Exam Instructions

- All electronic devices, except for laptops and headphones, are not allowed during the exam.
- The exam is open book, which means you can use any online resources but you cannot seek help from anyone or use AI engines.
- The use of Discord or similar chat software is prohibited.
- The exam will last for two hours.
- In case you encounter incomplete or vague questions, make assumptions and answer to the best of your knowledge.
- No questions are allowed during the exam.
- Please enter the last five digits of your BCIT student ID in the "Student ZipGrade ID" section of the answer sheet. For instance, if your ID is "A09912345", you should fill in "12345".

Q1.

For the following table, which statement is true?

```
<!DOCTYPE html>
<html>

<head>
  <title>Metro Vancouver Cities</title>
</head>

<body>
  <h1>Metro Vancouver Cities</h1>
  <table>
    <tr>
      <th>City</th>
      <th>Population</th>
      <th>Location</th>
    </tr>
    <tr>
      <td>Vancouver</td>
      <td>2,830,000</td>
      <td>49.2827° N, 123.1207° W</td>
    </tr>
    <tr>
      <td>Surrey</td>
      <td>527,000</td>
      <td>49.1044° N, 122.8011° W</td>
    </tr>
    <tr>
      <td>Burnaby</td>
      <td>239,000</td>
      <td>49.2421° N, 122.9939° W</td>
    </tr>
    <tr>
```

```
        <td>Richmond</td>
        <td>222,000</td>
        <td>49.1666° N, 123.1336° W</td>
      </tr>
      <tr>
        <td>Coquitlam</td>
        <td>151,000</td>
        <td>49.2731° N, 122.7642° W</td>
      </tr>
      <tr>
        <td>North Vancouver</td>
        <td>85,000</td>
        <td>49.3163° N, 123.0693° W</td>
      </tr>
      <tr>
        <td>Langley</td>
        <td>82,000</td>
        <td>49.1044° N, 122.6615° W</td>
      </tr>
      <tr>
        <td>Delta</td>
        <td>102,000</td>
        <td>49.0847° N, 123.0588° W</td>
      </tr>
    </table>
  </body>

  </html>
```

A. The table has 8 columns and 3 rows.
B. The table has 8 rows and 3 columns.
C. The table has 8 rows and 2 columns.
D. The table has 8 columns and 2 rows.

Q2.

All the following color codes are for *Tomato* color except

A. `rgb(255, 99, 71)`
B. `hsl(9, 100%, 64%)`
C. `#FF6347`
D. `#113347`

Q3.

All the following are attributes for the `<hr>` tag except:

A. `color`
B. `type`

C. `align`
D. `noshade`
E. `size`

Q4.

Inline elements typically do not initiate a new line in the document flow by default, whereas block elements usually cause a line break. However, it's important to note that this behavior can be altered using CSS, as is often the case with web page design.

A. True
B. False

Q5.

The following are invalid syntax of a hyperlink that will direct users to the website `https://www.example.com` except

A. `<a>Visit Example Website</a>`
B. `<a href="https://www.example.com">Visit Example Website</a`
C. `<a href="https://www.example.com">Visit Example Website</a>`
D. `<a href="example">Visit Example Website</a>`

Q6.

Which of the following element will be colored in blue

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
  <style>
    h1+p {
      color: blue;
      font-size: 18px;
    }
  </style>
</head>

<body>

  <h1>Heading 1</h1>
  <p>Paragraph 1</p>
```

```
    <p>Paragraph 2</p>


  </body>

  </html>
```

A. Paragraph 1
B. Paragraph 2
C. Both Paragraph 1 and Paragraph 2
D. Heading 1
E. Heading 1 and Paragraph 1

Q7.

For the following code, which statement is true?

```
<style>
  body {
    font-size: 10px;
  }

  h1 {
    font-size: 2em;
    margin-bottom: 1em;
  }

  p {
    font-size: 1.2em;
    margin-bottom: 0.5em;
  }
</style>

<body>
  <h1>Heading 1</h1>
  <p>Paragraph 1</p>
  <p>Paragraph 2</p>
</body>
```

A. The font size of the body element is 10px, the font size of the h1 element is 20px, and the font size of the p element is 14.4px.

B. The font size of the body element is 10px, the font size of the h1 element is 12px, and the font size of the p element is 12px.

C. The font size of the body element is 10px, the font size of the h1 element is 20px, and the font size of the p element is 12px.

D. The font size of the body element is 10px, the font size of the h1 element is 12px, and the font size of the p element is 14.4px.

Q8.

Which of the following is true about the above code?

```
<style>
  html {
    font-size: 16px;
  }

  body {
    font-size: 10px;
  }

  h1 {
    font-size: 2rem;
    margin-bottom: 1rem;
  }

  p {
    font-size: 1.2rem;
    margin-bottom: 0.5rem;
  }
</style>

<body>
  <h1>Heading 1</h1>
  <p>Paragraph 1</p>
  <p>Paragraph 2</p>
</body>
```

A. The font size of the root element is 16px, the font size of the body element is 10px, the font size of the h1 element is 32px, and the font size of the p element is 20px.

B. The font size of the root element is 16px, the font size of the body element is 10px, the font size of the h1 element is 20px, and the font size of the p element is 19.2px.

C. The font size of the root element is 16px, the font size of the body element is 10px, the font size of the h1 element is 32px, and the font size of the p element is 19.2px.

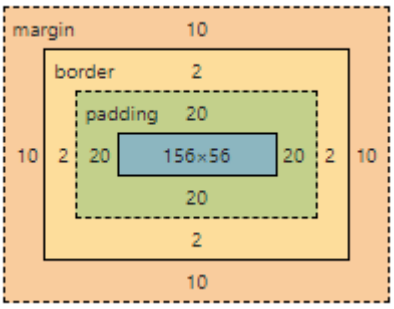
D. The font size of the root element is 16px, the font size of the body element is 10px, the font size of the h1 element is 20px, and the font size of the p element is 20px.

Q9.

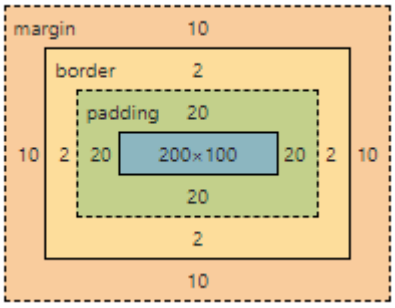
Which of the following CSS box model is correct for the following code?

```
<style>
  * {
    box-sizing: border-box;
  }

  /* Define styles for the box */
  .box {
    width: 200px;
    height: 100px;
    padding: 20px;
    border-width: 2px;
    border-style: solid;
    border-color: #000000;
    margin: 10px;
  }
</style>

<body>
  <div class="box">
    This is a box with content.
  </div>
</body>
```

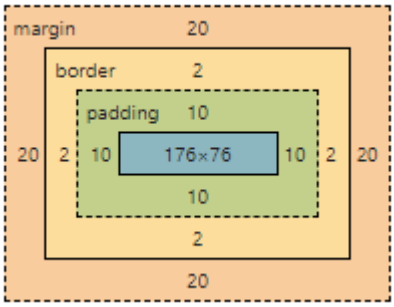
A.



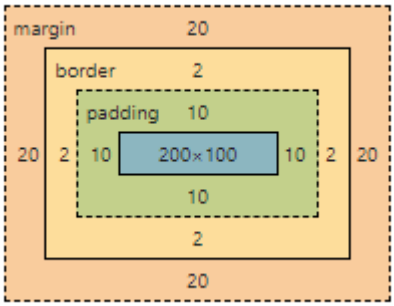
B.



C.



D.



Q10.

How to design the following medium screens layout using Bootstrap

Block	Block
Block	

A.

```
<div class="container px-4 py-4">
  <div class="row gx-5">
    <div class="col col-md-4">
      <div class="p-3 border bg-light">Block</div>
    </div>
    <div class="col container ">
      <div class="row  ">
        <div class="col col-md-12">
          <div class="p-3 border bg-light">Block</div>
        </div>
        <div class="col col-md-12">
          <div class="p-3 border bg-light">Block</div>
        </div>
      </div>
    </div>
  </div>
</div>
```

B.

```
<div class="container px-4 py-4">
   <div class="row gx-5">
     <div class="col container ">
       <div class="row  ">
         <div class="col col-md-12">
           <div class="p-3 border bg-light">Block</div>
         </div>
         <div class="col col-md-12">
           <div class="p-3 border bg-light">Block</div>
         </div>
       </div>
     </div>
     <div class="col col-md-4">
       <div class="p-3 border bg-light">Block</div>
     </div>
   </div>
 </div>
```

Q11.

What is the output of the following code?

```
const fruits = ['apple', 'banana', 'orange', 'grape'];

const x = fruits.slice(-2);

console.log(x);
```

A. `[undefined, undefined]`
B. `['banana', 'orange']`
C. `['orange', 'grape']`
D. `['apple', 'banana']`

For the following JSON object, answer the next two questions.

```
const data = [
  {
    "name": "Italiano Ristorante",
    "cuisine": "Italian",
    "location": "123 Main St, New York",
    "rating": 4.5,
    "menus": [
```

```
      {
        "category": "Appetizers",
        "items": [
          "Bruschetta",
          "Garlic Bread",
          "Caprese Salad"
        ]
      },
      {
        "category": "Main Course",
        "items": [
          "Pasta Carbonara",
          "Chicken Parmesan",
          "Margherita Pizza"
        ]
      },
      {
        "category": "Desserts",
        "items": [
          "Tiramisu",
          "Cannoli",
          "Panna Cotta"
        ]
      }
    ]
  },
  {
    "name": "Sushi Sake",
    "cuisine": "Japanese",
    "location": "456 Elm St, Los Angeles",
    "rating": 4.2,
    "menus": [
      {
        "category": "Appetizers",
        "items": [
          "Edamame",
          "Gyoza",
          "Tempura"
        ]
      },
      {
        "category": "Sushi Rolls",
        "items": [
          "California Roll",
          "Spicy Tuna Roll",
          "Rainbow Roll"
        ]
      },
      {
        "category": "Nigiri",
        "items": [
          "Salmon Nigiri",
          "Tuna Nigiri",
          "Yellowtail Nigiri"
```

```
          ]
        }
      ]
    }
  ]
```

Q12.

how to print the *Appetizers* of the **Sushi Sake** restaurant?

A.

```
console.log(data[0].menus.find(menu => menu.category === 'Appetizers').items);
```

B.

```
console.log(data[1].menus.find(menu => menu.category === 'Appetizers').items);
```

C.

```
console.log(data[1].menus.map(menu => menu.category === 'Appetizers').items);
```

D.

```
console.log(data[0].menus.map(menu => menu.category === 'Appetizers').items);
```

Q13.

How to print the names of the restaurants ?

A.

```
console.log(
  data[0].find({}, {name :1})
);
```

B.

```
console.log(
  data[0].map(restaurant => restaurant.name)
);
```

C.

```
console.log(
  data.map(restaurant => restaurant.name)
);
```

D.

```
console.log(
  data.find({}, {name :1})
);
```

Q14.

Which statement is true about the following code?

```
const fruits = ['apple', 'banana', 'orange', 'grape'];

fruits.unshift('strawberry');
```

A. The array `fruits` will be `['apple', 'banana', 'orange', 'grape', 'strawberry']`

B. The array `fruits` will be `['strawberry', 'apple', 'banana', 'orange', 'grape', 'strawberry']`

C. The array `fruits` will be `['apple', 'banana', 'orange', 'grape']`

D. The array `fruits` will be `['strawberry', 'apple', 'banana', 'orange', 'grape']`

Q15.

Which statement is true about the following code?

```
const fruits = ['apple', 'banana', 'orange', 'grape'];

fruits.splice(1, 2, 'watermelon', 'mango');
```

A. `['apple', 'watermelon', 'mango', 'orange', 'grape']`

B. `['apple', 'watermelon', 'mango', 'banana', 'orange', 'grape']`

C. `['apple', 'watermelon', 'mango', 'banana', 'grape']`

D. `['apple', 'watermelon', 'mango', 'grape']`

Use the following `weather` collection to answer the questions below.


```
[
  {
    "city": "New York",
    "country": "United States",
    "temperature": 22.5,
    "humidity": 60,
    "precipitation": 0.1,
    "windSpeed": 8,
    "conditions": ["sunny", "partly cloudy"],
    "updatedDate": "2023-04-06T10:30:00Z"
  },
  {
    "city": "London",
    "country": "United Kingdom",
    "temperature": 12.9,
    "humidity": 75,
    "precipitation": 0.3,
    "windSpeed": 12,
    "conditions": ["rainy", "windy"],
    "updatedDate": "2023-04-06T09:45:00Z"
  },
  {
    "city": "Sydney",
    "country": "Australia",
    "temperature": 26.7,
    "humidity": 50,
    "precipitation": 0,
    "windSpeed": 5,
    "conditions": ["sunny"],
    "updatedDate": "2023-04-06T08:15:00Z"
  }
]
```


Q16.

Using the MongoDB find method, retrieve all the weather data documents from the `weather` collection where the temperature is greater than or equal to 20°C and the conditions include `sunny`.

A.

```
db.weather.find({ temperature: { $gte: 20 }, conditions: "sunny" })
```

B.

```
db.weather.find({ temperature: { $gte: 20 }, conditions: { $in: "sunny" } })
```

C.

```
db.weather.find({ temperature: { $gt: 20 }, conditions: "sunny" })
```

D.

```
db.weather.find({ temperature: { $gte: 20, $lt: 25 }, conditions: "sunny" })
```

Q17.

Retrieve only the `city` and `temperature` fields for all the weather data documents from the weather collection where the `conditions` field is `rainy`.

A.

```
db.weather.find({ conditions: "rainy" }, { city: 1, temperature: 1 })
```

B.

```
db.weather.find({ conditions: "rainy" }, { _id: 0, city: 1, temperature: 1 })
```

C.

```
db.weather.find({ conditions: "rainy" }, { _id: 0, city: 0, temperature: 1 })
```

D.

```
db.weather.find({ conditions: "rainy" }, { city: 0, temperature: 1 })
```

Q18.

Which city will be retrieved for the following query

```
db.weather.find({ "conditions": "sunny" }).skip(1).limit(2)
```

A. London
B. Sydney
C. New York
D. None of the above

Q19.

Which city will be retrieved for the following query

```
db.weather.find({ "temperature": { $gt: 20 } }).sort({ "humidity": -1 }).limit(1)
```

A. London
B. Sydney
C. New York
D. None of the above

Q20.

What is the output of the following

```
db.weather.find({ "temperature": { $gt: 20 } }).count()
```

A. 1
B. 2
C. 3
D. None of the above