Software Engineering Part Ia 1999 p11q1 p2q8
RJA

State the advantages of the waterfall model. (10 marks)
State the disadvantages of the waterfall model. (4 marks)
What is the main criterion for deciding whether or not to use the waterfall model in a software development project? (3 marks)
Would there be any difference for a hardware development project? (3 marks)

Model answer

This is largely bookwork, but:

The waterfall model of top-down system development helps managers control a project's costs and progress by forcing early clarification of requirements and their agreement by the customer, by generating an unambiguous specification for programmers, and by allowing developers to check at each stage whether they are building the right system – and whether they are building it right. It also allows them to identify, cost and charge for any subsequent alterations demanded by the client.

Its disadvantages are that with many development projects, the requirements are not known fully in advance; some iteration may be required, whether of user interfaces or even of core functionality. Requirements may also change because of changing markets, changing platform technology or other reasons; and an increasing ~~amount~~ proportion of development consists of upgrades to

packages or maintenance of existing bespoke code. However even in such cases the waterfall methodology may still be used with profit by individual feature teams.

The main criterion in deciding whether to use the waterfall model is whether the requirements can be stated clearly enough for it to be beneficial.

There is no difference in principle with hardware, but hardware projects will usually be more likely to be suitable.

Possible heretical (but acceptable) view: the waterfall model is always used, but sometimes the goal is a pilot or prototype, as a stage in a design iteration rather than a completed system, and often the starting point is a system which already works.