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Computer Science Grade 10 — Chapter 3

Programming Fundamentals

by Public Library

Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. Which language is primarily used for structuring the content of a webpage?

(A) HTML
(B) CSS
(C) JavaScript
(D) Python

Correct Answer: A

Explanation: HTML — this correctly answers the question.

2. What is the primary purpose of CSS in web development?

(A) To add interactivity
(B) To style and layout web pages
(C) To manage databases
(D) To handle server-side logic

Correct Answer: B

Explanation: To style and layout web pages — this correctly answers the question.

3. Which HTML element is used to create a text input field in a form?

(A) `<label>`
(B) `<form>`
(C) `<input>`
(D) `<textarea>`

Correct Answer: C

Explanation: `<input>` — this correctly answers the question.

4. In HTML tables, which tag is used to define a header cell?

(A) `<td>`
(B) `<tr>`
(C) `<table>`
(D) `<th>`

Correct Answer: D

Explanation: The `<th>` tag defines a header cell with bold and centered content.

5. Which CSS rule is used to define the intermediate steps of an animation?

(A) `@keyframes`
(B) `animation`
(C) `transition`
(D) `transform`

Correct Answer: A

Explanation: The `@keyframes` rule defines the animation by specifying what the element should look like at different points.

6. In JavaScript, what is the index of the first element in an array?

(A) 1
(B) 0
(C) -1
(D) Depends on the array

Correct Answer: B

Explanation: JavaScript arrays are zero-indexed; the first element is at index 0.

7. Which JavaScript method adds a new item to the end of an array?

(A) `pop()`
(B) `shift()`
(C) `push()`
(D) `unshift()`

Correct Answer: C

Explanation: `push()` — this correctly answers the question.

8. Which HTML tag is used to create an unordered list?

(A) `<ol>`
(B) `<li>`
(C) `<list>`
(D) `<ul>`

Correct Answer: D

Explanation: The `<ul>` tag creates an unordered list, which uses bullets.

9. What is the primary purpose of a unit test?

(A) To test individual parts of the code for correctness
(B) To style the user interface
(C) To deploy code to production
(D) To manage databases

Correct Answer: A

Explanation: Unit tests test individual units of code, such as functions or modules, to ensure they work correctly.

10. In debugging, what is a breakpoint?

(A) A point where the program crashes
(B) A marker that pauses program execution at a specific line
(C) A type of error
(D) A method to delete code

Correct Answer: B

Explanation: A breakpoint is a marker that tells the debugger to pause execution at a specific line of code.

11. What is front-end development also called?

(A) Server-side
(B) Database-side
(C) Client-side
(D) Back-end

Correct Answer: C

Explanation: Front-end development is also referred to as client-side because it deals with what the user sees in the browser.

12. Which of the following is a back-end language?

(A) HTML
(B) CSS
(C) JavaScript
(D) Python

Correct Answer: D

Explanation: Python is a server-side (back-end) programming language, along with Ruby and PHP.

13. What does responsive design adjust?

(A) Layout and functionality to fit different screen sizes
(B) Only the font size
(C) Only the images

(D) Only the color scheme

Correct Answer: A

Explanation: Layout and functionality to fit different screen sizes — this correctly answers the question.

14. What is the purpose of the `<caption>` tag in an HTML table?

(A) To add a header cell
(B) To add a title or description to the table
(C) To add a data cell
(D) To add a row

Correct Answer: B

Explanation: To add a title or description to the table — this correctly answers the question.

15. What is the purpose of the `animation` property in CSS?

(A) To define the animation
(B) To add transition
(C) To apply the animation to an element
(D) To change the color

Correct Answer: C

Explanation: To apply the animation to an element — this correctly answers the question.

16. What is the primary purpose of the `<textarea>` element in an HTML form?

(A) To create a drop-down list
(B) To create a radio button
(C) To create a checkbox
(D) To create a multi-line text input

Correct Answer: D

Explanation: The `<textarea>` element creates a large box for writing multi-line text.

17. Which input type is best suited for entering an email address in an HTML form?

(A) `type="email"`
(B) `type="text"`
(C) `type="mail"`
(D) `type="address"`

Correct Answer: A

Explanation: The `type="email"` input is specifically designed for email addresses and provides built-in validation.

18. What is the default marker style for an unordered list in HTML?

(A) Numbers
(B) Bullets
(C) Letters
(D) Roman numerals

Correct Answer: B

Explanation: Unordered lists use bullets (circles, squares) as markers by default.

19. Which CSS property is used to merge the borders of adjacent table cells into a single line?

(A) `border-style`
(B) `border-spacing`
(C) `border-collapse`
(D) `border-width`

Correct Answer: C

Explanation: `border-collapse` — this correctly answers the question.

20. In CSS animation, what does `infinite` mean in the `animation` property?

(A) The animation runs once
(B) The animation runs twice
(C) The animation stops after 1 second

(D) The animation repeats forever

Correct Answer: D

Explanation: The `infinite` value for `animation-iteration-count` means the animation repeats forever.

21. In JavaScript, which function converts all elements of an array into a single string?

(A) `toString()`
(B) `concat()`
(C) `slice()`
(D) `indexOf()`

Correct Answer: A

Explanation: `toString()` — this correctly answers the question.

22. Which JavaScript method searches for and returns the index of a given element in an array?

(A) `find()`
(B) `indexOf()`
(C) `search()`
(D) `locate()`

Correct Answer: B

Explanation: The `indexOf()` method searches for an element and returns its index if found.

23. What is the purpose of `innerHTML = ""` in JavaScript when updating a list?

(A) To delete the list element
(B) To add a new item
(C) To clear the existing content of the list
(D) To style the list

Correct Answer: C

Explanation: To clear the existing content of the list — this correctly answers the question.

24. What is a watchpoint in debugging?

(A) A point where the program crashes
(B) A type of error
(C) A method to delete code
(D) A rule on a variable that pauses execution when the condition is met

Correct Answer: D

Explanation: A watchpoint establishes a rule on a variable or expression and pauses execution when the condition is met.

25. Which of the following is NOT a component of programming software?

(A) Spreadsheet
(B) Text Editor
(C) Compiler
(D) Debugger

Correct Answer: A

Explanation: Spreadsheets are productivity software, not programming software. Programming software includes text editors, compilers, and debuggers.

B. Less Important / Secondary Topics

26. What is the purpose of a `@keyframes` rule in CSS?

(A) To define the intermediate steps of an animation
(B) To apply animation to an element
(C) To change the color of an element
(D) To add a transition

Correct Answer: A

Explanation: The `@keyframes` rule defines the animation by specifying styles at different points using percentages.

27. Which JavaScript method removes the last item from an array?

(A) `push()`
(B) `pop()`
(C) `shift()`
(D) `unshift()`

Correct Answer: B

Explanation: The `pop()` method removes the last element from an array and returns it.

28. What is the purpose of the `required` attribute in an HTML form element?

(A) To make the field read-only
(B) To make the field optional
(C) To make the field mandatory
(D) To hide the field

Correct Answer: C

Explanation: To make the field mandatory — this correctly answers the question.

29. Which CSS property is used to add space inside a table cell between the border and content?

(A) `cellspacing`
(B) `margin`
(C) `border-collapse`
(D) `padding`

Correct Answer: D

Explanation: `padding` — this correctly answers the question.

30. Which of the following is a valid CSS animation direction value?

(A) `alternate`
(B) `backward`
(C) `forward`
(D) `toggle`

Correct Answer: A

Explanation: The `alternate` value for `animation-direction` plays the animation forward then backward.

31. In JavaScript, what does the `slice(2, 4)` method do on an array?

(A) Removes elements from index 2 to 4
(B) Extracts a subset from index 2 up to (but not including) index 4
(C) Adds elements at index 2 and 4
(D) Reverses elements from index 2 to 4

Correct Answer: B

Explanation: Extracts a subset from index 2 up to (but not including) index 4 — this correctly answers the question.

32. Which of the following is an Abstract Data Type (ADT)?

(A) Array
(B) Integer
(C) List
(D) Boolean

Correct Answer: C

Explanation: A list is an Abstract Data Type (ADT) defined by its operations rather than its implementation.

33. What is the primary purpose of unit testing?

(A) To test the entire application at once
(B) To style the user interface
(C) To deploy the application
(D) To test individual units of code for correctness

Correct Answer: D

Explanation: Unit testing tests individual units of code (functions, modules) to ensure they work correctly.

34. In debugging, what is a breakpoint used for?

(A) To pause program execution at a specific line
(B) To crash the program
(C) To delete code
(D) To add new features

Correct Answer: A

Explanation: A breakpoint pauses program execution at a specific line so you can inspect variables and check the flow.

35. Which of the following is NOT a valid HTML input type?

(A) `email`
(B) `textbox`
(C) `tel`
(D) `date`

Correct Answer: B

Explanation: `textbox` is not a valid HTML input type. The valid types include `text`, `email`, `tel`, `date`, etc.

36. What is the difference between `innerHTML` and `textContent` in JavaScript?

(A) `innerHTML` is safer than `textContent`
(B) `textContent` inserts HTML, `innerHTML` inserts text
(C) `innerHTML` can execute scripts, `textContent` only sets plain text
(D) Both are the same

Correct Answer: C

Explanation: `innerHTML` allows inserting HTML content and can execute scripts (security risk). `textContent` only sets plain text and is safer.

37. Which of the following is a valid reason to use a `@keyframes` rule in CSS?

(A) To rotate an element
(B) To change the color of text
(C) To add a border
(D) To define animation steps

Correct Answer: D

Explanation: The `@keyframes` rule defines the animation by specifying styles at different points (using percentages or `from`/`to`).

38. What is the result of the JavaScript code: `const fruits = ["apple", "banana", "orange"]; console.log(fruits[1]);`

(A) banana
(B) apple
(C) orange
(D) undefined

Correct Answer: A

Explanation: Array indices start at 0. `fruits[1]` refers to the second element, which is "banana".

39. Which of the following is a correct way to create a bullet list from an array in JavaScript?

(A) Use `innerHTML` to add `<li>` tags directly
(B) Use `createElement("li")` and `appendChild()`
(C) Use `document.write()`
(D) Use `alert()`

Correct Answer: B

Explanation: The correct approach is to create a new `<li>` element using `document.createElement("li")` and append it to the list using `appendChild()`.

40. What is the main difference between a text editor and an IDE?

(A) Text editors are more powerful than IDEs

(B) Text editors are only for writing code
(C) IDEs combine text editor, debugger, and compiler in one interface
(D) IDEs cannot debug code

Correct Answer: C

Explanation: An IDE is a comprehensive tool that combines a text editor, debugger, and compiler in one interface, while a text editor is a basic tool for writing code.

41. What is the purpose of the `@keyframes` rule in CSS animation?

(A) To apply animation
(B) To add transition
(C) To change the color
(D) To define the animation steps

Correct Answer: D

Explanation: The `@keyframes` rule defines the animation by specifying what the element should look like at different points.

42. Which of the following is a key benefit of using an IDE for programming?

(A) It provides syntax highlighting and code completion
(B) It reduces code quality
(C) It eliminates the need for debugging
(D) It automatically writes code

Correct Answer: A

Explanation: IDEs provide features like syntax highlighting, code completion, and debugging tools that enhance programming efficiency.

43. What is the result of the following JavaScript code: `const numbers = [1, 2, 3, 4, 5]; numbers.push(6); console.log(numbers);`

(A) [1, 2, 3, 4, 5]
(B) [1, 2, 3, 4, 5, 6]
(C) [6, 1, 2, 3, 4, 5]
(D) [1, 2, 3, 4, 5, 6, 7]

Correct Answer: B

Explanation: "[1, 2, 3, 4, 5, 6]" is correct: it matches the idea asked in the question ("What is the result of the following JavaScript code: `const numbers = [1, 2, 3, 4, 5]; numbers.push(6); console.log(numbers);`"), while the other choices do not.

44. Which of the following is a valid CSS animation timing function?

(A) `linear`
(B) `ease-in-out`
(C) All of the above
(D) `ease`

Correct Answer: C

Explanation: All of the above — this correctly answers the question.

45. What is the purpose of the `<label>` element in an HTML form?

(A) To create an input field
(B) To create a button
(C) To create a drop-down list
(D) To provide a caption for an input field

Correct Answer: D

Explanation: The `<label>` element provides a caption for an input field and links to it using the `for` attribute.

46. What is the main advantage of using a `for` loop in JavaScript?

(A) It allows repeated execution of a block of code
(B) It can only iterate over arrays
(C) It cannot be used with arrays

(D) It is slower than other loops

Correct Answer: A

Explanation: A `for` loop allows repeated execution of a block of code, making it useful for tasks like iterating over arrays.

47. Which of the following is a correct way to clear a list in JavaScript before updating it?

(A) `listElement.innerHTML = "clear";`
(B) `listElement.innerHTML = "";`
(C) `listElement.clear();`
(D) `listElement.delete();`

Correct Answer: B

Explanation: `listElement.innerHTML = "";` — this correctly answers the question.

48. What is the purpose of a `@keyframes` rule in CSS?

(A) To apply animation
(B) To add transition
(C) To define the animation steps
(D) To change the color

Correct Answer: C

Explanation: The `@keyframes` rule defines the animation by specifying what the element should look like at different points.

49. Which of the following is a benefit of using version control in programming?

(A) It slows down development
(B) It eliminates the need for testing
(C) It automatically fixes bugs
(D) It tracks changes and allows collaboration

Correct Answer: D

Explanation: It tracks changes and allows collaboration — this correctly answers the question.

50. What is the result of the JavaScript code: `const arr = [1, 2, 3]; arr.pop(); console.log(arr);`

(A) [1, 2]
(B) [1, 2, 3]
(C) [2, 3]
(D) [1, 3]

Correct Answer: A

Explanation: The `pop()` method removes the last element from the array, leaving [1, 2].