ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION
DURATION: 1 HOUR 30 MINUTES

SUMMER SEMESTER, 2021-2022
FULL MARKS: 75

SWE 4637: Web and Mobile Application Development

Programmable calculators are not allowed. Do not write anything on the question paper.
Answer **all 3 (three)** questions. Figures in the right margin indicate full marks of questions whereas corresponding CO and PO are written within parentheses.

1. You are given an HTML body shown in Code Snippet 1.

```html
1  <body>
2      <h1>A Collection of the best recipes ever</h1>
3      <article id="recipe-list">
4          <ul>
5              <li>Holiday Cookies</li>
6              <li>Lasagna</li>
7          </ul>
8      </article>
9      <article id="recipe-area">
10         <h2>Holiday Cookies</h2>
11         <article id="ingredients">
12             <ul>
13                 <li>flour</li>
14                 <li>sugar</li>
15             </ul>
16         </article>
17         <p class="instruction">Combine all the ingredients.</p>
18         <p class="instruction">Wish on a shooting star.</p>
19     </article>
20 </body>
```

Code Snippet 1: Body part of an HTML for Question 1.

a) What are tags and attributes in HTML? Explain in detail with the help of Code Snippet 1.

5
(CO1)
(PO1)

b) Draw the Document Object Model(DOM) tree based on Code Snippet 1 that corresponds to the hierarchy of the body HTML (ignore the text, text nodes, and tag attributes - just refer to tag names in boxes and parent/child relationships with lines between boxes).

10
(CO2)
(PO2)

c) Style the Code Snippet 1 with the following requirements:
   i. The background of the entire page should be *#123456*.
   ii. The color of the text for all the headings should be *green*.
   iii. Every element with the class *instruction* should have a border that is 2 pixels and red.
   iv. The text in the list inside the article with the id *ingredients* should have a font preference of Arial, Helvetica, or any other sans-serif font.

10
(CO2)
(PO2)

2. You are given an HTML body shown in Code Snippet 2.

```
1  <body>
2      <section>
3          <h3 id="sec">CSE Department, IUT</h3>
4      </section>
5      <div>
6          <p id="secdes">A subsidiary organ of OIC</p>
7      </div>
8      <header>
9          <h4 id="t-1" class="t-1">SWE <strong id="s-1" class="s">Program</
           strong>:</h4>
10     </header>
11     <div>
12         <h4 id="t-1" class="t-1">Information:</h4>
13         <ul id="l-1">
14             <li id="t-1" class="t">
15                 <strong id="s-2" class="s">Specialized</strong> for
                   software eng.
16             </li>
17             <li id="t-2" class="t">more than 180 credits</li>
18             <li id="t-3" class="t">Internship opportunity</li>
19             <li id="t-4" class="act">Lot of activities
20                 <ol id="l-2" class="act">
21                     <li id="sub-1">Problem solving</li>
22                     <li id="sub-2">Project showcasing</li>
23                     <li id="sub-3">SWE related <strong id="s-3" class="s"
                       >Research</strong></li>
24                 </ol>
25             </li>
26         </ul>
27     </div>
28 </body>
```

Code Snippet 2: Body part of an HTML for Question 2.

a) Briefly discuss CSS combinators with the help of Code Snippet 2.

5
(CO1)
(PO1)

b) Write the ID's with justification of the elements selected by each of the given selectors listed in Code Snippet 2.

8 × 2.5
(CO2)
(PO2)

    i. .act

    ii. li > *

    iii. body .s

    iv. body > .s

    v. li li

    vi. li+li

    vii. section + div

    viii. section ~ div

3. Assume a library management system where a book can be dynamically added, updated, and deleted from the library.

Name: [   ]

Author: [   ]

Genre: [▼]

[Add]

(a) Add book

#SL	Name	Author	Genre	Action
1	The Art of War	Sun Tzu	Non-fiction	Update Delete
2	The Alchemist	Paulo Coelho	Novel	Update Delete
3	Beloved	Toni Morrison	Novel	Update Delete
4	War and Peace	Leo Tolstoy	Fiction	Update Delete

(b) Display book information with the update and delete action

Figure 1: Different operations related to book for Question 3.

a) Write the corresponding HTML code (form part) based on the Figure 1.(a) and validate the following requirements in react UseState hook.

   i. Name: required, a combination of A-Z and a-z.

   ii. Author: required, at least two words for first and last names.

   iii. Genre: required, can be Fiction, Novel, Non-fiction.

10
(CO2)
(PO2)

b) Analyze the Figure 1.(b) and write the corresponding server and client side code in Node.js for the CRUD (Create, Retrieve, Update, Delete) operations. Assume, an id is attached for every book with the update and delete links.

15
(CO3)
(PO3)