On the Art of Provoking the Wrong Answer,
or
How To Construct Tests

The title may seem all wrong. Don't we want students to produce the *right* answer? Do we want to prevent young people from being admitted to the educational programmes they apply for? Don't we want our students to pass their exams? Or do we want to destroy their self-confidence?

Hardly so, we want the young people to become our students, to pass their exams, to develop into able, knowledgeable, self-confident adults. In order to understand the question, let us try to formulate what an examination paper is supposed to achieve. To put it simply, an exam should make sure that all who deserve to, and only they, pass. Apart from that, it is a possibility for those who write the paper to learn something new, and also it provides some help for students new to the subject in their studies. With large groups of students/applicants time is often of the essence. The question arises whether time-saving multiple choice questions can be constructed so that they help us diagnose frequent misconceptions. We discuss the construction of such questions, based on the experience from the admission test for Chalmers University of Technology and the Royal Institute of Technology. We also discuss the extent to which similar questions can be used to test understanding of theory rather than ability to memorize proofs in ordinary examination papers.