**1. What is XPath?**

**Answer:**  
XPath (XML Path Language) is a query language used to select nodes from an XML document. It provides a way to navigate through elements and attributes in XML, allowing users to retrieve specific data.

**2. How does XPath differ from XQuery?**

**Answer:**  
XPath is primarily used for navigating XML documents and selecting nodes, whereas XQuery is a more powerful query language that can also manipulate and transform XML data. XPath can be used as a subset within XQuery.

**3. Explain the syntax of an XPath expression.**

**Answer:**  
An XPath expression consists of a path that identifies the location of nodes in an XML document. For example, /bookstore/book/title selects the title of each book in a bookstore element. The syntax typically includes:

* / for the root node.
* // for selecting nodes in the document from the current node that match the selection, regardless of their location.
* @ to refer to attributes, e.g., //book/@category.

**4. What are axes in XPath?**

**Answer:**  
Axes define the relationship between the context node and the nodes selected by the XPath expression. Some common axes include:

* **child**: selects children of the context node.
* **parent**: selects the parent of the context node.
* **ancestor**: selects all ancestors (parent, grandparent, etc.) of the context node.
* **descendant**: selects all descendants (children, grandchildren, etc.) of the context node.

**5. How do you select nodes based on specific conditions?**

**Answer:**  
You can use predicates (conditions) to filter nodes. For example, //book[price<30] selects all book elements with a price less than 30. Predicates are enclosed in square brackets and can be based on any condition.

**6. What are the common functions used in XPath?**

**Answer:**  
Some common XPath functions include:

* text(): selects the text of a node.
* position(): returns the position of the current node in the node set.
* count(): returns the number of nodes in a node set.
* substring(), contains(): string manipulation functions.

**7. Can you explain what the \* wildcard does in XPath?**

**Answer:**  
The \* wildcard matches any element node at that level. For example, //book/\* selects all child elements of the book element, regardless of their names.

**8. What is the difference between absolute and relative XPath?**

**Answer:**

* **Absolute XPath** starts from the root node and specifies the complete path to the desired node, e.g., /bookstore/book/title.
* **Relative XPath** starts from the current context node and is generally shorter, e.g., book/title when the context node is <book>.

**9. How can you use XPath with HTML documents?**

**Answer:**  
XPath can be used with HTML documents by treating them as XML. You can use libraries like lxml in Python or Jsoup in Java to parse HTML and execute XPath queries on it.

**10. What are namespaces in XPath, and how do you handle them?**

**Answer:**  
Namespaces in XML allow elements to be distinguished when they may have the same name but belong to different vocabularies. To handle namespaces in XPath, you can use a prefix for elements. For example, if an XML document has a namespace, you would declare the namespace and use it in your XPath query like this: //ns:book where ns is the declared prefix.

**AGILE Methodology**

### 1. ****What is Agile?****

**Answer:** Agile is a project management and product development methodology that emphasizes iterative progress, collaboration, and flexibility. It encourages adaptive planning and encourages rapid delivery of functional software.

### 2. ****What are the key principles of Agile?****

**Answer:** The Agile Manifesto outlines four key values and twelve principles. Key principles include prioritizing customer satisfaction, welcoming changing requirements, delivering working software frequently, and maintaining a sustainable development pace.

### 3. ****What is a Scrum framework?****

**Answer:** Scrum is an Agile framework that uses fixed-length iterations called sprints, typically lasting two to four weeks. It involves roles such as the Scrum Master, Product Owner, and Development Team, and emphasizes daily stand-ups, sprint reviews, and retrospectives.

### 4. ****What is the role of a Scrum Master?****

**Answer:** The Scrum Master facilitates the Scrum process, helps the team remove impediments, ensures adherence to Agile practices, and acts as a liaison between the team and external stakeholders.

### 5. ****What are user stories?****

**Answer:** User stories are short, simple descriptions of a feature from the perspective of the end user. They typically follow the format: "As a [type of user], I want [an action] so that [a benefit]."

### 6. ****How do you prioritize a product backlog?****

**Answer:** Prioritization can be done using various techniques like MoSCoW (Must have, Should have, Could have, Won't have), the Kano model, or through discussions with stakeholders to assess value, risk, and effort.

### 7. ****What is a sprint retrospective?****

**Answer:** A sprint retrospective is a meeting held at the end of a sprint where the team reflects on the past sprint. They discuss what went well, what didn’t, and how processes can be improved for the next sprint.

### 8. ****How do you handle changes in requirements during a sprint?****

**Answer:** While changes are generally discouraged during a sprint, if a high-priority change arises, the team can discuss it with the Product Owner and potentially defer less critical work to accommodate the new requirement.

### 9. ****What is continuous integration and continuous delivery (CI/CD)?****

**Answer:** CI/CD is a practice in Agile development where code changes are automatically tested and deployed to ensure that software can be reliably released at any time. CI focuses on integrating code frequently, while CD ensures that changes can be deployed to production automatically.

### 10. ****Can you explain the concept of "velocity"?****

**Answer:** Velocity is a measure of the amount of work a team can complete in a sprint, usually measured in story points. It helps teams estimate how much work they can take on in future sprints based on past performance.

### 11. ****What are some common Agile frameworks besides Scrum?****

**Answer:** Other frameworks include Kanban, Lean, Extreme Programming (XP), and Feature-Driven Development (FDD). Each has its own practices and principles tailored to different project needs.

### 12. ****How do you ensure quality in Agile development?****

**Answer:** Quality is ensured through practices like Test-Driven Development (TDD), continuous integration, regular code reviews, automated testing, and incorporating feedback throughout the development cycle.