**Chapter 1 - Test Questions**

1. How does software differ from the artifacts produced by other engineering disciplines?

Answer (Section 1.1):

Software is both a product and a vehicle for delivering a product. As a product, software is an information transformer. As a vehicle for delivering a product, software serves as a basis for computer control, communication, and creation of other programs.

1. How do software characteristics differ from hardware characteristics?

Answer (Section 1.1.1):

Software is developed, not manufactured. Software does not wear out. Most software is custom built, not assembled out of components.

1. Explain what is wrong with the notion that computer software does not need to evolve over time.

Answer (Section1.1.3):

Computer software must be revised as errors are discovered and corrected. Software must be updated to accommodate changes in the computing environment. Many times a customer will request changes to add new functions to an existing product or to accommodate changes in the business environment. Sometimes an older system will need to be reengineered to provide benefits to the user in a modern context. The bottom line is that software that does not evolve will eventually become unusable.

1. List three areas in which process models may differ from one another.

Answer (Section 1.3.3):

Overall flow and level of interdependencies among tasks

Degree to which work tasks are defined within each framework activity

Degree to which work products are identified and required

Manner in which quality assurance activities are applied

Manner in which project tracking and control activities are applied

Overall degree of detail and rigor of process description

Degree to which stakeholders are involved in the project

Level of autonomy given to project team

Degree to which team organization and roles are prescribed

1. Describe how Polya’s problem solving principles describe the essence of engineering practice?

Answer (Section 1.4):

* Understand the problem (communication and analysis)
* Plan a solution (modeling and design)
* Carry out the plan (code generation)
* Examine the result for accuracy (testing and quality assurance)