***SDLC Assignment Questions***

### **1. Introduction to SDLC:**

* **Q1:** What is the Software Development Life Cycle (SDLC)? Explain why SDLC is important in software development.
* **Q2:** List and describe the different phases of the SDLC. How does each phase contribute to the overall software development process?
* **Q3:** Explain the difference between **Waterfall Model**, **Agile Model**, and **V-Model**. In which situations would each model be most appropriate?

### **2. SDLC Phases and their Importance:**

* **Q4:** Describe the **Requirement Gathering** phase of the SDLC. What methods are used to gather requirements from stakeholders?
* **Q5:** In the **Design** phase, what are the key activities involved? Differentiate between high-level design and low-level design.
* **Q6:** Explain the **Coding** or **Development** phase of the SDLC. What tools and techniques are typically used by developers during this phase?
* **Q7:** What is the importance of the **Testing** phase in SDLC? Explain the different types of testing that are performed during this phase (e.g., unit testing, integration testing, system testing).
* **Q8:** Describe the **Deployment** phase in the SDLC. What are the key considerations for successfully deploying software into a live environment?
* **Q9:** What happens during the **Maintenance** phase? Why is it important for the long-term success of the software?

### **3. Models in SDLC:**

* **Q10:** What is the **Waterfall Model**? List its advantages and disadvantages. In which scenarios is it most effective?
* **Q11:** Explain the **Agile Model** in SDLC. How does it differ from the Waterfall model, and what are its key principles?

### **4. Real-World Applications and Scenarios:**

* **Q12:** Imagine you are working in a team developing a banking application. Discuss how you would follow the SDLC in your project, focusing on each phase.
* **Q13:** You are tasked with developing a mobile app for a fitness tracking company. Create a brief SDLC plan for this project, detailing each phase and the activities involved.
* **Q14:** In a software development project, the project manager has opted to use the **Agile Model**. How will this affect the roles of the development team and the way the project is managed?
* **Q15:** How would you approach testing in a project that uses the **Waterfall Model**? Compare this with testing in an **Agile Model** project.
* **Q16:** Discuss the challenges you might face in the **Deployment** phase of the SDLC when moving from a development environment to a production environment. How would you overcome these challenges?

### **5. SDLC Documentation:**

* **Q17:** Create a sample **Test Plan** document for a simple web application. List the key components that should be included in the plan.
* **Q18:** As a project manager, how would you ensure proper documentation is maintained throughout the SDLC? Discuss tools that can be used for documentation management.

### **6. SDLC in Agile:**

* **Q19:** Create a simple **user story** for an e-commerce website project. Explain how this story fits into the **Agile** development cycle.

### **7. Quality Assurance and Testing in SDLC:**

* **Q20:** Write a **Test Case** for a login page on a website. Include the steps, expected results, and pass/fail criteria.

### **8. Risk Management in SDLC:**

* **Q21:** During the **Testing** phase, your team discovers a critical bug that requires significant changes to the design. How would you handle this issue, considering the SDLC process?

### **9. Continuous Integration and Continuous Deployment (CI/CD):**

* **Q22:** Implement a simple **CI/CD pipeline** for a sample web application. Explain the stages involved, from code commit to deployment.

### **10. SDLC Best Practices:**

* **Q23:** As a developer, how can you ensure that your code is maintainable and scalable throughout the SDLC? Discuss techniques such as modular coding, commenting, and versioning.