**Exam 70-480 Programming in HTML5 with JavaScript and CSS3**

**Implement and manipulate document structures and objects (24%)**

Create the document structure

Structure the UI by using semantic markup, including for search engines and screen readers (Section, Article, Nav, Header, Footer, and Aside); create a layout container in HTML

Write code that interacts with UI controls

Programmatically add and modify HTML elements; implement media controls; implement HTML5 canvas and SVG graphics

Apply styling to HTML elements programmatically

Change the location of an element; apply a transform; show and hide elements

Implement HTML5 APIs

Implement storage APIs, AppCache API, and Geolocation API

Establish the scope of objects and variables

Define the lifetime of variables; keep objects out of the global namespace; use the “this” keyword to reference an object that fired an event; scope variables locally and globally

Create and implement objects and methods

Implement native objects; create custom objects and custom properties for native objects using prototypes and functions; inherit from an object; implement native methods and create custom methods

Preparation resources

The developer’s guide to HTML5 canvas <http://msdn.microsoft.com/hh534406>

How to zoom and pan with SVG <http://msdn.microsoft.com/library/gg589508(v=vs.85).aspx>

**Implement program flow (25%)**

Implement program flow

Iterate across collections and array items; manage program decisions by using switch statements, if/then, and operators; evaluate expressions

Raise and handle an event

Handle common events exposed by DOM (OnBlur, OnFocus, OnClick); declare and handle bubbled events; handle an event by using an anonymous function

Implement exception handling

Set and respond to error codes; throw an exception; request for null checks; implement try-catch-finally blocks

Implement a callback

Receive messages from the HTML5 WebSocket API; use jQuery to make an AJAX call; wire up an event; implement a callback by using anonymous functions; handle the “this” pointer

Create a web worker process

Start and stop a web worker; pass data to a web worker; configure timeouts and intervals on the web worker; register an event listener for the web worker; limitations of a web worker

Preparation resources

Controlling program flow (JavaScript) <http://msdn.microsoft.com/library/ie/kw1tezhk(v=vs.94).aspx>

Coding basic apps <http://msdn.microsoft.com/library/windows/apps/hh780660.aspx>

try...catch...finally statement (JavaScript) <http://msdn.microsoft.com/library/ie/4yahc5d8(v=vs.94).aspx>

**Access and secure data (26%)**

Validate user input by using HTML5 elements

Choose the appropriate controls based on requirements; implement HTML input types and content attributes (for example, required) to collect user input

Validate user input by using JavaScript

Evaluate a regular expression to validate the input format; validate that you are getting the right kind of data type by using built-in functions; prevent code injection

Consume data

Consume JSON and XML data; retrieve data by using web services; load data or get data from other sources by using XMLHTTPRequest

Serialize, deserialize, and transmit data

Binary data; text data (JSON, XML); implement the jQuery serialize method; Form.Submit; parse data; send data by using XMLHTTPRequest; sanitize input by using URI/form encoding

Preparation resources

pattern attribute | pattern property <http://msdn.microsoft.com/library/ie/hh772941(v=vs.85).aspx>

Sandbox <http://msdn.microsoft.com/library/ie/hh673561(v=vs.85).aspx>

XMLHttpRequest object <http://msdn.microsoft.com/library/ie/ms535874(v=vs.85).aspx>

**Use CSS3 in applications (25%)**

Style HTML text properties

Apply styles to text appearance (color, bold, italics); apply styles to text font (WOFF and @font-face, size); apply styles to text alignment, spacing, and indentation; apply styles to text hyphenation; apply styles for a text drop shadow

Style HTML box properties

Apply styles to alter appearance attributes (size, border and rounding border corners, outline, padding, margin); apply styles to alter graphic effects (transparency, opacity, background image, gradients, shadow, clipping); apply styles to establish and change an element’s position (static, relative, absolute, fixed)

Create a flexible content layout

Implement a layout using a flexible box model; implement a layout using multi-column; implement a layout using position floating and exclusions; implement a layout using grid alignment; implement a layout using regions, grouping, and nesting

Create an animated and adaptive UI

Animate objects by applying CSS transitions; apply 3-D and 2-D transformations; adjust UI based on media queries (device adaptations for output formats, displays, and representations); hide or disable controls

Find elements by using CSS selectors and jQuery

Choose the correct selector to reference an element; define element, style, and attribute selectors; find elements by using pseudo-elements and pseudo-classes (for example, :before, :first-line, :first-letter, :target, :lang, :checked, :first-child)

Structure a CSS file by using CSS selectors

Reference elements correctly; implement inheritance; override inheritance by using !important; style an element based on pseudo-elements and pseudo-classes (for example, :before, :first-line, :first-letter, :target, :lang, :checked, :first-child)

Preparation resources

Text <http://msdn.microsoft.com/library/ie/hh673564(v=vs.85).aspx>

How to add drop shadows with CSS3 <http://msdn.microsoft.com/library/ie/gg589484(v=vs.85).aspx>

CSS <http://msdn.microsoft.com/library/ie/hh673536(v=vs.85).aspx>

<https://www.microsoft.com/en-us/learning/exam-70-480.aspx>