HasTech JavaScript Exam - 2

Total Mark: 40

Time: 1 Hour and 30 Minutes

1. **Write a JavaScript function that takes an array and returns the minimum number of this array using a loop. Ignore the built-in method for finding. (Mark: 5)**

   Example:
   Input: `const numbers = ["10", "21", 3, "14", "53", 55, ”36”, 48];`
   Output：`3`

2. **Create a JavaScript function that generates a random password with a specified length. The password should include a mix of uppercase letters, lowercase letters, numbers, and special characters. (Mark: 5)**

   Character Set :
   `"abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789!@#$%^&*()"`

   Example:
   Input: generateRandomPassword(8);
   Output: “Pas@word”

3. **Write a Javascript function that takes 2 arrays as input. Which are productList and availableProductInInventory. Your task is to determine which products are in stock and which are out of stock. (Mark: 5)**

   Example
   Input:

```
const productList = [
        {id: 101, title: "Product 1"},
        {id: 102, title: "Product 2"},
        {id: 103, title: "Product 3"},
        {id: 104, title: "Product 4"}
];
const availableProductInInventory = [102, 104];
```

Output:
{
inStockProductList: [{id: 102, title: "Product 2"}, {id: 104, title: "Product 4"}],
outOfStockProductList: [{id: 101, title: "Product 1"}, {id: 105, title: "Product 3"}]
}

4. **How do you add or remove properties from an object dynamically two operations are managed from one function? (Mark: 5)**

5. **Write a JavaScript function that takes an array of numbers and returns a new array with only the even numbers. (Mark: 5)**

   Example:
   Input: `const numbers = [10, 21, 3, 14, 53, 55, 36, 48]`
   Output: [10, 14, 36, 48]

6. **Write a JavaScript function that takes an array of objects and a key, and returns a new array sorted based on the values of that key in ascending order. (Mark: 5)**

   Example:
   Input const people = [
   { name: "John", age: 30 },
   { name: "Alice", age: 25 },
   { name: "Bob", age: 35 },
   ];

   const data = myfunction(people, "age");
   [
   { name: "Alice", age: 25},
   { name: "John", age: 30 },
   { name: "Bob", age: 35 },
   ]

7. **Write a JavaScript function that takes two sorted arrays and merges them into a single sorted array without using any built-in sorting functions. (Mark: 5)**

   Example**:**
   ```
   const arr1 = [1, 3, 5, 7];
   const arr2 = [2, 4, 6, 8];

   myfunction(arr1, arr2);
   Output: [1, 2, 3, 4, 5, 6, 7, 8]
   ```

8. **Write a JavaScript class definition for the `Product` class with a constructor and the `getTotalPrice()` method. Additionally, create an instance of the `Product` class and calculate its total price (price multiplied by quantity). (Mark: 5)**

   Assume the following product data:
   Product Name: "Laptop"
   Price: 1000
   Quantity: 3