

- Q1. (a) For each of the following statements, mention whether it is true or false for ISO-8859-1 (a.k.a. Latin1) and whether it is true or false for UTF-8. No additional explanation is necessary.

- each character fits in precisely one byte
- the encoding is backwards compatible with ASCII
- the encoding supports Welsh characters (like *ŵ*)

[3]

- (b) Take the following expression:

`<!-- some text -->`

Is this:

- a syntactically correct HTML comment? (for instance, inside of a `<body>` element)
- a syntactically correct CSS comment? (for instance, inside of an external stylesheet)

No explanation is needed, just a simple "yes" or "no" is sufficient. [2]

- (c) Using nested lists, write a fragment of HTML code (without any CSS) that produces the following text:

fruit:

1. apples
  - red
  - green
2. pears
3. bananas

[4]

- (d) • What is the purpose of the `alt` attribute in the `img` element?
- Is the `img` element an example of an empty element? (no explanation is needed, just a simple "yes" or "no" is sufficient)

[2]

- (e) • Give an example of an anchor element (`<a>` tag) that uses an absolute address.
- Give an example of an anchor element (`<a>` tag) that uses a relative address.

[2]

- (f) Suppose you are building a website that consists of several pages, and you want to apply the same style to each of these pages. Would it be better to use an internal stylesheet or an external stylesheet? Justify your answer by giving two advantages.

[3]

QUESTION CONTINUES ON NEXT PAGE

(g) In the CSS box model, mention for each of the following statements whether it is true or false (no further explanation is needed)

- i. the margin is an area inside of the border
- ii. the margin is an area outside of the border
- iii. the padding is an area inside of the border
- iv. the padding is an area outside of the border

[2]

(h) Describe what the following CSS pseudo classes do:

- `a:hover {color: red;}`
- `a:action {color: red;}`

[2]

**20 Marks Question Total**

Q2. (a) Given an external style sheet: `p {color: red;}` and an internal style sheet: `<style> p {color: green;} </style>` What will be the colour of the word sample in the following HTML fragments:

- i. `<p> sample </p>`  
when the external style sheet is applied  
but the internal style sheet is not applied
- ii. `<p> sample </p>`  
when the internal style sheet is applied  
but the external style sheet is not applied
- iii. `<p> sample </p>`  
when both the external and the internal style sheets are applied
- iv. `<p style="color: blue;"> sample </p>`  
when the external style sheet is applied  
but the internal style sheet is not applied
- v. `<p style="color: blue;"> sample </p>`  
when the internal style sheet is applied  
but the external style sheet is not applied
- vi. `<p style="color: blue;"> sample </p>`  
when both the external and the internal style sheets are applied

[6]

(b) Fill in the blanks at the following two sentences. Choose between “relative” and “absolute”.

- i. With ... positioning, the position of an element is specified in relation to its containing element (that has a position property set).
- ii. With ... positioning, the position of an element is specified in relation to where it would otherwise be placed (without explicit positioning).

[2]

(c) Suppose the aim is to submit a form so that its contents will *not* be visible in the URL. Should this form be submitted using GET or using POST? [2]

(d) Apart from encodings like ISO-8859-1 and UTF-8, special characters can also be displayed using HTML entity codes. Give an example of such an entity code, as well as what it displays. [2]

QUESTION CONTINUES ON NEXT PAGE

- (e) For each of the following sentences, indicate whether it is true or false:
- i. in HTML5 it is correct for an element name to be in lower case
  - ii. in HTML5 it is correct for an element name to be in upper case
  - iii. in HTML5 it is correct for an element name to be in mixed case (lower and upper)
  - iv. in XHTML it is correct for an element name to be in lower case
  - v. in XHTML it is correct for an element name to be in upper case
  - vi. in XHTML it is correct for an element name to be in mixed case (lower and upper)
- [3]
- (f) Give an example of an HTML5 semantic element. [1]
- (g) When describing the structure of XML documents, give two advantages of using XML Schema above using a Document Type Definition (DTD). [2]
- (h) For each of the following sentences, indicate whether it is true or false:
- i. PageRank tries to determine the importance of a web page by considering its relation to other web pages (like the pages that link to it).
  - ii. PageRank tries to determine the importance of a web page by analysing the contents of the page (like the contents of the `<meta>` element)
- [2]

**20 Marks Question Total**

- Q3. (a) Briefly describe what is meant by *server-side* and *client-side* programming. Provide ONE example when *server-side* processing is most appropriate and ONE examples when *client-side* processing is most appropriate. [4]
- (b) Briefly describe what *Document Object Model* (DOM) is, and how it can be used in JavaScript programming to manipulate HTML documents. [4]
- (c) Define *event-based programming*, and briefly explain what it is useful for. [2]
- (d) Briefly explain lifetime of JavaScript variables. [2]
- (e) Consider the following HTML document with JavaScript code in it:

```

1.  <!DOCTYPE html>
2.  <html>
3.  <head><title>My Title</title></head>
4.  <body>
5.      <script type="text/javascript">
6.          var characters = ["Fitzwilliam", "Elizabeth", "Charles",
                             "George", "Caroline", "Jane"];
7.          var text = "";
8.          var i;
9.          for (i = 0; i < characters.length; i++) {
10.             text += characters[i] + "<br>";
11.          }
12.          document.write(text);
13.      </script>
14.      <noscript>
15.          When is this message displayed?
16.      </noscript>
17.  </body>
18. </html>

```

- i. Describe, step by step, what the JavaScript code in lines 5–12 does. [4]
- ii. Explain what is the purpose of the `<noscript>` tag (lines 14–16). [1]
- iii. Describe the appearance of the document after executing the above code (draw a picture if you prefer). [3]

**20 Marks Question Total**

- Q4. (a) Identify ONE advantage and ONE disadvantage, for EACH:
- i. circuit switched networks [2]
  - ii. packet switched networks [2]
- (b) Identify all layers in the 7-Layer OSI model. Briefly describe the responsibilities of each layer, giving examples where appropriate. [7]
- (c) Briefly explain the difference between TCP and IP by identifying the responsibilities of each protocol. [4]
- (d) What is a Uniform Resource Locator (URL) and what is it used for? What is the basic syntax for URLs? [3]
- (e) Briefly describe the purpose of a Domain Name Server (DNS). [2]

**20 Marks Question Total**