***QA Processes Assignment Questions***

### **Understanding QA Basics:**

* **Q1:** Define Quality Assurance (QA) and Quality Control (QC). What are the key differences between them?
* **Q2:** Explain the role of a QA engineer in the software development lifecycle (SDLC).
* **Q3:** List the different types of testing (e.g., functional, non-functional) and explain when each type is used.

### **2. Test Planning and Strategy:**

* **Q4:** What is a test plan? Create a simple test plan outline for testing a login page of a web application. Include sections like objectives, scope, test strategy, and resources.
* **Q5:** Explain the concept of "Test Coverage". How can you ensure high test coverage in a project?
* **Q6:** What is a test strategy? How does it differ from a test plan? Provide examples of what could be included in a test strategy document.

### **3. Test Case Design:**

* **Q7:** What is a test case? Write test cases for a user registration feature of a website. Include valid and invalid inputs.
* **Q8:** Explain the components of a test case. Write a test case to verify the functionality of the "Forgot Password" feature.
* **Q9:** What is boundary value analysis (BVA)? Create a set of test cases using BVA for an input field that accepts age (range 18–60).

### **4. Types of Testing:**

* **Q10:** Differentiate between white-box testing and black-box testing. Provide examples of each.
* **Q11:** What is regression testing, and why is it important? Describe a scenario where regression testing would be necessary.
* **Q12:** Explain the purpose of user acceptance testing (UAT). How does it differ from functional testing?
* **Q13:** What is exploratory testing? How would you approach exploratory testing for a new feature in an application?

### **5. Defect Life Cycle and Management:**

* **Q14:** What is a defect? Explain the defect life cycle, including the states a defect goes through from identification to closure.
* **Q15:** Define the terms: severity and priority in defect management. How do they differ, and how do they affect the handling of defects?
* **Q16:** Imagine you found a critical bug during the testing phase. How would you document it, and what steps would you take to escalate it?

### **6. Testing Tools:**

* **Q17:** What is the purpose of an automated testing tool? Name and briefly describe two popular automated testing tools used in the industry.
* **Q18:** What is Selenium, and how is it used in automated testing? Write a simple script to test a login functionality using Selenium.
* **Q19:** Explain the concept of Continuous Integration (CI) and Continuous Testing. How do they improve the QA process?

### **7. Performance and Non-Functional Testing:**

* **Q20:** What is performance testing? Name the different types of performance testing, such as load testing and stress testing.
* **Q21:** Explain how you would conduct load testing for a web application. What metrics would you measure during this process?
* **Q22:** What is security testing, and why is it important? Provide examples of security vulnerabilities that can be tested in an application.

### **8. Test Execution and Reporting:**

* **Q23:** What is the difference between manual and automated testing? When would you use manual testing over automated testing?
* **Q24:** After executing a set of test cases, how would you report the results? What information should a test report contain?
* **Q25:** What is the purpose of a test summary report? Create a brief outline of what a test summary report should include after completing testing for a project.

### **9. Agile and QA Methodologies:**

* **Q26:** What is Agile methodology? How does it impact the QA process in a software development project?
* **Q27:** Explain the concept of "Test-Driven Development" (TDD). How does TDD affect the role of a QA engineer?
* **Q28:** In an Agile project, how is testing integrated into the sprint cycle? Describe the role of QA in sprint planning and retrospectives.

### **10. Metrics and QA Process Improvement:**

* **Q29:** What are some common QA metrics (e.g., defect density, test coverage, test execution rate)? Explain how they are used to measure the effectiveness of testing.
* **Q30:** What is the purpose of root cause analysis in QA? How do you perform a root cause analysis for a high-priority defect?
* **Q31:** How do you measure the effectiveness of your testing process? Describe some key performance indicators (KPIs) used to evaluate the success of a QA team.

### **11. Risk-Based Testing:**

* **Q32:** What is risk-based testing, and how does it help prioritize test cases?
* **Q33:** Create a risk matrix for a new feature in an e-commerce application. Include factors such as impact, probability, and the risk mitigation strategy.

### **12. Cross-Platform Testing:**

* **Q34:** What is cross-browser testing? Why is it important, and how would you conduct such testing for a web application?
* **Q35:** What is mobile testing, and what are the main challenges associated with it? Name a few tools used for mobile application testing.