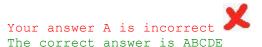
Chapter 17 Binary I/O

Section 17.2 How is I/O Handled in Java?

17.1 Which of the following statements are true?

V		_	_		propert g/writing	of a	file	or	a path,	but	does	not
	_	 		 _	-				613			

- B. You can use the PrintWriter class for outputting text to a file.
- C. You can use the Scanner class for reading text from a file.
- D. An input object is also called an input stream.
- E. An output object is also called an output stream.



Section 17.3 Text I/O vs. Binary I/O

17.2 Which of the following statements are true?

~	Α.	Text	I/O	is	built	upon	binary	I/O	to	provide	a	level	of	abstraction	for
		chara	acter	en	coding	and	decodin	g.							

- B. Text I/O involves encoding and decoding.
- C. Binary I/O does not require conversions.
- D. Binary I/O is more efficient than text I/O, because binary I/O does not require encoding and decoding.
- E. Binary files are independent of the encoding scheme on the host machine and thus are portable.

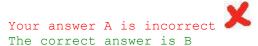


Section 17.4 Binary I/O Classes

17.3 Which method can you use to find out the number of the bytes in a file using InputStream?

•	Α.	length()
O	В.	available()
0	C.	size()

D. getSize()



 $\overline{\mathbf{v}}$

0

17.4 Which of the following statements are true?

- A. All methods in FileInputStream/FileOutputStream are inherited from InputStream/OutputStream.
- B. You can create a FileInputStream/FileOutputStream from a File object or a file name using FileInputStream/FileOutputStream constructors.
- C. The return value -1 from the read() method signifies the end of file.
- D. A java.io.FileNotFoundException would occur if you attempt to create a FileInputStream with a nonexistent file.
- E. A java.io.FileNotFoundException would occur if you attempt to create a FileOutputStream with a nonexistent file.

Your answer A is incorrect
The correct answer is ABCD

- 17.5 To append data to an existing file, use _____ to construct a FileOutputStream for file out.dat.
- A. new FileOutputStream("out.dat")
- B. new FileOutputStream("out.dat", false)
- C. new FileOutputStream("out.dat", true)
- D. new FileOutputStream(true, "out.dat")

Your answer A is incorrect
The correct answer is C

17.6 What does the following code do?

FileInputStream fis = new FileInputStream("test.dat");

- A. It creates a new file named test.dat if it does not exist and opens the file so you can write to it.
- B. It creates a new file named test.dat if it does not exist and opens the file so you can write to it and read from it.
- C. It creates a new file named test.dat regardless of whether it exists or not and opens the file so you can write to it.
- D. It creates a new file named test.dat regardless of whether it exists or not and opens the file so you can write to it and read from it.

E. It creates a FileInputStream for test.dat if test.dat exists.

```
Your answer A is incorrect
The correct answer is E
```

- **17.7** Which type of exception occurs when creating a DataInputStream for a nonexistent file?
- A. FileNotExist

①

- B. FileNotExistException
- C. FileNotFound
- D. FileNotFoundException



- 17.8 Which of the following statements is correct to create a DataOutputStream to write to a file named out.dat?
- A. DataOutputStream outfile = new DataOutputStream(new File("out.dat"));
- B. DataOutputStream outfile = new DataOutputStream(new FileOutputStream("out.dat"));
- C. DataOutputStream outfile = new DataOutputStream(FileOutputStream("out.dat"));
- D. DataOutputStream outfile = new DataOutputStream("out.dat");

```
Your answer A is incorrect
The correct answer is B
```

17.9 After the following program is finished, how many bytes are written to the file t.dat?

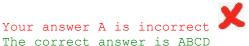
```
import java.io.*;

public class Test {
   public static void main(String[] args) throws IOException {
     DataOutputStream output = new DataOutputStream(
          new FileOutputStream("t.dat"));
     output.writeShort(1234);
     output.writeShort(5678);
     output.close();
   }
}
```

A. 2 bytes.

```
B. 4 bytes.
 C. 8 bytes.
 D. 16 bytes.
   Your answer A is incorrect
   The correct answer is B
   Explanation: Each short number takes 2 bytes. So total is 4 bytes.
17.10 After the following program is finished, how many bytes are written to the
   file t.dat?
   import java.io.*;
   public class Test {
     public static void main(String[] args) throws IOException {
        DataOutputStream output = new DataOutputStream(
          new FileOutputStream("t.dat"));
        output.writeChar('A');
        output.close();
     }
    }
 A. 2 bytes.
 B. 4 bytes.
 C. 8 bytes.
 D. none of the above.
   Your answer is correct
   Explanation: Two bytes of Unicode for 'A' is written
17.11 After the following program is finished, how many bytes are written to the
   file t.dat?
   import java.io.*;
   public class Test {
     public static void main(String[] args) throws IOException {
        DataOutputStream output = new DataOutputStream(
          new FileOutputStream("t.dat"));
        output.writeChars("ABCD");
        output.close();
    }
 A. 2 bytes.
 B. 4 bytes.
```

```
C. 8 bytes.
    D. 12 bytes.
    E. 16 bytes.
       Your answer A is incorrect
       The correct answer is C
       Explanation: Two bytes of Unicode for each character is written to output.
   17.12 After the following program is finished, how many bytes are written to the
       file t.dat?
       import java.io.*;
       public class Test {
         public static void main(String[] args) throws IOException {
           DataOutputStream output = new DataOutputStream(
             new FileOutputStream("t.dat"));
           output.writeUTFString("ABCD");
           output.close();
         }
       }
    A. 2 bytes.
    B. 4 bytes.
    C. 6 bytes.
    D. 8 bytes.
    E. 10 bytes.
       Your answer A is incorrect
       The correct answer is C
       Explanation: 'ABCD' are ASCII code, so each takes one byte in UTF. Total is 6
       because the first two bytes stores the number of characters in the string.
   17.13 Which of the following statements are true?
\overline{\mathbf{v}}
    A. All files are stored in binary format. So, all files are essentially binary
       files.
    B. Text I/O is built upon binary I/O to provide a level of abstraction for
       character encoding and decoding.
    C. Encoding and decoding are automatically performed by text I/O.
D. For binary input, you need to know exactly how data were written in order to
       read them in correct type and order.
```



Section 17.6 Object I/O

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17.14 Which of the following statements are true?

Α.	Ob:	jectInput	Stre	am/ObjectO	utput	Stream	enab	les	you	to	perform	I/O	for	objects
	in	${\tt addition}$	for	primitive	type	values	and	str	ings					

- B. Since ObjectInputStream/ObjectOutputStream contains all the functions of DataInputStream/DataOutputStream, you can replace DataInputStream/DataOutputStream completely by ObjectInputStream/ObjectOutputStream.
- C. To write an object, the object must be serializable.
- D. The Serializable interface does not contain any methods. So it is a mark interface.
- E. If all the elements in an array is serializable, the array is serializable too.

Your answer A is incorrect
The correct answer is ABCDE

17.15 The Loan class given in the text does not implement java.io.Serializable. Analyze the following code.

```
public class Foo implements java.io.Serializable {
  private int v1;
  private static double v2;
  private Loan v3 = new Loan();
}
```

- A. An instance of Foo can be serialized because Foo implements Serializable.
- B. An instance of Foo cannot be serialized because Foo contains a nonserializable instance variable v3.
 - C. If you mark v3 as transient, an instance of Foo is serializable.

Your answer A is incorrect

X

The correct answer is BC Explanation: An object may not be serialized even though its class implements java.io.Serializable, because it may contain non-serializable instance variables.

- 17.16 Which of the following statements is not true?
- A. A static variable is not serialized.

- B. A transient variable is not serialized.
- C. An object must be an instance of Serializable or Externalizable for it to be serialized.
- D. The methods in an object are serialized.
- E. All of the above are true.

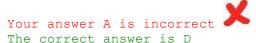
Your answer A is incorrect The correct answer is D



Section 17.7 Random Access Files

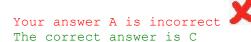
17.17 To create a file, you can use .

- A. FileOutputStream
- B. FileWriter
- C. RandomAccessFile
- D. All of the above.



17.18 Which of the following is the legal mode for creating a new RandomAccessFile stream?

- A. "w"
 - B. 'r'
 - C. "rw"
 - D. "rwx"



17.19 What happens if the file test.dat does not exist when you attempt to compile and run the following code?

```
import java.io.*;

class Test {
  public static void main(String[] args) {
    try {
     RandomAccessFile raf =
        new RandomAccessFile("test.dat", "r");
    int i = raf.readInt();
```

```
catch(IOException ex) {
      System.out.println("IO exception");
 }
}
```

- A. The program does not compile because raf is not created correctly.
- B. The program does not compile because readInt() is not implemented in RandomAccessFile.
- C. The program compiles, but throws IOException because the file test.dat doesn't exist. The program displays IO exception.
- D. The program compiles and runs fine, but nothing is displayed on the console.

Your answer A is incorrect

The correct answer is C

Explanation: The problem is in line: new RandomAccessFile('test.dat', 'r'); Because the file does not exist, you cannot open it for reading.

17.20 With which I/O class can you append or update a file?

- A. RandomAccessFile(),
- B. OutputStream()

- C. DataOutputStream()
- D. None of the above

Your answer is correct

