# Sample of questions from previous SQ midterms

This document includes a small set of sample questions from previous midterm tests.

1) Modern software reviews are:
   a) Supported by (possibly cloud-based) review tools.
   b) Resort to some sort of *diff* tool to highlight what has changed since a previous review of the same artifact.
   c) Are more often used on source code, as dedicated support for reviewing models is too recent to become widely adopted.
   d) Are widely adopted, both in companies and open-source communities.
   e) All of the above.

2) In the context of the Error Guessing approach to software testing, common error guesses include:
   a) Assumptions on what "could never happen in a live environment", and what happens if those assumptions are broken.
   b) Null pointer exceptions.
   c) Wrong kind of data (e.g., a String where a real number is expected).
   d) Invalid parameters.
   e) All the above.

3) Consider the following source code fragment:

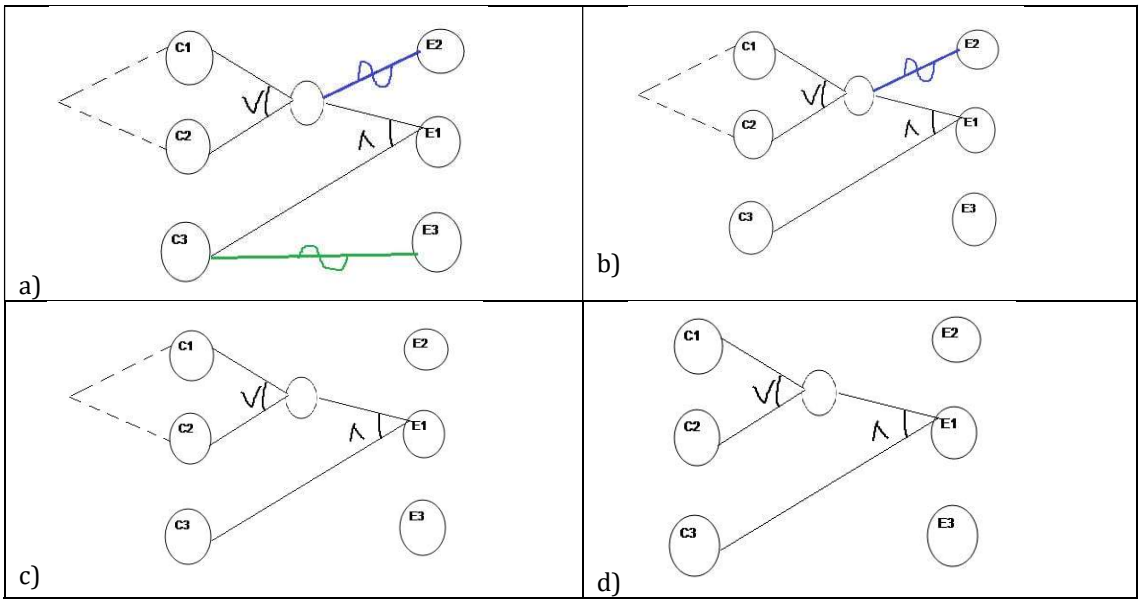
```
if ( (A || B) && (C || D) ) {
   /* statements */
} else {
   /* statements */
}
```

How many tests would you require for achieving statement coverage?
   a) 1
   b) 2
   c) 4
   d) 8
   e) 16

4) Consider a programming course where students must be approved in one of two elective assignments and in an exam to complete with success the course. Depending on the outcomes of these values, the grading application should produce the corresponding decision, according to the following requirements:
   i) The student must pass either the first or the second assignment.
   ii) The student must pass the exam.
   iii) If the student passes the first or the second assignment and the test, the student passes the course.
   iv) If the student does not pass neither the first nor the second assignment, the student fails due to the assignments.
   v) If the student does not pass the exam, the student fails due to the exam.

   Considering these requirements, which of the following would be an appropriate Cause-Effect Graph assuming the identified causes are:
   C1 – Pass the first elective assignment.
   C2 – Pass the second elective assignment.
   C3 – Pass the exam.

   and that the identified effects are:
   E1 – Pass the course.
   E2 – Fail due to the assignments.
   E3 – Fail due to the exam.




5) A palindrome is a word, that reads the same backwards as forwards. For instance, *"madam"* is a palindrome. *"sir"* is not. Consider the `is_palindrome_iter(text)` function defined in Python.

```
(1)     def is_palindrome_iter(text):
(2)        """Returns True if the text is a palindrome"""
(3)        first_index = 0
(4)        last_index = len(text) - 1
(5)        while (first_index <= last_index):
(6)           if (text[first_index] != text[last_index]):
(7)              return False
(8)           first_index += 1
(9)           last_index -= 1
(10)       return True
```

For the variable `first_index`, please create a test battery to ensure the coverage *"All definitions"*. In the answer options, the sequence of strings represents the sequence of calls made to the `is_palindrome_iter(text)` operation. Suppose that we call the function with:

```
(1)    is_palindrome("madam")
```

Which kind of coverage can be obtained with this test? (Note: for this particular question, you may select up to two options out of the first three, if you think two of them apply to the variable `first_index` while the other does not):

a) All defs.
b) All uses.
c) All def-uses.
d) All of the above (select this if a, b, and c are all true)
e) None of the above (select this if a, b, c, and d are all false)

6) In the ISO/IEC 25010:2011 quality in use model:
   a) Efficiency is the accuracy and completeness with which users achieve specified goals in a given context of use.
   b) Effectiveness is the resources expended in relation to the accuracy and completeness with which users achieve goals.
   c) Satisfaction is the degree to which user needs are satisfied when a product or system is used in a specified context of use.
   d) All of the above.
   e) None of the above.