Bonus Activity

Short Questions:

1. What are the three primary success factors for a software project? (Slide 3)

2. What is the definition of a software requirement according to Leffingwell and Widrig? (Slide 4)

3. What is the difference between a software requirement and a software specification? (Slide 7)

4. Define functional and non-functional requirements. (Slide 13)

5. What are some common problems with natural language specifications in requirements engineering? (Slide 7)

6. Why is the requirements elicitation phase critical in the software development process? (Slide 10)

7. What are the key goals of business modeling in software development? (Slide 6)

8. What is the difference between a business use-case model and a business object model? (Slide 8)

9. What are the primary advantages of using UML in software modeling? (Slide 6)

10. What is the purpose of structural diagrams in UML? (Slide 10)

11. What is the difference between problem analysis and product description in requirements engineering? (Slide 5)

12. Explain the importance of root cause analysis in identifying problems behind problems in software development. (Slide 9)

13. What is the role of brainstorming in requirements elicitation? (Slide 13)

14. Explain the 'Yes, But' syndrome in the context of requirements gathering. (Slide 19)

15. What is the purpose of formal requirements management processes like CMM and ISO 9000? (Slide 4)

16. How do requirements from the problem domain influence the system design? (Slide 8)

Long Question:

1. Discuss the root causes of software project failures as identified in the Standish Group report. How can proper requirements engineering mitigate these risks? (Slide 5)

2. Discuss how non-functional requirements impact the overall success of a system. Provide examples of non-functional requirements and their potential consequences if unmet. (Slide 15)

3. Discuss the root cause analysis technique. How can this approach help identify the underlying problems in software projects like HOLIS, and what benefits does it bring to the development team? (Slide 12)

4. Discuss how UML diagrams, such as use-case and sequence diagrams, can help the HOLIS team visualize and plan the system's architecture. Provide examples from the HOLIS project. (Slide 18)

5. Describe the process of managing and refining product features from initial stakeholder needs to detailed system requirements. How could HOLIS manage its feature set to meet both user needs and business goals? (Slide 20)

6. Discuss how managing the scope of software requirements ensures the delivery of the correct solution. How could scope management have helped HOLIS avoid feature creep? (Slide 13)

7. Describe the requirements engineering process and how it supports the creation of a complete and accurate set of requirements. Include the key activities and their purpose. (Slide 23)

8. Discuss how managing the scope of software requirements ensures the delivery of the correct solution. How could scope management have helped HOLIS avoid feature creep? (Slide 13)

HOLIS Case Study Question:

- How could HOLIS ensure that the system meets user requirements for reliability and flexibility in a high-end residential lighting system? Explain the process HOLIS should follow to gather these requirements effectively.

- In the context of HOLIS, explain how functional and non-functional requirements would be gathered and documented. What specific non-functional requirements would be critical for a lighting automation system?

- Analyze the problem of unclear user requirements for HOLIS and suggest methods the HOLIS team could use to improve communication between stakeholders and developers to reduce misunderstandings.

- Based on the HOLIS case study, describe the role of stakeholders in the requirements management process. How should HOLIS engage with its stakeholders to define and refine its lighting automation solution?

- For HOLIS, describe how root cause analysis could be used to identify potential issues in the system's design or operation. How would this analysis impact the final solution?

- How would a business use-case model help the HOLIS team define the system's functionality? Identify key use cases for the HOLIS lighting automation system.

- Create a UML use-case diagram for the HOLIS system that includes key actors and their interactions with the system. Explain how this diagram supports the requirements gathering process.

- During requirements elicitation for HOLIS, the team encounters vague and conflicting user needs. Propose techniques that HOLIS could use to resolve these issues and ensure that all stakeholder requirements are met effectively.