

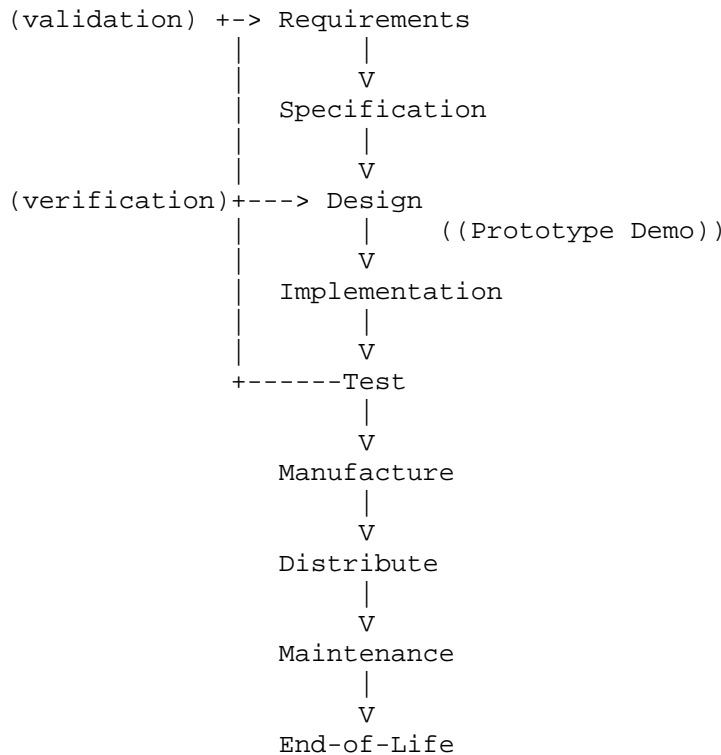
>>> SOLUTIONS <<<

Welcome to your 10% mini-exam for Senior Project. The exam is open book and notes, but you may not receive or give help from or to another person during the exam. You may have with you anything on paper (your notes, books, copies of the old exam solutions from the course website, etc.). You may not use any electronic aids (e.g., a laptop WiFi'ed to the Internet is not legal). If you copy the answer directly out of the textbook (or some other source), be sure to properly "quote" the answer (otherwise it is assumed that any answer is given in your own words). Read the last sentence again. There are five questions each worth 20 pts and one extra credit question worth 10 pts. You have 60 minutes for the exam. Please fill-in this cover sheet and submit it on top of your answer sheets. Please use a separate sheet of paper for each question

**Problem #1**

Answer the following questions about the product development process...

a) Sketch the product development process as we have discussed and followed it in this class.



b) In one sentence, what is the purpose of the requirements document?

To answer the question of "do you understand the problem?"

c) In one sentence, what is the purpose of the specification document?

To answer the question of "do you understand how to solve the problem?"

d) In no more than two sentences, what is the purpose of a traceability matrix in a specification document?

To make sure you have covered all requirement items by having no empty columns. Also, to make sure that you have not done any extra unneeded work by having no empty rows.

e) What is validation? What is verification?

Validation is "does it meet the requirements" and verification is "does it meet the specification". Or, "did we build the right thing" (validation) and "did we built it right" (verification).

f) What are the four parts of a test case?

- 1) Name and purpose
- 2) System configuration
- 3) Exact input
- 4) Exact expected output

## **Problem #2**

Answer the following questions about design...

a) What is design? Do not just copy a definition of design from your notes. Rather, identify and clearly state the approximately half-dozen, or so, key aspects or components of design.

Key words or concepts include, *process, meet desired needs, iterative, convert resources optimally, meet a stated objective, synthesis, and analysis*. This comes from the Florida Administrative Code 61G15-18.011 Definitions (we handed this out in class and discussed it).

b) What are the reasons to hold a design review? That is, what is the purpose of a design review?

- 1) Feedback to improve design
- 2) Education to others (employees, customer, etc.)
- 3) Evaluation of employees (designers)
- 4) Contractual

## **Problem #3**

Answer the following questions from Brooks' *Mythical Man Month*...

a) What is the concept of a "mythical man month"?

The myth that people and months are interchangeable in the time needed to complete a task. So, more people always equals less time to complete a

task is not always correct (it is indeed only rarely correct). See page 16 of Brooks MMM.

b) What is a silver bullet (in the context of software development)?

A single development that can yield a one order-of-magnitude increase in productivity, reliability, or simplicity of software development. See page 170 of Brooks MMM.

#### **Problem #4**

Answer the following questions from Brooks' *Mythical Man Month*...

a) What is the project manager's best friend and why?

"The project manager's best friend is his daily adversary, the independent product-testing organization." Such an independent audit keeps a manager and his department honest. See page 69 of Brooks MMM.

b) Why did the Tower of Babel fail?

Failure of communications and its resulting consequent, lack of organization. See page 74 of Brooks MMM.

#### **Problem #5**

List three non-trivial things that you learned from our guest talks. A non-trivial thing is something that is not obvious and is otherwise useful or helpful to you. For example, "Raytheon makes missiles" is trivial.

No specific solution.

#### **Extra Credit**

Describe one thing that can be improved in this class that would not require large amounts of resources to implement. Be clear in your suggested improvement. Saying "Get better projects" is not clear. Saying "Get more hardware projects because most of us in this class will be pursuing hardware development careers and thus need experience in this area." is a well stated improvement.

No specific solution.