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Class: CS682 A1

Homework: Chapter 1

**Multiple Choice Questions**

4) E - all of the above

13) B - who will the system be for, what the system will do, when will it be used, and where will it be used

15) B - design

29) D - inheritance

30) B - dynamic binding

**True False Questions**

2) False - The planning phase is to understand WHY a system should be built

13) False - Agile is a third category on systems development

19) False - Better Agile methodologies are better for short timelines with schedule visibility

63) False - Use Case is an example of a Behavioral Diagram

69) False - Objects are instances of a class. A class can instantiate multiple objects that each have different state. In other words, a class acts as a blueprint for an object. (Note - I am not sure what the question is implying by asking whether or not an object is the “same” as a class)

**Short Questions**

3) Prototyping is a methodology that performs the analysis, design, and implementation phases concurrently, and all three phases are performed repeatedly in a cycle until the system is completed. Effectively, the analysis and design phases are shortened relative to Structured Methodologies so work can immediately begin on a system prototype that provides limited features and functionality. The analysis, design, and implementation phases continue repeatedly until the project constituents all agree that the prototype provides the required functionality at which point the system is implemented. Prototyping is best used when user requirements are unclear, the project has a short timeline, and needs schedule visibility.

9) The analysis phase of the SDLC is used to determine who will use the system, what the system will do, and where and when the system will be used. This includes an analysis of the as-is system and to-be system and requirements gathering to produce a system proposal. This step is critical to the success of the project because the system proposal will ultimately describe, in detail, what the real business requirements are.

19) Object-oriented systems analysis and design helps the decompose a complex problem into smaller, more solvable problems. These problems are each solved and then integrated together to form a complete system that ultimately solves the complex problem. Effectively, it enables modularity, which makes code more reusable, easier to understand, and shareable across team members and other projects.

20) The Unified Process is a methodology that describes when and how to use different UML techniques for object-oriented analysis and design. UP is described by a set of Phases and Workflows. It’s effectively an iterative and incremental development process that describes how a project should evolve over time and the tasks that a developer performs over time.

25) Encapsulation is the idea of combining state and behavior into a single entity. Effectively, an object should be self-contained meaning that it contains everything it needs to know about itself and all the behaviors it needs to perform. Information hiding is the idea that users should only be able to access the state and behavior that is required to actually use the module. This means that the implementation details (the internal algorithms) are hidden and protected.