1. Describe how HTML fits into the broader ecosystem of a website. Contrast the fundamental role of HTML with the primary roles of CSS and JavaScript. (5 points)

HTML is the fundamental aspect of a website. Without HTML there is no website. All of the content on a website is served by HTML in the <body> section. As the Professor puts it, HTML is the skeleton of the website that makes up the structure, CSS is the clothes that make it look better, and JavaScript are the muscles that make it interactive.

1. Explain the difference between HTML structure and HTML semantics. Why is writing semantic HTML considered a best practice? Provide one example of a semantic HTML element and one example of a non-semantic element. (10 points)

HTML structure refers to how elements are arranged on a page to create the layout of a website. HTML semantics is the use of meaningful elements to show what each element actually is. An example of HTML structure is a <div> because it is an HTML element that doesn’t describe anything about what will be included in it. A semantic HTML element is <header> or <footer> which clearly tells you that the text included in the field will be the header or footer of a website.

1. What is the "three-tier model" (also known as three-tier architecture) in web systems? Briefly describe the function and responsibility of each of the three tiers. (15 points)

The three-tier model in web systems is the presentation layer, application layer, and the data layer. The presentation layer is commonly referred to as the “front-end.” It describes what a user sees from a website, displayed with markup languages. The application layer is the link between the presentation and data. It processes information given to it by the presentation layer or data from the data layer before feeding it to the next step to either be displayed to the user or stored in a database. This is most often done through languages like PHP or Python. The data layer is where information is stored. Some frequently used databases for websites are MySQL or MongoDB.

1. Explain what is meant by a Universal (TYPO: UNIFORM) Interface in a REST API. (5 points)

The uniform interface in REST API refers to the constraint of discoverability. APIs should be standardized, predictable, and easy to use.

1. Explain how your browser chooses which CSS rule to apply to a tag in the case where there are multiple rules that could apply. (15 points)

If there are multiple rules that could apply to a tag, the browser chooses the most specific rule to apply. It goes in order from inline style, to ID, to classes, to elements. If there are two rules of the highest specificity both applying, it will use the rule written lowest in the stylesheet.