12.1 The language and the country of the UK locale are "anglais" and "Royaume-Uni" in the France locale, respectively, and the language and the country of the France locale are "French" and "France" in the UK locale, respectively. What will the following program print when compiled and run?

```
public class LocaleInfo {
  public static void main(String[] args) {
    printLocaleInfo(Locale.UK, Locale.FRANCE);
    printLocaleInfo(Locale.FRANCE, Locale.UK);
  }
  public static void printLocaleInfo(Locale loc1, Locale loc2) {
    System.out.println(loc1.getDisplayLanguage(loc2) + ", " +
loc2.getDisplayCountry(loc1));
  }
}
```

Select the one correct answer.

(a) French, Royaume-Uni anglais, France
(b) anglais, Royaume-Uni French, France
(c) anglais, France French, Royaume-Uni
(d) French, France anglais, Royaume-Uniint i = 0;

12.2 Which statements are not true about the java.util.Date class?

Select the two correct answers.

(a) The java.util.Date class implements the Comparable<Date> interface.
(b) The java.util.Date class is locale-sensitive.
(c) The default constructor of the java.util.Date class returns the current date/time.
(d) The non-default constructor of the java.util.Date class throws an IllegalArgumentException if the argument value is negative.

12.3 Which code, when inserted at (1), will not set the date to 1. January 2009?

```
public class ChangingDate {
  public static void main(String[] args) {
    // Create a calendar that is set to 31. December 2008:
    Calendar calendar = Calendar.getInstance();
    calendar.set(Calendar.DAY_OF_MONTH, 31);
    calendar.set(Calendar.MONTH, Calendar.DECEMBER);
    calendar.set(Calendar.YEAR, 2008);
    calendar.set(Calendar.SECOND, 0);
    calendar.set(Calendar.MINUTE, 0);
    calendar.set(Calendar.HOUR_OF_DAY, 0);
    // (1) INSERT CODE HERE ...
    System.out.println(calendar.getTime());
  }
}
```

Select the two correct answers.

(a) calendar.set(Calendar.DAY_OF_MONTH, 1);
(b) calendar.set(Calendar.MONTH, Calendar.JANUARY);
(c) calendar.set(Calendar.YEAR, 2009);
(d) calendar.set(Calendar.DAY_OF_MONTH, 1);
(e) calendar.set(Calendar.MONTH, 12);
(f) calendar.add(Calendar.DAY_OF_MONTH, 1);
(g) calendar.roll(Calendar.DAY_OF_MONTH, 1);
(h) calendar.set(2009, 0, 1);
(i) calendar.set(2009, 1, 1);

12.4 Which code, when inserted at (1), will make the program compile and execute normally?

```
public class Dating {
  public static void main(String[] args) {
    Date date = new Date();
    // (1) INSERT CODE HERE ...
  }
}
```

Select the one correct answer.

(a) DateFormat df = new DateFormat(Locale.US);
System.out.println(df.format(date));
(b) DateFormat df = new DateFormat(DateFormat.FULL, Locale.US);
System.out.println(df.format(date));
(c) DateFormat df = DateFormat.getDateTimeInstance(DateFormat.FULL, Locale.US);
System.out.println(df.format(date));
(d) DateFormat df = DateFormat.getDateTimeInstance(date);
System.out.println(df.format(DateFormat.FULL, Locale.US));
(e) DateFormat df = DateFormat.getDateInstance(DateFormat.FULL, Locale.US);
System.out.println(df.format(date));

12.5 Which code, when inserted at (1), will not make the program compile and execute normally? Assume that the order of the values in a date is according to the US locale: month, day of month, and year, respectively.

```
public class ParsingDates {
  public static void main(String[] args) throws ParseException {
    // (1) INSERT DECLARATION HERE ...
    System.out.println(parseDate(inputStr));
  }
  public static Date parseDate(String inputString) throws ParseException {
    DateFormat dfUS = DateFormat.getDateInstance(DateFormat.SHORT, Locale.US);
    return dfUS.parse(inputString);
  }
}
```

Select the one correct answer.

(a) String inputStr = "3/7/08";
(b) String inputStr = "03/07/08";
(c) String inputStr = "3/37/08";
(d) String inputStr = "13/07/08";
(e) String inputStr = "3/07/08/2008";
(f) String inputStr = " 3/07/08   ";
(g) String inputStr = "Mar 7, 2008";

12.6 Which statement is true about the program? Assume that the decimal sign is a dot (.) and the grouping character is a comma (,) for the US locale.

```
public class ParsingNumbers {
  public static void main(String[] args) {
    // (1) DECLARATION INSERTED HERE ...
    System.out.println(parseNumber(inputStr));
  }
  public static Number parseNumber(String inputString) {
    NumberFormat nfUS = NumberFormat.getNumberInstance(Locale.US);
    Double num = nfUS.parse(inputString);
    return num;
  }
}
```

Select the one correct answer.
(a) The following declaration, when inserted at (1), will result in the program compiling without errors and executing normally:
String inputStr = "1234.567";
(b) The following declaration, when inserted at (1), will result in the program compiling without errors and executing normally:
String inputStr = "0.567";
(c) The following declaration, when inserted at (1), will result in the program compiling without errors and executing normally:
String inputStr = "1234..";
(d) The following declaration, when inserted at (1), will result in the program compiling without errors and executing normally:
String inputStr = "1,234.567";
(e) The following declaration, when inserted at (1), will result in the program compiling without errors and executing normally:
String inputStr = "1 234.567";
(f) Regardless of which declaration from (a) to (e) is inserted for the input reference at (1), the program will not compile.
(g) Regardless of which declaration from (a) to (e) is inserted for the input reference at (1), the program will compile, but result in an exception at runtime.

12.7 Which statements are true about the following target string?
"oblaada oblaadi"
Select the three correct answers.
(a) The regular expression a+ will match two substrings of the target string.
(b) The regular expression aa+ will match two substrings of the target string.
(c) The regular expression (aa)+ will match two substrings of the target string.
(d) The regular expressions aa+ and (aa)+ will match the same two substrings of the target string.

12.8 Which statements are true about the following target string?
"oblaada oblaadi"
Select the three correct answers.
(a) The regular expression a? will match five non-empty substrings of the target string.
(b) The regular expression aa? will match two non-empty substrings of the target string.
(c) The regular expression (aa)? will match two non-empty substrings of the target string.
(d) The regular expressions aa? and (aa)? will not match the same non-empty substrings of the target string.

12.9 Which statement is true about the following target string?
"oblaada oblaadi"
Select the one correct answer.
(a) The regular expression a* will match three non-empty substrings of the target string.
(b) The regular expression aa* will match at least two non-empty substrings of the target string.
(c) The regular expression (aa)* will match two non-empty substrings of the target string.
(d) The regular expressions a* and aa* will match the same non-empty substrings of the target string.
(e) All of the above.

12.10 Which statement is true about the following target string?
"0.5 7UP _4me"
Select the one correct answer.
(a) The pattern \d will match 0.5, 7, and 4 in the target string.
(b) The pattern \d will match 0, ., 5, 7, and 4 in the target string.
(c) The pattern \w will match UP and me in the target string.
(d) The pattern \s will match 0.5, 7UP , and _4me in the target string.
(e) The pattern . will match the . character in the target string.
(f) The regular expression [meUP] will match UP and me in the target string.
(g) None of the above.

12.11 Which statements are true about the following program?
```
import java.util.regex.Pattern;
public class RQ500_10 {
  public static void main(String[] args) {
    System.out.println(Pattern.matches("+?\d", "+2007"));      // (1)
    System.out.println(Pattern.matches("+?\\d+","+2007"));     // (2)
    System.out.println(Pattern.matches("\+?\\d+", "+2007"));   // (3)
    System.out.println(Pattern.matches("\\+?\\d+", "+2007"));  // (4)
  }
}
```
Select the two correct answers.
(a) Only in the statements at (1) and (2) will the compiler report an invalid escape sequence.
(b) Only in the statements at (3) and (4) will the compiler report an invalid escape sequence.
(c) Only in the statements at (1) and (3) will the compiler report an invalid escape sequence.
(d) The statements at (2) and (4) will compile but will throw an exception at runtime.
(e) After any compile-time errors have been eliminated, only one of the statements will print true when executed.
(f) None of the above.

12.12 Given the following code:
```
import java.util.regex.Pattern;
public class RQ500_20 {
  public static void main(String[] args) {
    String[] regexes = {
      "(-|+)\\d+",    "(-|+)?\\d+", "(-|\\+)\\d+",   // 0, 1, 2
      "(-|\\+)?\\d+", "[-+]?\\d+",  "[-+]?[0-9]+",   // 3, 4, 5
      "[-\\+]?\\d+" };            // 6
    // (1) INSERT DECLARATION STATEMENT HERE
    System.out.println(Pattern.matches(regexes[i], "2007"));
    System.out.println(Pattern.matches(regexes[i], "-2007"));
    System.out.println(Pattern.matches(regexes[i], "+2007"));
  }
}
```
Which declarations, when inserted independently at (1), will make the program print:
true
true
true
Select the four correct answers.
(a) int i = 0;
(b) int i = 1;
(c) int i = 2;
(d) int i = 3;
(e) int i = 4;
(f) int i = 5;
(g) int i = 6;

12.13 Given the following code:
```
import java.util.regex.Pattern;
import java.util.regex.Matcher;
public class RQ500_40 {
  public static void main(String[] args) {
    String regex  = "ja[^java]*va";
    String index = "01234567890123456789012345678";
    String target = "jambo valued jam vacationer";
    Pattern pattern = __________.compile(_________);
    Matcher matcher = __________.matcher(_________);
    while(matcher._____________()) {
      int startIndex = matcher._________();
      int endIndex   = matcher._________();
      int lastIndex  = startIndex == endIndex ? endIndex : endIndex-1;
      String matchedStr = matcher._______();
      System.out.print("(" + startIndex + "," + lastIndex + ":" +
        matchedStr + ")");
    }
    System.out.println();
  }
}
```

Which identifiers, when filled in the blanks in the order they are specified, will make the program print:
(0,7:jambo va)(13,18:jam va)
Select the one correct answer.
(a) Pattern, pattern, target, regex, find, start, end, group
(b) Matcher, pattern, regex, target, hasMore, start, end, element
(c) Matcher, pattern, regex, target, hasNext, start, end, next
(d) Pattern, regex, pattern, target, find, start, end, group
(e) Pattern, regex, pattern, target, hasNext, start, end, next
(f) Pattern, regex, pattern, target, find, start, end, result

12.14 What will the program print when compiled and run?

```
public class RQ500_60 {
  public static void main(String[] args) {
    String regex = "[Jj].?[Aa].?[Vv].?[Aa]";
    String target1 = "JAVA JaVa java jaVA";
    String target2 = "JAAAVA JaVVa jjaavvaa ja VA";
    Pattern pattern = Pattern.compile(regex);
    Matcher matcher = pattern.matcher(target1);
    makeMatch(matcher);
    matcher.reset();
    makeMatch(matcher);
    matcher.reset(target2);
    makeMatch(matcher);
  }
  public static void makeMatch(Matcher matcher) {
    System.out.print("|");
    while(matcher.find()) {
      System.out.print(matcher.group() + "|");
    }
    System.out.println();
  }
}
```

Select the one correct answer.

```
(a) |JAVA|JaVa|java|jaVA|
    |JAAAVA|JaVVa|jjaavva|ja VA|
(b) |JAVA|JaVa|java|jaVA|
    |
    |JAAAVA|JaVVa|jjaavva|ja VA|
(c) |JAVA|JaVa|java|jaVA|
    |JAVA|JaVa|java|jaVA|
    |JAAAVA|JaVVa|jjaavva|ja VA|
(d) |JAVA|JaVa|java|jaVA|
    |JAVA|JaVa|java|jaVA|
    |JaVVa|jjaavva|ja VA|
```

(e) The program will throw an exception when run.

12.15 What will the program print when compiled and run?

```
public class RQ500_70 {
  public static void main(String[] args) {
    System.out.print(Pattern.compile("\\s+")
 .matcher("|    To be  |\n|or \tnot \t\t\tto be|")
         .replaceAll(" "));
  }
}
```

Select the one correct answer.

(a) | To be | |or not to be|	(b) | To be | |or not to be|	(c) | To be | |or \tnot \t\t\tto be|
(d) | To be | |or not to be|	(e) | To be ||or not to be|	(f) | To be ||or \tnot \tto be|

(g) The program will not compile.
(h) The program will throw an exception when run.

12.16 What will the program print when compiled and run?

```
public class RQ500_80 {
  public static void main(String[] args) {
    matchMaker("X.*z", "XyzXyz Xz");   // (1)
    matchMaker("X.+z", "XyzXyz Xz");   // (2)
    matchMaker("X.*?z", "XyzXyz Xz");  // (3)
    matchMaker("X.+?z", "XyzXyz Xz");  // (4)
  }
  public static void matchMaker(String regStr, String target) {
    Matcher matcher = Pattern.compile(regStr).matcher(target);
    System.out.print("|");
    while(matcher.find()) {
      System.out.print(matcher.group() + "|");
    }
    System.out.println();
  }
}
```

Select the one correct answer.

```
(a) |Xyz|Xyz|Xz|
    |XyzXyz|Xz|
    |Xyz|Xyz|Xz|
    |Xyz|Xyz|
(b) |XyzXyz Xz|
    |XyzXyz Xz|
    |Xyz|Xyz|Xz|
    |Xyz|Xyz|
(c) |XyzXyz Xz|
    |XyzXyz|Xz|
    |XyzXyz Xz|
    |XyzXyz|Xz|
```

(d) The program will throw an exception when run.

12.17 What will the program print when compiled and run?

```
public class RQ500_90 {
  public static void main(String[] args) {
    CharSequence inputStr = "no 7up 4 _u too!";
    String patternStr = "[a-zA-Z0-9_]+";
    Matcher matcher = Pattern.compile(patternStr).matcher(inputStr);
    StringBuffer buf = new StringBuffer();
    while (matcher.find()) {
      String matchedStr = matcher.group();
      matchedStr = Character.toUpperCase(matchedStr.charAt(0)) +
matchedStr.substring(1);
      matcher.appendReplacement(buf, matchedStr);
    }
    matcher.appendTail(buf);
    System.out.println(buf);
  }
}
```

Select the one correct answer.
(a) No 7Up 4 _U Too!
(b) No 7up 4 _u Too!
(c) No 7Up 4 _u Too!
(d) No 7up 4 _U Too!
(e) The program will throw an exception when run.

12.18 What will the program print when compiled and run?

```
public class RQ500_110 {
  public static void main(String[] args) {
    printArray("Smile:-)and:)the:-(world.-)smiles:o)with-you".
     split("[.:\\-()o]+"));
  }
  private static <T> void printArray(T[] array) {
    System.out.print("|");
    for (T element : array)
      System.out.print(element + "|");
    System.out.println();
  }
}
```

Select the one correct answer.
(a) |Smile|and|the|world|smiles|with-you|
(b) |Smile|and|the|world|smiles|with-y|u|
(c) |Smile|and|the|world|smiles|with|you|
(d) |Smile|and|the|w|rld|smiles|with|y|u|
(e) The program will not compile.
(f) The program will compile and will throw an exception when run.
(g) The program will compile and will execute normally without printing anything.

12.19 Which statements are true about the Scanner class?
Select the 3 correct answers.
(a) The Scanner class has constructors that can accept the following as an argument: a String, a StringBuffer, a StringBuilder, a File, an InputStream, a Reader.
(b) The Scanner class provides a method called hasNextBoolean, but not a method called hasNextChar.
(c) The methods hasNext(), next(), skip(), findInLine(), and useDelimiters() of the Scanner class can take a Pattern or a String as an argument.
(d) The situation where the scanner cannot match the next token or where the input is exhausted, can be detected by catching an unchecked NoSuchElementException in the program.

12.20 Given the following code:

```
public class RQ600_10 {
  public static void main(String[] args)  {
    Scanner lexer = new Scanner(System.in);
    // (1) INSERT PRINT STATEMENT HERE.
  }
}
```

Which print statements, when inserted independently at (1), will not make the program run as follows (with user input shown in bold):

```
>java RQ600_10
99 20.07 true 786
99
>
```

Select the three correct answers.
(a) System.out.println(lexer.nextByte());
(b) System.out.println(lexer.nextShort());
(c) System.out.println(lexer.nextInt());
(d) System.out.println(lexer.nextLong());
(e) System.out.println(lexer.nextDouble());
(f) System.out.println(lexer.nextBoolean());
(g) System.out.println(lexer.next());
(h) System.out.println(lexer.nextLine());

12.21 Given the following code:

```
public class RQ600_30 {
  public static void main(String[] args) {
    String input = "A00.20BCDE0.0060.0F0.800";
    Scanner lexer = new Scanner(input).useDelimiter(____(1)_____);
    System.out.print("|");
    while (lexer.hasNext()) {
      System.out.print(lexer.next() + "|");
      System.out.print(lexer.nextInt() + "|");
    }
    lexer.close();
  }
}
```

Which pattern strings, when inserted at (1), will not give the following output:
|A|2|BCDE|6|F|8|
Select the two correct answers.
(a) "[0\\.]+"
(b) "[0.]+"
(c) "(0|.)+"
(d) "(0|\\.)+"
(e) "0+(\\.)*"
(f) "0+\\.*0*"

12.22 What will the program print when compiled and run?

```
public class RQ600_40 {
  public static void main(String[] args) {
    String input = "_AB..0C.-12.),DEF0..-34G.(H.";
    Scanner lexer = new Scanner(input).useDelimiter("\\w+\\.");
    while (lexer.hasNext())
      System.out.print(lexer.next());
    lexer.close();
  }
}
```

Select the one correct answer.
(a) .-.),.-.(
(b) -),-(
(c) .-),-(.
(d) .-),.-(
(e) The program will not compile.
(f) The program will compile and will throw an exception when run.

12.23 Given the following code:

```
public class RQ600_50 {
  public static void main(String[] args) {
    String input = "1234||567.|12.34|.56||78.|.";
    String delimiters = "\\|+";
    // (1) INSERT DECLARATION HERE
    lexIt(regex, delimiters, input);
  }
  public static void lexIt(String regex, String delimiters, String input) {
    Scanner lexer = new Scanner(input).useDelimiter(delimiters);
    while (lexer.hasNext()) {
      if (lexer.hasNext(regex))
        System.out.printf("%7s", lexer.next(regex) + ",");
      else
        System.out.printf("%7s", "X" + lexer.next() + ",");
    }
    System.out.println();
    lexer.close();
  }
}
```

Which declaration statements, when inserted at (1), will give the following output:

1234, 567., 12.34, .56, 78., X.,

Select the one correct answer.

(a) String regex = "\\d+\\.?";
(b) String regex = "\\.?\\d+";
(c) String regex = "\\d+\\.\\d+";
(d) String regex = "\\d*\\.?\\d*";
(e) String regex = "\\d+\\.?\\d*";
(f) String regex = "(\\d+\\.?|\\.?\\d+|\\d+\\.\\d+)";
(g) The program will not compile regardless of which declaration from above is inserted at (1).
(h) The program will compile and run, but will throw an exception regardless of which declaration from above is inserted at (1).

12.24 What will the program print when compiled and run?

```
public class RQ600_70 {
  public static void main(String[] args) {
    Scanner lexer = new Scanner("B4, we were||m8s & :-) 2C,1 THR,");
    lexer.useDelimiter("[|,]");
    System.out.print("<" + lexer.next("\\w*") + "><" + lexer.next() + ">");
    lexer.useDelimiter("[a-z|& ]+");
    System.out.print("<" + lexer.nextInt() + "><" + lexer.next() + ">");
    lexer.useDelimiter("[ ,]");
    System.out.print("<" + lexer.next("\\w+") + "><" + lexer.next("\\d+") + ">");
    lexer.next();
    lexer.close();
  }
}
```

Select the one correct answer.

(a) <B4>< we were><8><:-)><2C><1>
(b) <B4>< we were><m8s><:-)><2C><THR>
(c) <B4><we were><8><:-)><2C,><1>
(d) <B4>< we were><8s><2C1><><THR>
(e) The program will not compile.
(f) The program will compile and will throw an exception when run.

12.25 What will the program print when compiled and run?

```
public class RQ600_80 {
  public static void main(String[] args) {
    Scanner lexer = new Scanner("Trick or treat");
    while(lexer.hasNext()) {
      if(lexer.hasNext("[kcirTtea]+"))
 System.out.print("Trick!");
      lexer.next();
    }
    lexer.close();
  }
}
```

Select the one correct answer.

(a) The program will not compile.
(b) The program will compile and will throw an exception when run.
(c) The program will compile and will go into an infinite loop when run.
(d) The program will compile, run, and terminate normally, without any output.
(e) The program will compile, run, and terminate normally, with the output Trick!.
(f) The program will compile, run, and terminate normally, with the output Trick!Trick!.
(g) The program will compile, run, and terminate normally, with the output Trick!treat!.

12.26 Given the following code:

```
public class RQ600_20 {
  public static void main(String[] args) {
    System.out.print("|");
    // (1) INSERT CODE HERE
    System.out.println();
    lexer.close();
}
```

Which code, when inserted independently at (1), will not print one of the lines shown below:

```
|2007| -25.0|mp3 4 u | true| after8|
|mp|u|true|after|
|2007.0|25.0|0.0|mp3|4.0|u|true|after8|
|4|
|2007|25|0|3|4|8|
|2007.0|-25.0|
```

Select the three correct answers.

(a)
```
Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
lexer.useDelimiter(",");
while(lexer.hasNext())
  System.out.print(lexer.next() + "|");
```

(b)
```
Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
lexer.useDelimiter("\\s*,\\s*");
while(lexer.hasNext())
  if(lexer.hasNextDouble())
    System.out.print(lexer.nextDouble() + "|");
  else
    lexer.next();
```

(c)
```
Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
lexer.useDelimiter("\\s*,\\s*");
while(lexer.hasNext())
  if(lexer.hasNextDouble())
     System.out.print(lexer.nextDouble() + "|");
```

(d)
```
Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
lexer.useDelimiter("[,\\- .a-z]+");
while(lexer.hasNext())
  if(lexer.hasNextInt())
    System.out.print(lexer.nextInt() + "|");
  else
    lexer.next();
```

(e)
```
Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
lexer.useDelimiter("[,\\- .\\d]+");
while(lexer.hasNext())
  if(lexer.hasNextBoolean())
    System.out.print(lexer.nextInt() + "|");
  else
    lexer.next();
```

(f)
```
Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
lexer.useDelimiter("[,\\- .\\d]+");
while(lexer.hasNext())
  if(lexer.hasNextBoolean())
    System.out.print(lexer.nextBoolean() + "|");
  else
    System.out.print(lexer.next() + "|");
```

(g)
```
Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
lexer.useDelimiter("[,\\- .]+");
while(lexer.hasNext())
  if(lexer.hasNextDouble())
    System.out.print(lexer.nextDouble() + "|");
  else
    System.out.print(lexer.next() + "|");
```

```
(h) Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
    lexer.useDelimiter("[,\\- .]+");
    do {
      if(lexer.hasNextInt())
        System.out.print(lexer.nextInt() + "|");
    } while(lexer.hasNext());
(i) Scanner lexer = new Scanner("2007, -25.0,mp3 4 u , true, after8");
    lexer.reset();
    do {
      if(lexer.hasNextInt())
        System.out.print(lexer.nextInt() + "|");
      else
        lexer.next();
    } while(lexer.hasNext());
```

12.27 Which classes in the Java API provide both forms of the format() method?
format(String formatStr, Object... args)
format(java.util.Locale l, String formatStr, Object... args)
Select the four correct answers.
(a) java.lang.String
(b) java.util.StringBuilder
(c) java.io.PrintStream
(d) java.io.PrintWriter
(e) java.util.Scanner
(f) java.util.Formatter
(g) java.util.Console

12.28 Which classes in the Java API provide both forms of the printf() method?
printf(String formatStr, Object... args)
printf(java.util.Locale l, String formatStr, Object... args)
Select the two correct answers.
(a) java.lang.String
(b) java.util.StringBuilder
(c) java.io.PrintStream
(d) java.io.PrintWriter
(e) java.util.Scanner
(f) java.util.Formatter
(g) java.util.Console

12.29 Which statements are not true about formatting values?
Select the two correct answers.
(a) The method call out.printf(formatStr,args) gives the same results as the method call out.format(formatStr,args), where out is a reference to either a java.io.PrintStream or a java.io.PrintWriter.
(b) The conversions 's' and 'b' can be applied to any argument type.
(c) The conversion 'd' can only be applied to integers, including char values.
(d) The flag combination '+-' is valid, but '(+-' is not.
(e) The flag '-' cannot be used without specifying a positive width.
(f) The flags ' ' and '0' can be combined if a positive width is specified.
(g) The argument index is always specified before any flags.

12.30 Given the following code:
```
public class RQ600_20 {
  public static void main(String[] args) {
    // (1) INSERT CODE HERE
  }
}
```
Which code, when inserted at (1), will print the following in the terminal window:
Formatted output: 1234.04
Select the one correct answer.
```
(a)
String output = String.format("Formatted output: %.2f%n", 1234.0354);
System.out.print(output);
(b)
System.out.format("Formatted output: %.2f%n", 1234.0354);
(c)
StringBuilder stb = new StringBuilder();
Formatter fmt = new Formatter(stb);
fmt.format("Formatted output: %.2f%n", 1234.0354);
System.out.print(stb);
(d)
Formatter fmt2 = new Formatter(System.out);
fmt2.format("Formatted output: %.2f%n", 1234.0354);
(e) All of the above
```

12.31 Given the following code:
```
public class RQ600_10 {
  public static void main(String[] args) throws FileNotFoundException {
    // (1) INSERT CODE HERE
  }
}
```
Which code, when inserted at (1), will print the following to the file named "output.txt":
Formatted output: 1234.04
Select the one correct answer.
```
(a)
PrintWriter pw = new PrintWriter("output.txt");
pw.format("Formatted output: %.2f%n", 1234.0354);
pw.flush();
pw.close();
(b)
PrintStream ps = new PrintStream("output.txt");
ps.format("Formatted output: %.2f%n", 1234.0354);
ps.flush();
ps.close();
(c)
Formatter fmt1 = new Formatter(new FileOutputStream("output.txt"));
fmt1.format("Formatted output: %.2f%n", 1234.0354);
fmt1.flush();
fmt1.close();
(d)
Formatter fmt2 = new Formatter("output.txt");
fmt2.format("Formatted output: %.2f%n", 1234.0354);
fmt2.flush();
fmt2.close();
(e) All of the above
```

12.32 Given the following code:
```
public class RQ600_110 {
  public static void main(String[] args) {
    Object[][] twoDimArray = {
        {"Tom", -100.678,    44, 'X', true},
        {"Dick", 50.88,    777, 'Y', false},
        {"Harry", -20.4455, 5151, 'Z', false}
    };
    // (1) INSERT DECLARATION HERE
    for (Object[] oneDimArray : twoDimArray) {
      System.out.format(formatStr, oneDimArray);
    }
  }
}
```

Which declarations, when inserted at (1), will print the following:

```
|X|  Tom|t|(100.68)|    44|
|Y| Dick|f|  +50.88|   777|
|Z|Harry|f| (20.45)|  5151|
```

Select the two correct answers.

```
(a) String formatStr = "|%4$-1c|%5s|%5$1.1b|%(+8.2f|%6d|%n";
(b) String formatStr = "|%4$c|%5s|%5$.1b|%(+8.2f|%6s|%n";
(c) String formatStr = "|%4$c|%5s|%5$.1b|%2$(+-8.2f|%3$6s|%n";
(d) String formatStr = "|%4$c|%1$5s|%5$.1b|%2$(+8.2f|%3$,6d|%n";
```

12.33 What will the following print when compiled and run?

```
public class RQ600_100 {
  public static void main(String[] args) {
    Double[] dArray = {10.987, -100.678, 1000.345};
    System.out.format("|");
    for (int i = 0; i < dArray.length; i++) {
      System.out.format("%(,+-" + (i+1) + "." + (i+1) + "f|", dArray[i]);
    }
  }
}
```

Select the one correct answer.

(a) |(11.0)|(-100.68)|(+1,000.345)|
(b) |+11.0|-100.68|+1,000.345|
(c) |+11.0|(100.68)|+1,000.345|
(d) The program will not compile.
(e) The program will compile, but throw a java.util.IllegalFormatFlagsException when run.

12.34 What will the following print when compiled and run?

```
public class RQ600_120 {
  public static void main(String[] args) {
    System.out.printf("|%0.0f|", 12.5);
    System.out.printf("|%0.s|", 12.5);
    System.out.printf("|%( +-10.2f|", -12.5);
    System.out.format("|%10.2f|%d", 12.5 );
    System.out.format("|%!10.2f|", 12.5 );
  }
}
```

Select the one correct answer.

(a) |12|12.|(12.50) | 12.50| -12.50|
(b) |13|13.|(-12.50) | 12.50| -12.50|
(c) The program will not compile.
(d) The program will compile, but throw an exception when run.

12.35 Which statements, when inserted at (1), will result in the program throwing an exception when run?

```
public class RQ600_40 {
  public static void main(String[] args) {
    // (1) INSERT STATEMENT HERE
  }
}
```

Select the two correct answers.

(a) System.out.printf("|%-10c|", 'L');
(b) System.out.printf("|%5.1c|", 125);
(c) System.out.printf("|%c|", 33);
(d) System.out.printf("|%+c|", 33);
(e) System.out.printf("|%c|", new Character('h'));
(f) System.out.printf("|%-4c|", new Integer("33"));
(g) System.out.printf("|%c|", null);
(h) System.out.printf("|%2$2c|", 123, 'V', true);

12.36 Which statement, when inserted at (1), will format and print either the value -123 or 123 in the terminal window?

```
public class RQ600_50 {
  public static void main(String[] args) {
    // (1) INSERT STATEMENT HERE
  }
}
```

Select the one correct answer.

```
(a) System.out.printf("|%(d|", -123);
(b) System.out.printf("|%-+5d|", 123);
(c) System.out.printf("|%(07d|", -123);
(d) System.out.printf("|%(-+7d|", -123);
(e) System.out.printf("|%-5d|", -123);
(f) System.out.printf("|%3d|", new Integer("-123"));
(g) System.out.printf("|%2$4d|", null, 123, true);
(h) All of the above
```

12.37 Which statement, when inserted at (1), will result in the program throwing an exception when run?

```
public class RQ600_55 {
  public static void main(String[] args) {
    // (1) INSERT STATEMENT HERE
  }
}
```

Select the one correct answer.

```
(a) System.out.printf("|%-d|", -123);
(b) System.out.printf("|%3.0d|", 123);
(c) System.out.printf("|%d|", "false");
(d) System.out.printf("|%3d|", 123.45);
(e) System.out.printf("|%-5d|", 'a');
(f) System.out.printf("|%d|", new Character('h'));
(g) System.out.printf("|%d|", new Boolean("911"));
(h) System.out.printf("|%d|", false);
(i) All of the above.
```

12.38 Given the following code:

```
public class RQ600_60 {
  public static void main(String[] args) {
    System.out.format("|");
    // (1) INSERT LOOP HERE
    System.out.format("%n");
  }
}
```

Which loops, when inserted at (1), will result in the program printing:

```
| t|  tr|   tru|    true|
```

Select the three correct answers.

(a)

```
for (int i = 1; i < 5; i++) {
  System.out.format("%" + i*2 + "." + i + "b|", 2007);
}
```

(b)

```
for (int i = 0; i < 5; i++) {
  System.out.format("%" + (i==0 ? "" : i*2) + "." + i + "b|", 2007);
}
```

(c)

```
for (int i = 0; i < 4; i++) {
  System.out.format("%" + (i+1)*2 + "." + i + "b|", 2007);
}
```

(d)

```
for (int i = 0; i < 4; i++) {
  System.out.format("%" + (i+1)*2 + "." + (i+1) + "b|", 2007);
}
```

(e)

```
for (int i = 4; i > 0; i--) {
  System.out.format("%" + (5-i)*2 + "." + (5-i) + "b|", 2007);
}
```

12.39 Given the following code:

```
public class RQ600_90 {
 public static void main(String[] args) {
  Integer[] integerArray = {10, 100, 1000, 10000};
  int[] intArray = {10, 100, 1000, 10000};
  // (1) INSERT STATEMENT HERE
 }
}
```

Which statement, when inserted at (1), will result in the program printing:

```
|1000|+10 | 100|
```

Select the one correct answer.

```
(a) System.out.printf("|%3$4d|%4d|%2$04d|%n", integerArray);
(b) System.out.printf("|%3$4d|%-+4d|%2$4d|%n", integerArray);
(c) System.out.printf("|%+4d|%4d|%4d|%n", integerArray);
(d) System.out.printf("|%4d|%4d|%4d|%n", intArray);
(e) None of the above.
```

12.40 Given the following code:

```
public class RQ600_80 {
  public static void main(String[] args) {
    for (int i = 5; i < 10; i++) {
      System.out.format("|");
      for (int j = 0; j < 3; j++) {
        System.out.format("%" + i + "." + j + "f|", 123.456);
      }
System.out.format("%n");
    }
  }
}
```

Which of the following lines will occur in the output of the program?

Select the one correct answer.

```
(a) |  123|123.5|123.46|
(b) |   123| 123.5|123.46|
(c) |    123|  123.5| 123.46|
(d) |     123|   123.5|  123.46|
(e) |      123|    123.5|   123.46|
(f) All of the above.
```