**API TESTING TECHNIQUES:**

1. **POSITIVE TESTING TECHNIQUES-API LEVEL**
   1. Java-Scripts Automation Testing
      1. Response Body Testing
      2. Response Code Testing
      3. Response Description Testing
      4. Response Time Testing
      5. Response body size testing
      6. Response Headers Testing
      7. Request Headers Testing
      8. Interoperability Testing
      9. Cookies Testing
      10. Performance/Load Testing
      11. Throttle Testing/Rate Limit Testing
      12. Data Driven Testing
      13. Fuzz Testing
      14. Continuous Testing/Health Check Testing/Scheduled API testing/Monitors
      15. Security Testing
      16. CLI/Non GUI Testing
      17. Assertions testing/Automation testing
2. **NEGATIVE TESTING TECHNIQUES-API LEVEL**
   1. Protocol downgrade Testing
   2. Protocol upgrade Testing
   3. End Point tampering Testing
   4. Query Parameters tampering Testing
   5. Request Body tampering Testing
   6. Request Headers tampering Testing
   7. HTTP Methods tampering Testing

**POSITIVE TESTING TECHNIQUES-EXPLAINED [*for all the positive test scenarios, the exp response code is 2XX]***

1. **Response Body Testing** 🡪 *Validate the response body received from the server for its correctness & completeness*
2. **Response Code Testing** 🡪 *Validate whether the server is responding with correct response code 2XX or 4XX or 5XX*
3. **Response Description Testing** 🡪 *Validate the response description against the response code received*
4. **Response Time Testing** 🡪 *Validate the response time taken (for acceptance or not) by server to send a response to the client*
5. **Response Headers Testing** 🡪 *Validate the correctness, completeness of the received response headers and ensure that no confidential/sensitive data is not displayed to the user*
6. **Request Headers Testing** 🡪 *Validate the request headers before sending API request to the server*
7. **Interoperability Testing 🡪** *Validate the server response when the user-agent request header is set to Internet Explorer or Microsoft Edge or Chrome or Safari or Firefox or Android or iPhone or iPad etc to ensure the APIs work on different OS + different browser versions*
8. **Assertions Testing/Automation Testing/Java-Scripts 🡪** *We shall test, validate & automate APIs by using java scripts for all testing techniques*
9. **Response Cookies Testing 🡪** *Validate the cookies received from the server and check for these flags: isHTTP, isSecure ; Also check if cookies are resent along with same API request the next time it goes to server ; test the API with cookies & without cookies*
10. **Performance/Load Testing** 🡪 *Validate the server response for 2xx code, when multiple iterations of the APIs are sent from the client/Postman tool to the server*
11. **Throttle Testing/Rate Limit Testing** 🡪 *Validate if the server has validations to check for consecutive & repeated API hits from same/different clients over a continuous attack and if they are not genuine, block the client for 'x' number of minutes/hours/days*
12. **Data Driven Testing** 🡪 *Validate the API behaviour and server response when multiple sets of test data is supplied through an external data source such as CSV or JSON*
13. **Fuzz Testing** 🡪 *Validate the API behaviour and server response when multiple sets of test data is supplied using Postman faker library that generates random data*
14. **Continuous Testing/Health Check Testing/Monitors Testing** 🡪 *Validate the API health/status by configuring the APIs to execute at certain pre-defined periodic intervals of time and email the failed test reports to stakeholders*
15. **Security Testing** 🡪 *Validate the API response headers and API response body when certain request headers are tweaked/tampered*
16. **CLI/Non GUI Testing** 🡪 *Validate the APIs by running them from command line interface using another framework/tool called as Newman, to generate HTML, XML, JSON, CLI test reports*

**NEGATIVE TESTING TECHNIQUES-EXPLAINED [*for all the negative test scenarios, the exp response code is 4XX or 5XX]***

1. **Protocol downgrade Testing** 🡪 *Validate the API response when the API is tested using http protocol instead of https protocol*
2. **Protocol upgrade Testing** 🡪 *Validate the API response when the API is tested using https protocol instead of http protocol*
3. **End Point tampering Testing** 🡪 *Validate the API response when the API is tested after tampering [modifying/deleting/adding] the end point and the expected response code is 4XX*
4. **Query Parameters tampering Testing** 🡪 *Validate the API response when the API is tested after tampering [modifying/deleting/adding] the query parameters and the expected response code is 4XX*
5. **Request Body tampering Testing** 🡪 *Validate the API response when the API is tested after tampering [modifying/deleting/adding] the request body and the expected response code is 4XX*
6. **Request Headers tampering Testing** 🡪 *Validate the API response when the API is tested after tampering [modifying/deleting/adding] the request headers and the expected response code is 4XX*
7. **HTTP Methods tampering Testing** 🡪 *Validate the API response when the API is tested after tampering/changing the HTTP methods and the expected response code is 4XX*