

Please note: handouts *will not* be collected and graded. However, *you are expected to complete them*. The material on the handouts is a fair game for exams, quizzes, and assignments. It is in your best interest to use handouts during lectures. The instructor will be happy to assist you.

1. What is World Wide Web (WWW)? What is the difference between the WWW and the internet?

2. **Interview Question:** What is HTTP?

3. What is the key to creating secure web applications?

4. What is the main architecture of the web?

5. **Interview Question:** What are HTTP Request Messages?

6. What transport layer does HTTP run over?
7. Describe the basic structure and format of the HTTP request.
8. **Interview Question:** What are HTTP Request Methods?
9. **Interview Question:** What is HTTP Response?
10. What is the difference between HTTP GET and HTTP POST methods?
11. What are the differences between HTTP/1.0 and HTTP/1.1?
12. **Interview Question:** What are persistent connections?

13. Find a website that uses an non-https login. Run BurpSuite. Submit fake credentials to the website. What do you see in BurpSuite?
14. Describe the basic structure of the HTTP response.
15. Describe the front-end and back-end components of a web app.
16. What is the difference between a traditional back-end and Node.js back-end?
17. What are the advantages and disadvantages of Node.js?
18. What is the relationship between Java and JavaScript?

19. Was JavaScript originally conceived as front-end or back-end language?

20. In the modern times, is JavaScript used in the front-end or back-end?

21. In Node.js how do we output messages to the console?

22. In Node.js how do we input data to the console?

23. What are the basic types supported by JavaScript?

24. How does JavaScript internally represent numbers? Why is this fact important?

25. In JavaScript, what is the result of $0.1 + 0.05$? Why is this happening?

26. What is the result of `parseInt('01011', 2)`?

27. What is the result of `parseInt('010201', 2)`?

28. What is the result of `parseInt('876a4', 10)`?

29. What is the result of `parseInt('876a4', 16)`?

30. What is the result of `parseInt('test', 10)`?

31. NaN is considered toxic. Explain what this means?

32. What is the result of $(2 + 3 * \text{parseInt}('a', 10))$?

33. How can we test if the result of the expression is a NaN?

34. Explain how the `+` operator can be used for converting numbers.

35. When do Infinity values arise?

36. What is the value of $((1+3-4)/(8-2*4))$?

37. What is the value of $((((1+3-5)/(8-2*4)))$?

38. What is the value of NaN / Infinity?

39. What is the value of 0 / Infinity?

40. What is the value of Infinity/Infinity?

41. What is the value of 10 / Infinity?

42. How can we test if the result of a calculation is infinity?

43. What are examples of “truthy” values in JavaScript?

44. What are examples of “falsy” values in JavaScript?

45. Describe the difference between variables declared using `let`, `var`, and `const`?

46. What will be the output of the following code? Explain:

```
1
2 for(var i = 0; i < 10; i++)
3 {
4     b += i;
5 }
6
7 while(i < 10)
8 {
9     b += 1;
10 }
11
12 console.log(b);
```

47. In the code above, point out the scopes where `i` and `b` are visible.

48. What would happen if the declaration of `i` is changed to `let`? How would the answers to the previous two questions change? Explain.

49. What is the result of `'1' + 2 + 3`? Explain.

50. What is the result of `1 + '2' + 3`? Explain.

51. What is the result of `1 + 2 + "3"`? Explain.

52. What is the result of `2 * '1' + 3`? Explain.

53. What is the result of `2 * 1 + "3"`? Explain.

54. What is the result of `2 * 'a' + "3"`? Explain.

55. Explain the difference between `==` and `===`.

56. What is the result of `1 + '2' + 3 == 123`? Explain.

57. What is the result of `1 + '2' + 3 === 123`? Explain.

58. What is the result of `1 + 40 < '30'`. Explain.

59. Write a `for...of` loop to sum up the contents of the following array `[5, 4, 1, 4]`.

60. Describe the central idea behind the short-circuiting logic.
61. In the following expression, which statements will be executed and when? `a < 10 || b > 5 && c < 10`?
62. Write a ternary conditional that checks if the temperature is less than or equal to 36, when it returns “normal”. Otherwise, it returns “elevated”.
63. When performing comparisons, JavaScript switch-case statements use comparisons similar to what operator?
64. In JavaScript, what data structure is used for implementing objects?
65. Write prototype for an object that represents a computer and has properties of manufacturer and model as well as the property called specifications that consists of the CPU type, number of processors, and the amount of memory.

- 66.** Create an instance of the object the prototype of which you defined above. Print out its properties.
- 67.** In JavaScript the arrays are objects. Is the statement true?
- 68.** Can JavaScript arrays consist of elements of different types?
- 69.** Declare an array containing integers 1, 3, 5, and 7.
- 70.** Write a `forEach` loop that prints out the element at each index.
- 71.** If less parameters are passed to a JavaScript function than specified in the declaration what happens to the values of the parameters?

- 72.** What happens if more parameters are passed to the function than specified in the declaration. How can the additional arguments be accessed?
- 73.** Write a JavaScript function that computes an average of an arbitrary number of arguments.
- 74.** Rewrite the above function using a rest operator.
- 75.** What are anonymous functions?
- 76.** Rewrite the function in the previous question as an anonymous function.
- 77.** Pass the function as a parameter to another function that invokes it.

- 78.** Explain the significance of the function `prototype` property.
- 79.** Create a prototype of the object `student`. The prototype should have properties `firstName`, `lastName`, `major`, and `year`. It should also have function called `getStanding()` that based on the year will return whether the student is a freshman, sophomore, junior, or senior.