

# The Exception Mechanism Solutions

- Explain what happens when an answer is thrown. Your answer should cover
  - What happens to the thrown instance
    - The thrown instance is copied into a special area of memory managed by the compiler
  - What happens to the local variables in the try block
    - All the local variables in the try block are destroyed
  - What happens to the program control flow
    - The program flow leaves the try block without executing any more instructions. It then tries to find a suitable catch handler

- Explain what is meant by the term "stack unwinding" (if you didn't already cover it in your previous answer)
  - The program will look for a suitable catch block immediately following the try block
  - If it cannot find one, it will exit the current scope, destroying all local variables, and look in the enclosing scope
  - This continues until it finds a suitable handler. If it reaches `main()` without finding one, the program terminates (by default)

- A catch block can throw its exception instance again. What is the syntax for doing this?
  - `throw;`
- What happens to the exception instance?
  - It is regarded as a new exception
  - Since the new exception was not thrown in a try block, the local catch blocks are ignored

- Give an example where this would be useful
  - Logging the exception at the point where it happens
  - Adding extra information to the exception
  - Converting the exception to a higher level type