Short Answer:

Answer the following questions with complete sentences in **your own words**. You are encouraged to conduct your own research online or through other methods before answering the questions. If you research online, please consult multiple sources before you write down your answers.

1. What are the disadvantages of synchronous code?
2. What is asynchronous code in JavaScript?
3. How does JavaScript achieve asynchronous code?
4. What does the event loop do? What data structures does it use?
5. What is the callback queue?
6. What is an HTTP request and HTTP response?
7. How many HTTP methods are there? Explain each one.
    1. What is the difference between GET and POST? What about POST and PUT?
8. Could you explain the different classes of HTTP status codes? What are some common status codes?
9. What is AJAX?
10. What is XHR?
11. What is a Promise?
12. How many states does a Promise have? What are they?
13. What is callback hell?
14. What is the advantage of Promises over callbacks?
15. Explain Promise.all() vs Promise.allSettled().
16. What is the Microtask Queue?
17. What is the difference between making server requests via fetch and XHR?
18. What is async & await? How do we use them?

Coding Questions:

Use HTML/CSS/JS to solve the following problems. You are highly encouraged to present more than one way to answer the questions. Please follow best practices when you write the code so that it would be easily readable, maintainable, and efficient. Clearly state your assumptions if you have any. You may discuss with others on the questions, but please write your own code.

1. Given a url **"https://jsonplaceholder.typicode.com/users"**, send a GET request to display the data on the page in a table. Errors should be handled properly.
   - Do this with fetch and XHR.

2. Create a webpage with text input and a search button. When you input a user ID and click search, it should display that user's information, posts, and todos all in the same page in a table. **Hint: Promise.all() or Promise.allSettled().**

- For example, when the user types 2, display the data from the following urls:
  https://jsonplaceholder.typicode.com/users/2
  https://jsonplaceholder.typicode.com/posts?userId=2
  https://jsonplaceholder.typicode.com/todos?userId=2
- If the user ID is invalid (no data in the response), there should be an error message says "User was not found. Please try another user ID".

3. Implement a function **delayedRequest(url)** that retrieves data from the specified url and outputs it to the console after 2 seconds.

- Test it with any of the "https://jsonplaceholder.typicode.com/users" urls.

4. Say a page have 3 buttons with class item, what is wrong with the following code of binding click event to the buttons? How would you fix it before & after ES6

```
var items = document.querySelectorAll('.item');
for (var i = 0; i < items.length; i++) {
  items[i].addEventListener('click', function () {
    console.log('You clicked on button # ' + i);
  });
}
```