Chapter 10: Exceptions

Multiple Choice Questions:

1) A(n) _____ is an object that defines an unusual or erroneous situation that is typically recoverable.

a) error
b) exception
c) interface
d) try block
e) catch block

2) A(n) _____ is an object that defines an erroneous situation from which the program usually cannot recover.

a) error
b) exception
c) interface
d) try block
e) catch block

3) A(n) _____ can be used to find the exact line where an exception was thrown during program execution.

a) interface
b) call-stack trace
c) try block
d) catch block
e) none of the above

4) A(n) _____ is used to identify a block of statements that may cause an exception.

a) call-stack trace
b) error
c) catch block
d) try block
e) none of the above

5) A(n) _____ is used to specify how certain exceptions should be handled.

a) finally block
b) try block
c) catch block
d) error
e) none of the above

6) Every line of a(n) _____ is executed no matter what exceptions are thrown.

a) try block
b) call stack trace
c) catch block
d) interface
e) finally block

7) If an exception is not caught, a program will _____ .

a) not compile
b) terminate abnormally
c) print a message and continue executing
d) all of the above
e) neither a, b nor c

8) The `Exception` class and the `Error` class are subclasses of the _____ class.

a) `Throwable`
b) `Catchable`
c) `RuntimeProblem`
d) `CompilerProblem`
e) none of the above

9) _____ is the process of catching an exception in the chain of method calls from the method where the exception occurred up to the main method.

a) Error handling
b) Exception handling
c) Exception propagation
d) Catch block nesting
e) Finally block nesting

10) A(n) _____ is an ordered sequence of bytes.

a) exception
b) error
c) input-output flow
d) stream
e) none of the above

11) Which of the following represents the standard input stream?

a) `System.in`
b) `System.out`
c) `System.err`
d) `System.instream`
e) `System.outstream`

12) Which of the following file streams should be explicitly closed to ensure that written data is properly retained?

a) output
b) input
c) error
d) writable
e) readable

13) Which of the following exception types must always be caught unless they are contained in methods that throw them in the method header?

a) file stream
b) IO
c) checked
d) unchecked
e) none of the above

14) Which of the following exceptions are unchecked?

a) `RuntimeException`
b) `IllegalAccessException`
c) `NoSuchMethodException`
d) `ClassNotFoundException`
e) none of the above

15) Which of the following methods are part of the `Exception` class and can be used to give information about a thrown exception?

a) `getInfo`
b) `printInfo`
c) `printStackTrace`
d) `getStackTrace`
e) none of the above

True/False Questions:

1) Files that are open for output from a program must be explicitly closed in the program.

2) Unchecked exceptions must be caught or propogated, or a program will not compile.

3) A `finally` clause is always required in a try-catch block.

4) Attempting to divide by zero will result in an `Error` being thrown, not an `Exception`.

5) Every line in a `catch` block is guaranteed to be executed in all situations.

6) An exception will be propagated until it is caught and handled or until it is passed out of the `main` method.

7) A throw statement is used to begin exception propagation.

8) The `getMessage` method of the `Exception` class prints out the stack trace, which helps the user to track down the source of the exception.

9) When accessing an element of an array, if the index is outside of the range of the indexes of the array, an exception is thrown.

10) In practice, it is important to catch all exceptions that might be thrown by a program.

Short Answer Questions:

1) What is a `try` block?

2) What is a catch clause?

3) How is a `finally` clause different from a `try` block and a `catch` clause?

4) What is the difference between a checked exception and an unchecked exception?

5) How are input and output streams similar? How are they different?

6) Consider the following code fragment.

```
int [] a = new int[50];
a[50] = 100;
```

Will this code fragment throw an exception? Explain.

7) Write a short snippet of code that converts the first element of the `String[] args` array to an integer. It should catch an exception and print out a message if the first element cannot be converted to an integer.

8) Give two examples of methods in the `Exception` class that can be used to output information about the `Exception`.

9) Is an exception an object? Explain.

10) What is exception prorogation, and how does it work in Java?

11) Is the `Exception` class a subclass of the `Error` class? Explain.

12) How must IOExceptions be addressed in a program?

13) What are the standard I/O streams?

14) How does a method throw an exception?

15) Write a code fragment that will throw an ArithmeticException. Your code fragment should not use the `throw` statement.