REVIEW QUESTIONS

1. **What four kinds of information is the analyst seeking through prototyping?**
   - User reactions
   - Suggestions
   - Innovations
   - Revision plans

2. **What is meant by the term patched-up prototype?**
   - Has to do with constructing a system that works but is patched up or patched together. In this instance of prototyping, users can interact with the system, getting accustomed to the interface and types of output available. The retrieval and storage of information maybe inefficient, however, because programs were written rapidly with the objective of being workable rather than efficient.

   - The term "patched-up prototype" refers to a prototype that has been quickly assembled or modified using available resources and materials. It is a makeshift or temporary prototype created to demonstrate certain aspects or functionalities of a product or system.

3. **Define a prototype that is a nonworking scale model.**
   - A non-working scale model that is set up to test certain aspects of the design; produced when the coding required by the applications is too extensive to prototype but when a useful idea can be gained.

4. **Give an example of a prototype that is a first full-scale model.**
   - A concept model of a car. The exact design of the car is built with all the specs available, but only one model is created. This is in order to show off the design and quality of the car to represent to investors without creating an entire line of vehicles.

5. **Define what is meant by a prototype that is a model with some, but not all, essential features.**
   - Selected features prototype: the system is created by modules and features can be evaluated, changed, or axed as the progress continues.

6. **List the advantages and disadvantages of using prototyping to replace the traditional SDLC.**
   - The first concern is the extended time required to go through the development life cycle. As the investment of analyst time increases, the cost of the delivered system rises proportionately.
   - The second concern about using the SDLC is that user requirements change over time. During the long interval between the time that user requirements are analyzed and the time that the finished system is delivered, user requirements are evolving. Thus, because of the extended development cycle, the resulting system may be criticized for inadequately addressing current user information requirements.
   - SDLC it often is too late to change an unwanted system once it is delivered.
   - When prototyping is used in this way, the analyst effectively shortens the time between ascertainment of human information requirements and delivery of a workable system.
   - Using prototyping instead of the traditional SDLC might overcome some of the problems of accurately identifying user information requirements.
   - Using prototyping as an alternative may result in producing a system that is accepted by specific groups of users but that is inadequate for overall system needs

7. **Describe how prototyping can be used to augment the traditional SDLC.**
   - An analyst effectively shortens the time between ascertainment of human information requirements and delivery of a workable system. Also, ability to overcome some of the problems of accurately identifying user information requirements.

8. **What are the criteria for deciding whether a system should be prototyped?**
   - Estimate the costs involved in building a module of the system; if the costs of programmers' and analysts' time as well as equipment costs are within the budget, building can proceed.

9. **List four guidelines the analyst should observe in developing a prototype.**
   - Work in manageable modules.
   - Build the prototype rapidly
   - Modify the prototype in successive iterations
   - Stress the user interface

10. **What are the two main problems identified with prototyping?**
    - it can be quite difficult to manage prototyping as a project in the larger systems effort.
    - users and analysts may adopt a prototype as a completed system when it is in fact inadequate and was never intended to serve as a finished system.

11. **List the three main advantages in using prototyping.**
    - the potential for changing the system early in its development
    - the opportunity to stop development on a system that is not working
    - the possibility of developing a system that more closely addresses users' needs and expectations

12. **How can a prototype mounted on an interactive Web site facilitate the prototyping process? Answer in a paragraph.**
    - An interactive website prototype allows users to actively engage with the prototype and experience its functionality. They can navigate through different screens, interact with interactive elements, and simulate various user interactions. This enables designers and stakeholders to gather valuable feedback on usability, intuitiveness, and overall user experience. With an interactive prototype hosted on a website, it becomes easily accessible to remote team members, clients, or users. They can access and interact with the prototype from different locations and provide feedback or suggestions in real-time. This streamlines the collaboration process and eliminates geographical limitations. Overall, a prototype mounted on an interactive website streamlines the prototyping process by enhancing collaboration, accessibility, and iteration speed. It empowers designers to create more realistic and functional prototypes, receive timely feedback, and make data-driven decisions that contribute to the development of successful products or systems.

13. **What are three ways that a user can be of help in the prototyping process?**
    - Experimenting with the prototype
    - Giving open reactions to the prototype
    - Suggesting additions to or deletions from the prototype

14. **Define what is meant by RAD.**
    - Rapid application development (RAD) is an object-oriented approach to systems development that includes a method of development as well as software tools. It makes sense to discuss RAD and prototyping in the same chapter, because they are conceptually very close.

15. **What are the three phases of RAD?**
    - Requirements Planning Phase
    - RAD Design Workshop
    - Implementation Phase

16. **What are the four values that must be shared by the development team and business customers when taking an agile approach?**
    - Communication
    - Simplicity
    - Feedback
    - Courage

17. **What are agile principles?**
    - Satisfy the customer through delivery of working software
    - Embrace change, even if introduced late in development
    - Continue to deliver functioning software incrementally and frequently
    - Encourage customers and analysts to work together daily
    - Trust motivated individuals to get the job done
    - Promote face-to-face conversation
    - Concentrate on getting software to work
    - Encourage continuous, regular, and sustainable development
    - Adopt agility with attention to mindful design
    - Support self-organizing teams
    - Provide rapid feedback
    - Encourage quality
    - Review and adjust behavior occasionally, and
    - Adopt simplicity
    -

18. **What are the four core practices of the agile approach?**
    - Short Release
    - 40-Hour Work Week
    - Pair Programming
    - Onsite Customer

19. **Name the four resource control variables used in the agile approach.**
    - Time
    - Cost
    - Quality
    - Scope

20. **Outline the typical steps in an agile development episode.**
    - Listen for user stories from the customer.
    - Draw a logical workflow model to gain an appreciation for the business decisions represented in the user story.
    - Create new user stories based on the logical model.
    - Develop some display prototypes. In doing so, show the customers what sort of interface they will have.
    - Using feedback from the prototypes and the logical workflow diagrams, develop the system until you create a physical data model.

21. **There are four conceptions of prototypes:**
    - Patched-Up Prototype
    - Nonoperational Prototype
    - First-of-a-Series Prototype
    - Selected Features Prototype

22. One **disadvantage of prototyping** is that managing the prototyping process is difficult because of its rapid, iterative nature. A second disadvantage is that incomplete prototypes may be regarded ascomplete systems. Clear communication of the prototype timetable with users is essential.

23. One **advantage of prototyping** is the potential for changing the system early in its development. A second advantage is the opportunity to stop development on an unworkable system. A third advantage is the possibility of developing a system that closely addresses users needs and expectations.

24. **Agile modeling** is used to plan quickly, develop and release software quickly, and revise software quickly.

25. The activities of agile modeling are:

- Coding
- Testing
- Listening
- Designing

26. **User stories** are written that consist of a dialogue between developers and users.

27. An agile modeling approach called **Scrum** is based on team development within a strict timeframe.

28. Name the seven strategies for improving efficiency in knowledge work.

- Reducing the interface time and errors.
- Reducing process learning time and dual processing losses.
- Reducing the time and effort to structure tasks and format outputs.
- Reducing the nonproductive expansion of work.
- Reducing the data and knowledge search and storage time and costs.
- Reducing communication and coordination time and costs.
- Reducing losses from human information overload

29. Identify six risks in adopting organizational innovation.

- Organizational culture
- Timing
- Cost
- Client’s reactions
- Measuring impact
- The individual rights of programmers/analysts