

B.
```
-catch-
```

C.
```
-finally-
-catch-
```

D.
```
-finally
-dostuff-
-catch-
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 90
Given:

```
public class Foo {
    public void methodB(String s) { System.out.println("Foo " + s ); }
}

public class Bar extends Foo {
    public void methodB(String s) { System.out.println("Bar " + s); }
}

public class Baz extends Bar {
    public void methodB(String s) { System.out.println("Baz " + s); }
}

public class Daze extends Baz{
    private Bar bb = new Bar();
    public void methodB(String s) {
        bb.methodB(s);
        super.methodB(s);
    }
}

public class TestClass {
    public static void main(String[] args) {
        Baz d = new Daze();
        d.methodB("Hello");
    }
}
```

What is the result?

A. `Bar Hello`
   `Foo Hello`
B. `Bar Hello`
   `Baz Hello`
C. `Baz Hello`
D. A compilation error occurs in the `Daze` class.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 91
Given the content of the `employee.txt` file:
Every worker is a master.
Given that the `employee.txt` file is accessible and the file `allemp.txt` does NOT exist, and the code fragment:

```
try {
    List<String> content = Files.readAllLines(Paths.get("employee.txt"));
    content.stream().forEach(line -> {
        try {
            Files.write(
                Paths.get("allemp.txt"),
                line.getBytes(),
                StandardOpenOption.APPEND
            );
        } catch (IOException e) { System.out.println("Exception 1"); }
    });
} catch (IOException e) { System.out.println("Exception 2"); }
```

What is the result?

A. `Exception 1`
B. `Exception 2`
C. The program executes, does NOT affect the system, and produces NO output.
D. `allemp.txt` is created and the content of `employee.txt` is copied to it.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 92
Given:

```
public class Job {
    String name;
    Integer cost;
    Job(String name, Integer cost) {
        this.name = name;
        this.cost = cost;
    }
    String getName() { return name; }
    int getCost() { return cost; }
    public static void main(String[] args) {
        Job j1 = new Job("IT", null);
        DoubleSupplier jS1 = j1::getCost;
        System.out.println(j1.getName() + ":" + jS1.getAsDouble());
    }
}
```

What is the result?

A. `IT:null`
B. A `NullPointerException` is thrown at run time.
C. A compilation error occurs.
D. `IT:0.0`

Correct Answer: D
Section: (none)

Explanation

Explanation/Reference:

QUESTION 93
Given the code fragment:

```
List<String> li = Arrays.asList("Java", "J2EE", "J2ME", "JSTL", "JSP", "Oracle DB");
Predicate<String> val = p -> p.contains("J");
List<String> neLi = li.stream().filter(x -> x.length()> 3)
    .filter(val).collect(Collectors.toList());
System.out.println(neLi);
```

What is the result?

A. A compilation error occurs.
B. `[Java, J2EE, J2ME, JSTL, JSP]`
C. `null`
D. `[Java, J2EE, J2ME, JSTL]`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 94
Given:

```
class Product {
    String pname;
    public Product(String pname) {
        this.pname = pname;
    }
}
```

and the code fragment:

```
Product p1 = new Product("PowerCharger");
Product p2 = p1;
System.out.println(p1.equals(p2));
Product p3 = new Product("PowerCharger");
System.out.println(p1.equals(p3));
```

What is the result?

A. `true`
   `true`
B. `false`
   `true`
C. `false`

```
false
```

D.
```
true
false
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 95
Given:

```
class DataConverter {
    public void copyFlatFilesToTables() { }
    public void close() throws Exception {
        throw new RuntimeException();  // line n1
    }
}
```

and the code fragment:

```
public static void main(String[] args)throws Exception {
    try (DataConverter dc = new DataConverter())   // line n2
    { dc.copyFlatFilesToTables(); }
}
```

What is the result?

A. A compilation error occurs at `line n2`.
B. A compilation error occurs because the `try` block doesn't have a `catch` or `finally` block.
C. A compilation error occurs at `line n1`.
D. The program compiles successfully.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 96
Given the code fragment:

```
try {
    Properties prop = new Properties();
    prop.put("user", userName);
    prop.put("password", passWord);
    Connection conn = DriverManager.getConnection(dbURL, prop);
    if(conn != null){
        System.out.print("Connection Established");
    }
} catch (Exception e) {
    System.out.print(e);
}
```

and the information:

The required database driver is configured in the classpath.
The appropriate database is accessible with the `dbURL`, `username`, and `passWord` exists.

What is the result?

A. A `ClassNotFoundException` is thrown at runtime.
B. The program prints nothing.
C. The program prints `Connection Established`.
D. A `SQLException` is thrown at runtime.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 97
In 2015, daylight saving time in New York, USA, begins on March 8th at 2:00 AM. As a result, 2:00 AM becomes 3:00 AM.

Given the code fragment:

```
ZoneId zone = ZoneId.of("America/New_York");
ZonedDateTime dt = ZonedDateTime.of(LocalDate.of(2015, 3, 8), LocalTime.of(1, 0),
zone);
ZonedDateTime dt2 = dt.plusHours(2);
System.out.print(DateTimeFormatter.ofPattern("H:mm - ").format(dt2));
System.out.println("difference: " + ChronoUnit.HOURS.between(dt, dt2));
```

Which is the result?

A. `3:00 - difference: 2`
B. `2:00 - difference: 1`
C. `4:00 - difference: 3`
D. `4:00 - difference: 2`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 98
Given the code fragment:

```
for (Course a : Course.values()){
    System.out.print(a + " Fees " + a.getCost()+" " );
}
```

Which is the valid definition of the `Course` enum?

A.
```
enum Course { JAVA(100), J2ME(150);
    private int cost;
    public Course(int c) {
        this.cost = c;
    }
    int getCost() {
        return cost;
    }
}
```

B.
```
enum Course { JAVA(100), J2ME(150);
    private static int cost;
    private Course(int c) {
        this.cost = c;
    }
    static int getCost() {
        return cost;
    }
}
```

C.
```
final enum Course { JAVA(100), J2ME(150);
    private int cost;
    public Course(int c) {
        this.cost = c;
    }
    int getCost() {
        return cost;
    }
    void setCost(int c) {
        this.cost = c;
    }
}
```

D.
```
enum Course { JAVA(100), J2ME(150);
    private int cost;
    Course(int c) {
        this.cost = c;
    }
    int getCost() {
        return cost;
    }
}
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 99
Given:

```
class Resource implements AutoCloseable {
    public void close() throws Exception {
        System.out.print("Close-");
    }
    public void open() {
        System.out.print("Open-");
    }
}
```

and this code fragment:

```
Resource res1 = new Resource();
try {
    res1.open();
    res1.close();
} catch (Exception e) {
    System.out.println("Exception - 1");
}
try (res1 = new Resource()) { // line n1
    res1.open();
} catch (Exception e) {
    System.out.println("Exception - 2");
}
```

What is the result?

A.
```
Open-Close-
Exception - 1
Open-Close-
```

B. `Open-Close-Open-Close-`

C. A compilation error occurs at `line n1.`

D. `Open-Close-Open-`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 100
Given the code fragment:

```
List<String> cs = Arrays.asList("Java", "Java EE", "Java ME");
// line n1
System.out.print(b);
```

Which code fragment, when inserted at `line n1`, ensures `false` is printed?

A. `boolean b = cs.stream() .findAny() .get() .equals("Java");`
B. `boolean b = cs.stream() .anyMatch (w -> w.equals ("Java"));`
C. `boolean b = cs.stream() .findFirst() .get() .equals("Java");`
D. `boolean b = cs.stream() .allMatch(w -> w.equals("Java"));`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 101
Given the code fragment:

```
final String str1 = "Java";
StringBuffer strBuf = new StringBuffer("Course");
UnaryOperator<String> u = (str2) -> str1.concat(str2);  // line n1
UnaryOperator<String> c = (str3) -> str3.toLowerCase();
System.out.println(u.apply(c.apply(strBuf)));           // line n2
```

What is the result?

A. A compilation error occurs at `line n1.`
B. `courseJava`
C. `Javacourse`
D. A compilation error occurs at `line n2.`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 102

Given:

```
class Engine {
    double fuelLevel;
    Engine(int fuelLevel) { this.fuelLevel = fuelLevel;  }
    public void start() {
        // line n1
        System.out.println("Started");
    }
    public void stop() { System.out.println("Stopped"); }
}
```

Your design requires that:

`fuelLevel` of Engine must be greater than zero when the `start()` method is invoked.
The code must terminate if `fuelLevel` of `Engine` is less than or equal to zero.

Which code fragment should be added at `line n1` to express this invariant condition?

A. `assert (fuelLevel) : "Terminating…";`
B. `assert (fuelLevel > 0) : System.out.println ("Impossible fuel");`
C. `assert fuelLevel < 0: System.exit(0);`
D. `assert fuelLevel > 0: "Impossible fuel" ;`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 103
Given the code fragment:

```
List<Integer> li = Arrays.asList(10, 20, 30);
Function<Integer, Integer> fn = f1 -> f1 + f1;
Consumer<Integer> conVal = s -> System.out.print("Val:" + s + " ");
li.stream().map(fn).forEach(conVal);
```

What is the result?

A. `Val:20 Val:40 Val:60`
B. `Val:10 Val:20 Val:30`
C. A compilation error occurs.
D. `Val: Val: Val:`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 104
Given the code fragments:

```
public static Optional<String> getCountry(String loc) {
    Optional<String> couName = Optional.empty();
    if ("Paris".equals(loc))
        couName = Optional.of("France");
    else if ("Mumbai".equals(loc))
        couName = Optional.of("India");
    return couName;
}
```

and

```
Optional<String> city1 = getCountry("Paris");
Optional<String> city2 = getCountry("Las Vegas");
System.out.println(city1.orElse("Not Found"));
if (city2.isPresent())
    city2.ifPresent(x -> System.out.println(x));
else
    System.out.println(city2.orElse("Not Found"));
```

What is the result?

A. `France`
   `Optional[NotFound]`
B. `Optional [France]`
   `Optional [NotFound]`
C. `Optional[France]`
   `Not Found`
D. `France`
   `Not Found`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 105
Given the code fragment:

```
//line n1
System.out.println(iP);
```

Which code fragment, when inserted at `line n1`, enables the code to print `/First.txt`?

A. `Path iP = new Paths (“/First.txt”);`
B. `Path iP = Paths.toPath (“/First.txt”);`
C. `Path iP = new Path (“/First.txt”);`

D. `Path iP = Paths.get (“/”, “First.txt”);`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 106
Given the code fragment:

```
10. try {
11.       Connection conn = DriverManager.getConnection(dbURL, userName, passWord);
12.       String query = "SELECT * FROM Employee WHERE ID = 110";
13.       Statement stmt = conn.createStatement();
14.       ResultSet rs = stmt.executeQuery(query);
15.       System.out.println("Employee ID: " + rs.getInt("ID"));
16. } catch (Exception se) {
17.      System.out.println("Error");
18. }
```

Assume that:

The required database driver is configured in the classpath.
The appropriate database is accessible with the `dbURL, userName`, and `passWord` exists
The `Employee` table has a column `ID` of type integer and the SQL query matches one record.

What is the result?

A. Compilation fails at line 14.
B. Compilation fails at line 15.
C. The code prints the employee ID.
D. The code prints `Error.`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 107
Given the code fragment:

```
public static void main(String[] args) {
    Console console = System.console();
    char[] pass = console.readPassword("Enter password:"); // line n1
    String password = new String(pass); // line n2
}
```

What is the result?

A. A compilation error occurs at `line n1.`
B. A compilation error occurs at `line n2.`
C. The code reads the password without echoing characters on the console.

D. A compilation error occurs because the `IOException` isn't declared to be thrown or caught?

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 108

Locale	Currency Symbol	Currency Code
US	$	USD

and the code fragment?

```
double d = 15;
Locale l = new Locale("en", "US");
NumberFormat formatter = NumberFormat.getCurrencyInstance(l);
System.out.println(formatter.format(d));
```

What is the result?

A. `$15.00`
B. `15 $`
C. `USD 15.00`
D. `USD $15`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 109
Given the code fragment:

```
Stream<List<String>> strs = Stream.of(
        Arrays.asList("text1", "text2"),
        Arrays.asList("text2", "text3"));
Stream<String> bs2 = strs
        .filter(b -> b.contains("text1"))
        .flatMap(rs -> rs.stream());
bs2.forEach(b -> System.out.print(b));
```

What is the result?

A. `text1text2`
B. `text1text2text2text3`
C. `text1`
D. `[text1, text2]`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 110
Given:

```
public interface LengthValidator {
    public boolean checkLength(String str);
}
```

and

```
public class Txt {
    public static void main(String[] args) {
        boolean res = new LengthValidator() {
            public boolean checkLength(String str) {
                return str.length() > 5 && str.length() < 10;
            }
        }.checkLength("Hello");
    }
}
```

Which interface from the `java.util.function` package should you use to refactor the class `Txt`?

A. `Consumer`
B. `Predicate`
C. `Supplier`
D. `Function`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javase/8/docs/api/java/util/function/package-summary.html

QUESTION 111
Given:

```
public class Product {
    public double applyDiscount(double price) {
        assert (price > 0); // line n1
        return price * 0.50;
    }
    public static void main(String[] args) {
        Product p = new Product();
        double newPrice =
            p.applyDiscount(Double.parseDouble(args[0]));
        System.out.println("New Price: " + newPrice);
    }
}
```

and the command:

```
java Product 0
```

What is the result?

A. An `AssertionError` is thrown.
B. A compilation error occurs at `line n1`.
C. `New Price: 0.0`
D. A `NumberFormatException` is thrown at run time.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 112
Given the code fragment:

```
LocalTime now =  LocalTime.now();
long timeToBreakfast = 0;
LocalTime office_start = LocalTime.of(7, 30);
if (office_start.isAfter(now)) {
    timeToBreakfast = now.until(office_start, MINUTES);
} else {
    timeToBreakfast = now.until(office_start, HOURS);
}
System.out.println(timeToBreakfast);
```

Assume that the value of now is 6:30 in the morning.

What is the result?

A. An exception is thrown at run time.
B. `0`
C. `60`
D. `1`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 113
Given the code fragments:

```
class R implements Runnable {
    public void run() {  System.out.println("Run..."); }
}

class C implements  Callable<String> {
    public String call() throws Exception { return "Call..."; }
}
```

and

```
ExecutorService es = Executors.newSingleThreadExecutor();
es.execute(new R());                        // line n1
Future<String> f1 = es.submit(new C()); // line n2
System.out.println(f1.get());
es.shutdown();
```

What is the result?

A. The program prints `Run...` and throws an exception.
B. A compilation error occurs at `line n1.`
C. `Run...`
   `Call...`
D. A compilation error occurs at `line n2.`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 114
Which two are elements of a singleton class? (Choose two.)

A. a `transient` reference to point to the single instance
B. a `public` method to instantiate the single instance
C. a `public static` method to return a copy of the singleton reference
D. a `private` constructor to the class
E. a `public` reference to point to the single instance

Correct Answer: BD
Section: (none)

Explanation

Explanation/Reference:

QUESTION 115
Given the code fragment:

```
Deque<String> queue = new ArrayDeque<>();
queue.add("Susan");
queue.add("Allen");
queue.add("David");
System.out.println(queue.pop());
System.out.println(queue.remove());
System.out.println(queue);
```

What is the result?

A.
```
David
David
[Susan, Allen]
```
B.
```
Susan
Susan
[Susan, Allen]
```
C.
```
Susan
Allen
[David]
```
D.
```
David
Allen
[Susan]
```
E.
```
Susan
Allen
[Susan, David]
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

```java
import java.util.ArrayDeque;

public class Program {
    public static void main(String[] args) {

ArrayDeque<String> queue = new ArrayDeque<>();
queue.add("Susan");
queue.add("Allen");
queue.add("David");
System.out.println(queue.pop());
System.out.println(queue.remove());
System.out.println(queue);
}
}
```

CommandLine Arguments ...

Stdin Inputs...

Execute Sav

Result...

CPU Time: 0.16 sec(s), Memory: 29452 kilobyte(s)

```
Susan
Allen
[David]
```

QUESTION 116
Given:

```
public class Vehicle {
    int vId;
    String vName;
    public Vehicle(int vIdArg, String vNameArg) {
        this.vId = vIdArg;
        this.vName = vNameArg;
    }
    public int getVId() { return vId; }
    public String getVName() { return vName; }
    public String toString() {
        return vName;
    }
}
```

and the code fragment:

```
List<Vehicle> vehicle = Arrays.asList(
        new Vehicle(2, "Car"),
        new Vehicle(3, "Bike"),
        new Vehicle(1, "Truck"));
vehicle.stream()
         // line n1
        .forEach(System.out::print);
```

Which two code fragments, when inserted at `line n1` independently, enable the code to print `TruckCarBike`?

A. `.sorted ((v1, v2) -> v1.getVId() < v2.getVId())`
B. `.sorted (Comparable.comparing (Vehicle: :getVName)).reversed ()`
C. `.map (v -> v.getVid())`
   `.sorted ()`
D. `.sorted((v1, v2) -> Integer.compare(v1.getVId(), v2.getVid()))`
E. `.sorted(Comparator.comparing ((Vehicle v) -> v.getVId()))`

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 117
Given the code fragment:

```
List<String> valList = Arrays.asList("", "George", "", "John", "Jim");
Long newVal = valList.stream()      // line n1
        .filter(x -> !x.isEmpty())
        .count();                   // line n2
System.out.print(newVal);
```

What is the result?

A. A compilation error occurs at `line n2`.
B. 3
C. 2
D. A compilation error occurs at `line n1`.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 118
Given the code fragment:

```
// Login time:2015-01-12T21:58:18.817Z
Instant loginTime = Instant.now();
Thread.sleep(1000);

// Logout time:2015-01-12T21:58:19.880Z
Instant logoutTime = Instant.now();

loginTime = loginTime.truncatedTo(ChronoUnit.MINUTES);   // line n1
logoutTime = logoutTime.truncatedTo(ChronoUnit.MINUTES);

if (logoutTime.isAfter(loginTime))
    System.out.println("Logged out at:"+logoutTime);
else
    System.out.println("Can't logout");
```

What is the result?

A. A compilation error occurs at `line n1`.
B. `Logged out at: 2015-01-12T21:58:19.880Z`
C. `Can't logout`
D. `Logged out at: 2015-01-12T21:58:00Z`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 119
Given the code fragment:

```
List<String> words = Arrays.asList("win", "try", "best", "luck", "do");
Predicate<String> test1 = w -> {
    System.out.println("Checking...");
    return w.equals("do");                    // line n1
};
Predicate test2 = (String w) -> w.length() > 3; // line n2
words.stream()
        .filter(test2)
        .filter(test1)
        .count();
```

What is the result?

A. A compilation error occurs at `line n1.`
B. `Checking…`
C. `Checking…`
   `Checking…`
D. A compilation error occurs at `line n2`.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 120
Assume `customers.txt` is accessible and contains multiple lines.

Which code fragment prints the contents of the `customers.txt` file?

A.
```
Stream<String> stream = Files.find (Paths.get (“customers.txt”));
stream.forEach((String c) -> System.out.println(c));
```
B.
```
Stream<Path> stream = Files.find (Paths.get (“customers.txt”));
stream.forEach( c) -> System.out.println(c));
```
C.
```
Stream<Path> stream = Files.list (Paths.get (“customers.txt”));
stream.forEach( c) -> System.out.println(c));
```
D.
```
Stream<String> lines = Files.lines (Paths.get (“customers.txt”));
lines.forEach( c) -> System.out.println(c));
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 121
Given:

```
class MyClass implements AutoCloseable {
    int test;
    public void close() { }
    public MyClass copyObject() { return this; }
}
```

and the code fragment:

```
MyClass obj = null;
try (MyClass obj1 = new MyClass()) {
    obj1.test = 100;
    obj = obj1.copyObject();  // line n1
}
System.out.println(obj.test); // line n2
```

What is the result?

A. An exception is thrown at `line n2`.
B. `100`
C. A compilation error occurs because the `try` block is declared without a `catch` or `finally` block.
D. A compilation error occurs at `line n1`.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 122
Which two methods from the `java.util.stream.Stream` interface perform a reduction operation? (Choose two.)

A. `count ()`
B. `collect ()`
C. `distinct ()`
D. `peek ()`
E. `filter ()`

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javase/8/docs/api/java/util/stream/package-summary.html

QUESTION 123
Which code fragment is required to load a JDBC 3.0 driver?

A. `Connection con = Connection.getDriver ("jdbc:xyzdata://localhost:3306/EmployeeDB");`
B. `Class.forName("org.xyzdata.jdbc.NetworkDriver");`
C. `Connection con = DriverManager.getConnection ("jdbc:xyzdata://localhost:3306/EmployeeDB");`
D. `DriverManager.loadDriver ("org.xyzdata.jdbc.NetworkDriver");`

Correct Answer: B
Section: (none)

Explanation

Explanation/Reference:

QUESTION 124
Given:

```
public class Foo<K, V> {
    private K key;
    private V value;

    public Foo(K key, V value) { this.key = key; this.value = value; }

    public static <T> Foo<T, T> twice(T value) { return new Foo<T, T>(value, value); }

    public K getKey() { return key; }
    public V getValue() { return value; }
}
```

Which option fails?

A. `Foo<String, Integer> mark = new Foo<String, Integer> ("Steve", 100);`
B. `Foo<String, String> pair = Foo.<String>twice ("Hello World!");`
C. `Foo<Object, Object> percentage = new Foo<String, Integer>("Steve", 100);`
D. `Foo<String, String> grade = new Foo <> ("John", "A");`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 125
Given the code fragment:

```
List<Integer> prices = Arrays.asList(3, 4, 5);
prices.stream()
    .filter(e -> e > 4)
    .peek(e -> System.out.print("Price " + e))                    // line n1
    .map(n -> n - 1)                                              // line n2
    .peek(n -> System.out.println(" New Price " + n));            // line n3
```

Which modification enables the code to print `Price 5 New Price 4`?

A. Replace `line n2` with `.map (n -> System.out.println ("New Price" + n –1))` and remove `line n3`
B. Replace `line n2` with `.mapToInt (n -> n – 1);`
C. Replace `line n1` with `.forEach (e -> System.out.print ("Price" + e))`
D. Replace `line n3` with `.forEach (n -> System.out.println ("New Price" + n));`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 126
Given the definition of the Book class:

```
public class Book {
    private int id;
    private String name;
    public Book(int id, String name) {this.id = id; this.name = name;}
    public int getId() { return id; }
    public String getName() { return name; }
    public void setId(int id) { this.id = id; }
    public void setName(String name) { this.name = name; }
    }
```

Which statement is true about the Book class?

A. It demonstrates encapsulation.
B. It is defined using the factory design pattern.
C. It is defined using the singleton design pattern.
D. It demonstrates polymorphism.
E. It is an immutable class.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 127
Given the code fragment:

```
ProductCode<Number, Integer> c1 = new ProductCode<Number, Integer>(); /* c1
instantiation */
ProductCode<Number, String> c2 = new ProductCode<Number, String>();   /* c2
instantiation */
```

You have been asked to define the ProductCode class. The definition of the ProductCode class must allow c1 instantiation to succeed and cause a compilation error on c2 instantiation.

Which definition of ProductCode meets the requirement?

A.
```
class ProductCode<T, S<Integer>>  {
    T c1;
    S c2;
}
```

B.
```
class ProductCode<T, S extends T> {
    T c1;
    S c2;
}
```

C.
```
class ProductCode<T, S> {
    T c1;
    S c2;
}
```
D.
```
class ProductCode<T, S super T> {
    T c1;
    S c2;
}
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 128
Given the code fragment:

```
Map<Integer, Integer> mVal = new HashMap<>();
mVal.put(1, 10);
mVal.put(2, 20);
//line n1
c.accept(1, 2);
mVal.forEach(c);
```

Which statement can be inserted into `line n1` to print `1,2; 1,10; 2,20;`?

A. `BiConsumer<Integer,Integer> c = (i, j) -> {System.out.print (i + “,” + j+ “; “);};`
B. `BiFunction<Integer, Integer, String> c = (i, j) –> {System.out.print (i + “,” + j+ “; “)};`
C. `BiConsumer<Integer, Integer, String> c = (i, j) –> {System.out.print (i + “,” + j+ “; “)};`
D. `BiConsumer<Integer, Integer, Integer> c = (i, j) –> {System.out.print (i + “,” + j+ “; “);};`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.concretepage.com/java/jdk-8/java-8-biconsumer-bifunction-bipredicate-example

QUESTION 129
Given the code fragment:

```
List<String> nums = Arrays.asList("EE", "SE");
String ans = nums
    .parallelStream()
    .reduce("Java ", (a, b) -> a.concat(b));
System.out.print(ans);
```

What is the result?

A. `Java EEJava EESE`
B. `Java EESE`
C. The program prints either:
   `Java EEJava SE`
   or
   `Java SEJava EE`
D. `Java EEJava SE`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 130
Given the code fragments :

```
public class Product {
    String name;
    Integer price;
    Product(String name, Integer price) {
        this.name = name;
        this.price = price;
    }
    public void printVal(){ System.out.print(name + " Price:" + price + " "); }
    public void setPrice(int price) { this.price  = price; }
    public Integer getPrice() { return price; }
}
```

and

```
List<Product> li = Arrays.asList(new Product("TV", 1000), new Product("Refrigerator",
2000));
Consumer<Product> raise = e -> e.setPrice(e.getPrice() + 100);
li.forEach(raise);
li.stream().forEach(Product::printVal);
```

What is the result?

A. `TV Price :110 Refrigerator Price :2100`
B. A compilation error occurs.
C. `TV Price :1000 Refrigerator Price :2000`
D. The program prints nothing.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 131
Given:

```
interface P { public void method1(); }

interface Q extends P {  public void method1(); }

interface R extends P { public void method2();}

interface S { public default void method() { } }

interface T { public void method1();  public void method2(); }

interface U { public void method1();  public abstract void method2(); }
```

Which two interfaces can you use to create lambda expressions? (Choose two.)

A. T
B. R
C. P
D. S
E. Q
F. U

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 132
Given the code fragment:

```
final List<String> list = new CopyOnWriteArrayList<>();
final AtomicInteger ai = new AtomicInteger(0);
final CyclicBarrier barrier = new CyclicBarrier(2, new Runnable() {
    public void run() { System.out.println(list); }
});
Runnable r = new Runnable() {
    public void run() {
        try {
            Thread.sleep(1000 * ai.incrementAndGet());
            list.add("X");
            barrier.await();
        } catch (Exception ex) {
        }
    }
};
new Thread(r).start();
new Thread(r).start();
new Thread(r).start();
new Thread(r).start();
```

What is the result ?

A. [X]
   [X, X]

```
   [X, X, X]
   [X, X, X, X]
```
B.
```
[X, X]
```
C.
```
[X]
[X, X]
[X, X, X]
```
D.
```
[X, X]
[X, X, X, X]
```

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 133
Given that these files exist and are accessible:

```
/company/emp/info.txt
/company/emp/benefits/b1.txt
```

and given the code fragment:

```
// line n1
stream.forEach(s -> System.out.print(s));
```

Which code fragment can be inserted at `line n1` to enable the code to print only `/company/emp`?

A.
```
Stream<Path> stream = Files.list (Paths.get (“/company”));
```
B.
```
Stream<Path> stream = Files.find(
Paths.get (“/company”), 1,
(p,b) -> b.isDirectory (), FileVisitOption.FOLLOW_LINKS);
```
C.
```
Stream<Path> stream = Files.walk (Paths.get (“/company”));
```
D.
```
Stream<Path> stream = Files.list (Paths.get (“/company/emp”));
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 134
Given:

```
class Person {
    String name;
    int age;
    public Person(String name, int age) {
        this.name = name;
        this.age = age;
    }
    public String getName(){ return name; }
    public int getAge(){ return age; }
}
```

and the code fragment:

```
List<Person> sts = Arrays.asList(
    new Person("Jack", 30),
    new Person("Mike Hill", 21),
    new Person("Thomas Hill", 24));
Stream<Person> resList = sts.stream().filter(s -> s.getAge() >= 25);   // line n1
long count = resList.filter(s -> s.getName().contains("Hill")).count();
System.out.print(count);
```

What is the result?

A. `0`
B. A compilation error occurs at `line n1.`
C. An `Exception` is thrown at run time.
D. `2`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 135
Which class definition compiles?

A.
```
class Vehicle {
    int id;
    public void start() {
        public class Engine {  int eNo = id;    }
    }
}
```

B.
```
class Computer {
    private Card sCard = new SoundCard();
    private abstract class Card { }
    private class SoundCard extends Card { }
}
```

C.
```
class Block {
    int bno;
    static class Counter {
        int locator;
        Counter() { locator = bno; }
    }
}
```

D.
```
class Product {
    interface Moveable { void move(); }
    Moveable mProduct = new Moveable() {
        void move() { }
    };
}
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 136
Given the code fragment:

```
Deque<Integer> nums = new ArrayDeque<>();
nums.add(1000);
nums.push(2000);
nums.add(3000);
nums.push(4000);
Integer i1 = nums.remove();
Integer i2 = nums.pop();
System.out.println(i1 + " : " + i2);
```

What is the result?

A. `4000 : 2000`
B. `4000 : 1000`
C. `1000 : 4000`
D. `1000 : 2000`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 137
Given that `version.txt` is accessible and contains:

```
1234567890
```

and given the code fragment:

```
try (FileInputStream fis = new FileInputStream("version.txt");
        InputStreamReader isr = new InputStreamReader(fis);
        BufferedReader br = new BufferedReader(isr);) {
    if (br.markSupported()) {
        System.out.print((char) br.read());
        br.mark(2);
        System.out.print((char) br.read());
        br.reset();
        System.out.print((char) br.read());
    }
} catch (Exception e) {
    e.printStackTrace();
}
```

What is the result?

A. 121
B. 122
C. 135
D. The program prints nothing.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 138

```
7. BiPredicate<String, String> bp = (String s1, String s2) -> s1.contains("SG") &&
   s2.contains("Java");
8. BiFunction<String, String, Integer> bf = (String s1, String s2) -> {
9.     int fee = 0;
10.    if (bp.test(s1, s2)) {
11.        fee = 100;
12.    }
13.    return fee;
14. };
15. int fee1 = bf.apply("D101SG", "Java Programming");
16. System.out.println(fee1);
```

What is the result?

A. A compilation error occurs at line 7.
B. 100
C. A compilation error occurs at line 8.
D. A compilation error occurs at line 15.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 139
Given the content:

MessagesBundle.properties file:

```
inquiry = How are you?
```

MessagesBundle_de_DE.properties file:

```
inquiry = Wie geht's?
```

and given the code fragment:

```
Locale currentLocale;
// line 1
ResourceBundle messages = ResourceBundle.getBundle("MessagesBundle", currentLocale);
System.out.println(messages.getString("inquiry"));
```

Which two code fragments, when inserted at `line 1` independently, enable the code to print "Wie geht's?"

A. `currentLocale = new Locale ("de", "DE");`
B. `currentLocale = new Locale.Builder ().setLanguage ("de").setRegion ("DE").build();`
C. `currentLocale = Locale.GERMAN;`
D.
```
currentlocale = new Locale();
currentLocale.setLanguage ("de");
currentLocale.setRegion ("DE");
```
E. `currentLocale = Locale.getInstance(Locale.GERMAN,Locale.GERMANY);`

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 140
Given the code fragment:

```
List<String> qwords = Arrays.asList("why ", "what ", "when ");
BinaryOperator<String> operator = (s1, s2) -> s1.concat(s2);  // line n1
String sen = qwords.stream()
  .reduce("Word: ", operator);
System.out.println(sen);
```

What is the result?

A. `Word: why what when`
B. `Word: why Word: why what Word: why what when`
C. `Word: why Word: what Word: when`
D. Compilation fails at `line n1.`

Correct Answer: A

Section: (none)
Explanation

Explanation/Reference:

QUESTION 141
Given:

```
interface Interface1 {
    public default void sayHi() {
        System.out.println("Hi Interface-1");
    }
}

interface Interface2 {
    public default void sayHi() {
        System.out.println("Hi Interface-2");
    }
}
public class MyClass implements Interface1, Interface2 {
    public static void main(String[] args) {
        Interface1 obj = new MyClass();
        obj.sayHi();
    }
    public void sayHi() {
        System.out.println("Hi MyClass");
    }
}
```

What is the result?

A. `Hi Interface-2`
B. A compilation error occurs.
C. `Hi Interface-1`
D. `Hi MyClass`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 142
Given:

```
class Block  {
    String color;
    int size;
    Block(int size, String color) {
        this.size = size;
        this.color = color;
    }
}
```

and the code fragment:

```
List<Block> blocks = new ArrayList<>();
blocks.add(new Block(10, "Green"));
blocks.add(new Block(7, "Red"));
blocks.add(new Block(12, "Blue"));
Collections.sort(blocks, new ColorSorter());
```

Which definition of the `ColorSorter` class sorts the blocks list?

A.
```
class ColorSorter implements Comparable<Block> {
    public boolean compare(Block o1, Block o2) {
        return o1.color.equals(o2.color);
    }
}
```

B.
```
class ColorSorter implements Comparable<Block> {
    public int compareTo(Block o1, Block o2) {
        return o1.color.compareTo(o2.color);
    }
}
```

C.
```
class ColorSorter implements Comparator<Block> {
    public int compare(Block o1, Block o2) {
        return o1.color.compareTo(o2.color);
    }
}
```

D.
```
class ColorSorter implements Comparator<Block> {
    public boolean compare(Block o1, Block o2) {
        return o1.color.compareTo(o2.color);
    }
}
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 143
Given the code fragment:

```
public static void main(String[] args) {
    Stream.of("Java", "Unix", "Linux")
    .filter(s -> s.contains("n"))
    .peek(s -> System.out.println("PEEK: " + s))
    // line n1
}
```

Which two code fragments, when inserted at `line n1` independently, result in the output `PEEK: Unix`?

A. `.anyMatch ();`
B. `.allMatch ();`
C. `.findAny ();`
D. `.noneMatch ();`
E. `.findFirst ();`

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 144
Given the code fragments:

```
class Person  // line n1
{
    String name;
    Person(String name) {
        this.name = name;
    }
    // line n2
}
```

and

```
List<Person> emps = new ArrayList<>();
/* code that adds objects of the Person class to the emps list goes here */
Collections.sort(emps);
```

Which two modifications enable to sort the elements of the `emps` list? (Choose two.)

A. Replace `line n1` with
   `class Person extends Comparator<Person>`
B. At `line n2` insert
   ```
   public int compareTo (Person p) {
   return this.name.compareTo (p.name);
   }
   ```
C. Replace `line n1` with
   `class Person implements Comparable<Person>`
D. At `line n2` insert
   `public int compare (Person p1, Person p2) {`

```
return p1.name.compareTo (p2.name);
}
```

E. At line n2 insert:
```
public int compareTo (Person p, Person p2) {
return p1.name.compareTo (p2.name);
}
```

F. Replace line n1 with
```
class Person implements Comparator<Person>
```

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 145
Given:

```
class Person {
    private String firstName;
    private int salary;
    public Person(String fN, int sal) {
        this.firstName = fN;
        this.salary = sal;
    }
    public int getSalary() { return salary; }
    public String getFirstName() { return firstName; }
}
```

and the code fragment:

```
List<Person> prog = Arrays.asList(
        new Person("Smith", 1500),
        new Person("John", 2000),
        new Person("Joe", 1000));
double dVal = prog.stream()
        .filter(s -> s.getFirstName().startsWith("J"))
        .mapToInt(Person::getSalary)
        .average()
        .getAsDouble();
System.out.print(dVal);
```

What is the result?

A. `0.0`
B. `1500.0`
C. A compilation error occurs.
D. `2000.0`

Correct Answer: B
Section: (none)

Explanation

Explanation/Reference:

QUESTION 146
Given the code fragment:

```
Connection con = null;
try {
     // line n1
     if(con != null){
         System.out.print("Connection Established.");
     }

} catch (Exception e) {
     System.out.print(e);
}
```

Assume that `dbURL, userName`, and `password` are valid.

Which code fragment can be inserted at `line n1` to enable the code to print `Connection Established`?

A.
```
Properties prop = new Properties();
prop.put (“user”, userName);
prop.put (“password”, password);
con = DriverManager.getConnection (dbURL, prop);
```

B.
```
con = DriverManager.getConnection (userName, password, dbURL);
```

C.
```
Properties prop = new Properties();
prop.put (“userid”, userName);
prop.put (“password”, password);
prop.put(“url”, dbURL);
con = DriverManager.getConnection (prop);
```

D.
```
con = DriverManager.getConnection (dbURL);
con.setClientInfo (“user”, userName);
con.setClientInfo (“password”, password);
```

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 147
Given the `Greetings.properties` file, containing:

```
HELLO_MSG = Hello, everyone!
GOODBYE_MSG = Goodbye everyone!
```

and given:

```
import java.util.Enumeration;
import java.util.Locale;
import java.util.ResourceBundle;

public class ResourcesApp {
    public void loadResourceBundle() {
        ResourceBundle resource = ResourceBundle.getBundle("Greetings",Locale.US);
        System.out.println(resource.getObject(1));
    }
    public static void main(String[] args) {
        new ResourcesApp().loadResourceBundle();
    }
}
```

What is the result?

A. Compilation fails.
B. GOODBY_MSG
C. Hello, everyone!
D. Goodbye everyone!
E. HELLO_MSG

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 148
Given the code fragments:

```
public class Test {
    List<String> list = null;
    public void printValues() {
        System.out.print(getList());
    }
    public List<String> getList(){ return list; }
    public void setList(List<String> newList){ list = newList; }
}
```

and

```
List<String> li = Arrays.asList("Dog", "Cat", "Mouse");
Test t = new Test();
t.setList(li.stream().collect(Collectors.toList()));
t.getList().forEach(Test::printValues);
```

What is the result?

A. null
B. A compilation error occurs.
C. DogCatMouse
D. [Dog, Cat, Mouse]

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 149
Given the records from the STUDENT table:

sid	sname	semail
111	James	james@uni.com
112	Jane	jane@uni.com
114	John	john@uni.com

Given the code fragment:

```
public static void main(String[] args) throws SQLException {
    //code to load and register valid jdbc driver go here
    Connection con = DriverManager.getConnection(URL, username, password);
    Statement st = con.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,
                                       ResultSet.CONCUR_UPDATABLE);
    st.execute("SELECT * FROM student");
    ResultSet rs = st.getResultSet();
    rs.absolute(3);
    rs.moveToInsertRow();
    rs.updateInt(1, 113);
    rs.updateString(2, "Jannet");
    rs.updateString(3, "jannet@uni.com");
    rs.updateRow();
    rs.refreshRow();
    System.out.println(rs.getInt(1) + " : " + rs.getString(2) + " : " + rs.getString
(3));
}
```

Assume that the `URL, username,` and `password` are valid.

What is the result?

A. The `STUDENT` table is not updated and the program prints:
`114 : John : john@uni.com`
B. The `STUDENT` table is updated with the record:
`113 : Jannet : jannet@uni.com`
and the program prints:
`114 : John : john@uni.com`
C. The `STUDENT` table is updated with the record:
`113 : Jannet : jannet@uni.com`
and the program prints:
`113 : Jannet : jannet@uni.com`
D. A `SQLException` is thrown at run time.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 150
Given the code fragment:

```
5. IntConsumer consumer = e -> System.out.println(e);
6. Integer value = 90;
7. /* insert code fragment here */
8. consumer.accept(result);
```

Which code fragment, when inserted at line 7, enables printing `100`?

A.
```
Function<Integer> funRef = e –> e + 10;
Integer result = funRef.apply(value);
```
B.
```
IntFunction funRef = e –> e + 10;
Integer result = funRef.apply (10);
```
C.
```
ToIntFunction<Integer> funRef = e –> e + 10;
int result = funRef.applyAsInt (value);
```
D.
```
ToIntFunction funRef = e –> e + 10;
int result = funRef.apply (value);
```

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 151
Which two statements are true about the Fork/Join Framework? (Choose two.)

A. The `RecursiveTask` subclass is used when a task does not need to return a result.
B. The Fork/Join framework can help you take advantage of multicore hardware.
C. The Fork/Join framework implements a work-stealing algorithm.
D. The Fork/Join solution when run on multicore hardware always performs faster than standard sequential solution.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.logicbig.com/tutorials/core-java-tutorial/java-multi-threading/fork-and-join.html

QUESTION 152
Which two statements are true about synchronization and locks? (Choose two.)

A. A thread automatically acquires the intrinsic lock on a synchronized statement when executed.
B. The intrinsic lock will be retained by a thread if return from a synchronized method is caused by an uncaught exception.
C. A thread exclusively owns the intrinsic lock of an object between the time it acquires the lock and the time it releases it.
D. A thread automatically acquires the intrinsic lock on a synchronized method's object when entering that method.
E. Threads cannot acquire intrinsic locks on classes.

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javase/tutorial/essential/concurrency/locksync.html

QUESTION 153
Given the code fragment:

```
//line n1
Double d = str.average().getAsDouble();
System.out.println("Average = " + d);
```

Which should be inserted into `line n1` to print `Average = 2.5`?

A. `IntStream str = Stream.of (1, 2, 3, 4);`
B. `IntStream str = IntStream.of (1, 2, 3, 4);`
C. `DoubleStream str = Stream.of (1.0, 2.0, 3.0, 4.0);`
D. `Stream str = Stream.of (1, 2, 3, 4);`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 154
Given the structure of the `Student` table:

Student (id `INTEGER`, name VARCHAR)

Given the records from the `STUDENT` table:

ID	NAME
102	Edwin
103	Edward
103	Edwin

Given the code fragment:

```
Connection conn = DriverManager.getConnection(dbURL, userName, passWord);
Statement st = conn.createStatement();
String query = "DELETE FROM Student WHERE id = 103";
System.out.println("Status: " + st.execute(query));
```

Assume that:
The required database driver is configured in the classpath.
The appropriate database is accessible with the `dbURL`, `userName`, and `passWord` exists.

What is the result?

A. The program prints `Status: true` and two records are deleted from the `Student table.`
B. The program prints `Status: false` and two records are deleted from the `Student table.`
C. A `SQLException` is thrown at runtime.
D. The program prints `Status: false` but the records from the `Student` table are not deleted.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 155
Given the code fragments:

```
public class Video {
    public void play() throws IOException {
        System.out.print("Video played.");
    }
}

public class Game extends Video {
    public void play() throws Exception {
        super.play();
        System.out.print("Game played.");
    }
}
```

and

```
try {
    new Game().play();
} catch (Exception e) {
    System.out.print(e.getClass());
}
```

What is the result?

A. `Video played.Game played.`
B. A compilation error occurs.
C. `class java.lang.Exception`
D. `class java.io.IOException`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 156

What is true about the `java.sql.Statement` interface?

A. It provides a session with the database.
B. It is used to get an instance of a `Connection` object by using JDBC drivers.
C. It provides a cursor to fetch the resulting data.
D. It provides a class for executing SQL statements and returning the results.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/cd/E13222_01/wls/docs45/classdocs/java.sql.Statement.html

QUESTION 157
Given that data.txt and alldata.txt are accessible, and the code fragment:

```
public void writeFiles() throws IOException {
    BufferedReader br = new BufferedReader(new FileReader("data.txt"));
    BufferedWriter bw = new BufferedWriter(new FileWriter("alldata.txt"));
    String line = null;
    while ((line = br.readLine()) != null) {
        bw.append(line + "\n");
    }
    // line n1
}
```

What is required at `line n1` to enable the code to overwrite `alldata.txt` with `data.txt`?

A. `br.close();`
B. `bw.writeln();`
C. `br.flush();`
D. `bw.flush();`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 158
Given:

```
class Student {
    String course, name, city;
    public Student(String name, String course, String city) {
        this.course = course; this.name = name; this.city = city;
    }
    public String toString() {
        return course + ":" + name + ":" + city;
    }
    public String getCourse() { return course; }
    public String getName() { return name; }
    public String getCity() { return city; }
}
```

and the code fragment:

```
List<Student> stds = Arrays.asList(
     new Student ("Jessy", "Java ME", "Chicago"),
     new Student ("Helen", "Java EE", "Houston"),
     new Student ("Mark", "Java ME", "Chicago"));
stds.stream()
     .collect(Collectors.groupingBy(Student::getCourse))
     .forEach(src, res) -> System.out.println(scr));
```

What is the result?

A.
```
[Java EE: Helen:Houston]
[Java ME: Jessy:Chicago, Java ME: Mark:Chicago]
```

B.
```
Java EE
Java ME
```

C.
```
[Java ME: Jessy:Chicago, Java ME: Mark:Chicago]
[Java EE: Helen:Houston]
```

D. A compilation error occurs.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Your Code ...

```
1  public class Student {
2      String course, name, city;
3      public Student (String name, String course, String cit
4          this.course = course; this.name = name; this.city
5      }
6      public String toString() {
7          return course + ":" + name + ":" + city;
8      }
9      public String getCourse() {return course; }
10     public String getName() {return name; }
11     public String getCity() {return city; }
12
13     List<Student> stds = Arrays.asList (
14         new Student ("Jessy", "Java ME", "Chicago"),
15         new Student ("Helen", "Java ME", "Houston"),
16         new Student ("Mark", "Java ME", "Chicago"));
17     stds.stream()
18         .collect (Collectors.groupBy(Student::getCourse))
19         .forEach (src, res) -> System.out.println(scr));
20 }
21
```

CommandLine Arguments ...

Stdin Inputs...

Execute Sa

Result...

CPU Time: sec(s), Memory: kilobyte(s)

```
/Student.java:17: error: <identifier> expected
    stds.stream()
               ^
/Student.java:17: error: ';' expected
    stds.stream()
                ^
2 errors
```

QUESTION 159
Given:

```
class Counter extends Thread {
      int i = 10;
      public synchronized void display(Counter obj) {
            try {
                  Thread.sleep(5);
                  obj.increment(this);
                  System.out.printIn(i);
            } catch (InterruptedException ex) {   }
      }
      public synchronized void increment (Counter obj) {
            i++;
      }
}
public class Test {
      public static void main(String[] args) {
            final Counter obj1 = new Counter();
            final Counter obj2 = new Counter();
            new Thread(new Runnable() {
                  public void run() {obj1.display(obj2);
                  }
            }).start();
            new Thread(new Runnable() {
                  public void run() { obj2.display(obj1); }
            }).start();
      }
}
```

From what threading problem does the program suffer?

A. race condition
B. deadlock
C. starvation
D. livelock

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 160
Given the definition of the Employee class:

```
class Employee {
      String dept, name;
      public Employee(String d, String n) {
            dept = d;
            name = n;
      }
      public String toString() {
            return getDept() + ":" + getName();
      }
      public String getDept() { return dept; }
      public String getName() { return name; }
}
```

and this code fragment:

```
List<Employee> emps = Arrays.asList(new Employee("sales", "Ada"),
                new Employee("sales", "Bob"),
                new Employee("hr", "Bob"),
                new Employee("hr", "Eva"));
Stream<Employee> s = emps.stream()
      .sorted(Comparator.comparing((Employee e) -> e.getDept())
                        .thenComparing((Employee e) -> e.getName()));
List<Employee> eSorted = s.collect(Collectors.toList());
System.out.printIn(eSorted);
```

What is the result?

A. `[sales:Ada, hr:Bob, sales:Bob, hr:Eva]`
B. `[Ada:sales, Bob:sales, Bob:hr, Eva:hr]`
C. `[hr:Eva, hr:Bob, sales:Bob, sales:Ada]`
D. `[hr:Bob, hr:Eva, sales:Ada, sales:Bob]`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 161
Given the code fragments:

```
class ThreadRunner implements Runnable {
    public void run () { System.out.print ("Runnable") ; }
}
class ThreadCaller implements Callable {
Public String call () throws Exception {return "Callable"; )
}
```

and

```
ExecutorService es = Executors.newCachedThreadPool ();
Runnable r1 = new ThreadRunner ();
Callable c1 = new ThreadCaller ();
// line n1
es.shutdown();
```

Which code fragment can be inserted at `line n1` to start `r1` and `c1` threads?

A.
```
Future<String> f1 = (Future<String>) es.submit (r1);
      es.execute (c1);
```

B.
```
es.execute (r1);
      Future<String> f1 = es.execute (c1) ;
```

C.
```
Future<String> f1 = (Future<String>) es.execute(r1);
      Future<String> f2 = (Future<String>) es.execute(c1);
```

D.
```
es.submit(r1);
      Future<String> f1 = es.submit (c1);
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 162
Given the code fragment:

```
List<Double> doubles = Arrays.asList (100.12, 200.32);
DoubleFunction funD = d –> d + 100.0;
doubles.stream (). forEach (funD);                    // line n1
doubles.stream(). forEach(e –> System.out.println(e)); // line n2
```

What is the result?

A. A compilation error occurs at `line n2`.
B. 200.12
   300.32
C. 100.12
   200.32
D. A compilation error occurs at `line n1`.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

```
/ArraysAsListExample.java:10: error: illegal character: '\u2013'
DoubleFunction funD = d -> d + 100.0;
                      ^
/ArraysAsListExample.java:10: error: not a statement
DoubleFunction funD = d -> d + 100.0;
                           ^
/ArraysAsListExample.java:12: error: illegal character: '\u2013'
doubles.stream(). forEach(e -> System.out.println(e)); // line n2
                          ^
/ArraysAsListExample.java:12: error: illegal start of expression
doubles.stream(). forEach(e -> System.out.println(e)); // line n2
                           ^
/ArraysAsListExample.java:12: error: ';' expected
doubles.stream(). forEach(e -> System.out.println(e)); // line n2
                                    ^
/ArraysAsListExample.java:12: error: ';' expected
doubles.stream(). forEach(e -> System.out.println(e)); // line n2
                                                     ^
6 errors
```

QUESTION 163
Given:

```
public class Product {
int id; int price;
public Product (int id, int price) {
this.id = id;
this.price = price;
}
Public String toString () { return id + ":" + price;)
}
```

and the code fragment:

```
List<Product> products = new ArrayList <> (Arrays.asList(new Product(1, 10),
    new Product (2, 30),
    new Product (3, 20));
Product p = products.stream().reduce(new Product (4, 0), (p1, p2) -> {
    p1.price+=p2.price;
    return new Product (p1.id, p1.price);});
products.add(p);
products.stream().parallel()
    .reduce((p1, p2) - > p1.price > p2.price ? p1 : p2)
    .ifPresent(System.out: :println);
```

What is the result?

A. 4:60
B. 2:30
C. 4:60
   2:30
   3:20
   1:10
D. 4:0
E. The program prints nothing

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 164
Given:

```
class Student    {
    String course, name, city;
    public Student (String name, String course, String city)   {
        this.course = course; this.name = name; this.city = city;
    }
    public String toString()    {
        return course + ":" + name + ":" + city;
    }
     public String getCourse() {return course;}
     public String getName() {return name;}
     public String getCity() {return city;}
```

and the code fragment:

```
List<Student> stds = Arrays.asList(
    new Student ("Jessy", "Java ME", "Chicago"),
    new Student ("Helen", "Java EE", "Houston"),
    new Student ("Mark", "Java ME", "Chicago"));
stds.stream()
    .collect(Collectors.groupingBy(Student::getCourse))
    .forEach(src, res) -> System.out.println(scr));
```

What is the result?

A. A compilation error occurs.
B.
```
Java EE
Java ME
```
C.
```
[Java EE: Helen:Houston]
[Java ME: Jessy:Chicago, Java ME: Mark:Chicago]
```
D.
```
[Java ME: Jessy:Chicago, Java ME: Mark:Chicago]
[Java EE: Helen:Houston]
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference: