

CSC7426: Software and Data Engineering Exam 2023
Dr J Paul Gibson

Answer only 1 question – if you answer more than 1 question then only the first answer will be evaluated and awarded a mark.

You are allowed access to any secondary material (notes/books/web). Please correctly cite/reference any material that you use in your answer that is not your own work. (Plagiarism of secondary material will be punished and may lead to disciplinary action.)

I suggest you spend **2 hours** to answer your question. However, there is *no strict time limit* and I will permit you extra time if you require it.

The evaluation criteria are: 1) correct use of technological terms from the module, 2) evidence of progress you have made during the module, 3) reference to working on problems (or other software engineering projects).

Please submit your answer electronically – email paul.gibson@telecom-sudparis.eu - as a .pdf (or plain text).

Question 1:

What are the qualities/characteristics that you would associate with being a good software engineer? Is it necessary to be a good programmer to be a good software engineer?

Question 2:

Women have made fundamental contributions to the software engineering discipline. Discuss the work of 3 female software engineers whose work has had an impact on the way in which we build software now.

Question 3:

Consider the following quote:

“Everyone knows that debugging is twice as hard as writing a program in the first place. So if you're as clever as you can be when you write it, how will you ever debug it?”

—The Elements of Programming Style, Brian W. Kernighan & P.J. Plauger (2nd ed., 1978)

Making reference to your own experience, and with concrete examples, discuss whether you agree or disagree with Kernighan

Question 4:

For any one of the programming problems that you coded, discuss your choice of programming language. What were the advantages and disadvantages of using the chosen language to solve the problem? Give concrete examples. If you had to implement the same solution in a different language then which language would you choose and why?

Question 5:

Imagine that you are to manage a project for developing a classic video game. Your team has to build it in 6 months. You can have any four full-time developers (past or present) you wish on your team -describe how you would select the team members and who you would most like on your team (and why). What would be the *best* game you could develop with such resources?

Question 6:

It has been said that:

“One of the biggest problems for young graduates is that they are not work-ready. The teaching they have received in their education does not prepare them for the real world”

Do you think this is a fair comment?