1) Explain what is REST and RESTFUL?

REST represents REpresentational State Transfer; it is a relatively new aspect of writing web API.

RESTFUL is referred for web services written by applying REST architectural concept are called RESTful services, it focuses on system resources and how state of resource should be transported over HTTP protocol to different clients written in different language. In RESTFUL web service HTTP methods like GET, POST, PUT and DELETE can be used to perform CRUD operations.

OR

RESTful web services are services that follow REST architecture. REST stands for Representational State Transfer and uses HTTP protocol (web protocol) for implementation. These services are lightweight, provide maintainability, scalability, support communication among multiple applications that are developed using different programming languages. They provide means of accessing resources present at server required for the client via the web browser by means of request headers, request body, response body, status codes, etc.

2) Explain the architectural style for creating web API?

The architectural style for creating web api are

* HTTP for client server communication
* XML/JSON as formatting language
* Simple URI as the address for the services
* Stateless communication

3) Mention what are the HTTP methods supported by REST?

HTTP methods supported by REST are:

* GET: It requests a resource at the request URL. It should not contain a request body as it will be discarded. Maybe it can be cached locally or on the server.
* POST: It submits information to the service for processing; it should typically return the modified or new resource
* PUT: At the request URL it update the resource
* DELETE: At the request URL it removes the resource
* OPTIONS: It indicates which techniques are supported
* HEAD: About the request URL it returns meta information

4) Mention what is JAX-WS and JAX-RS?

Both JAX-WS and JAX-RS are libraries (APIs) for doing communication in various ways in Java. JAX-WS is a library that can be used to do SOAP communication in JAVA, and JAX-RS lets you do the REST communication in JAVA.

**5) Mention what is the difference between SOAP and REST?**

| **SOAP** | **REST** |
| --- | --- |
| * SOAP is a protocol through which two computer communicates by sharing XML document. | * Rest is a service architecture and design for network-based software architectures. |
| * SOAP permits only XML | * REST supports many different data formats |
| * SOAP based reads cannot be cached | * REST reads can be cached |
| * SOAP is like custom desktop application, closely connected to the server | * A REST client is more like a browser; it knows how to standardized methods and an application has to fit inside it |
| * SOAP is slower than REST | * REST is faster than SOAP |
| * It runs on HTTP but envelopes the message | * It uses the HTTP headers to hold meta information |

6) What are the features of RESTful Web Services?

Every RESTful web service has the following features:

* The service is based on the Client-Server model.
* The service uses HTTP Protocol for fetching data/resources, query execution, or any other functions.
* The medium of communication between the client and server is called “Messaging”.
* Resources are accessible to the service by means of URIs.
* It follows the statelessness concept where the client request and response are not dependent on others and thereby provides total assurance of getting the required data.
* These services also use the concept of caching to minimize the server calls for the same type of repeated requests.
* These services can also use SOAP services as implementation protocol to REST architectural pattern.

7) What is the concept of statelessness in REST?

The REST architecture is designed in such a way that the client state is not maintained on the server. This is known as statelessness. The context is provided by the client to the server using which the server processes the client’s request. The session on the server is identified by the session identifier sent by the client.