**JAVASCRIPT BASIC CODING TEST**

**Welcome to the JavaScript Coding Test! You have 3 hours to complete the exam.**

* Please read the instructions carefully before you start.
* Provide answers to coding questions in a clear, well-commented, and efficient code.
* Submit your file via the provided submission portal before the end of the allotted time.

**Part 1: Coding Questions (30 marks)**

1. Write a function that takes a string and returns the number of vowels in the string. (4)
2. Create an object representing a book with properties title, author, and ISBN. Print each property to the console. (4)
3. Write a function that takes an array of numbers and returns a new array with each number doubled. (4)
4. Create a class Person with properties name and age. Add a method introduce that prints "Hello, my name is [name] and I am [age] years old." Create an instance of the class and call the method. (5)
5. Write a function that takes two strings and checks if they are anagrams. (4)
6. Write a program that uses the reduce() method to calculate the sum of all elements in an array. (3)
7. Create an object representing a student with properties name, age, and grades (an array). Write a function that calculates and prints the average grade. (3)
8. Write a function that returns the factorial of a given number using recursion. (3)

**Part 2: Advanced Coding Questions (20 marks)**

1. **Create a class LibraryBook with the following specifications: ( Mark : 7)**
2. A constructor that initializes the book title, the author name, the total number of copies, and the price per book.
3. A method borrowBooks that decreases the number of available copies by the number of books requested and returns the total cost.
4. A method printDetails that prints the book title, the author name, the number of available copies, and the price per book.
5. A method isAvailable that returns true if the requested number of copies are available, otherwise returns false.
6. Add a method returnBooks that increases the number of available copies by the number of books returned and returns the refund amount.
7. Add a method applyDiscount that applies a discount to the price per book for a promotional offer.
8. **Create a function addToCart(...items) with the following specifications: (Mark : 3)**
9. If no items are passed, log "Your cart is empty."
10. If a single item is passed, log "One item added to cart:", followed by the item.
11. If multiple items are passed, log "Multiple items added to cart:", followed by the list of items.
12. **Books in a Library (Mark : 10)**

const books = [

{ title: 'To Kill a Mockingbird', author: 'Harper Lee', pages: 281, genre: 'Fiction' },

{ title: '1984', author: 'George Orwell', pages: 328, genre: 'Dystopian' },

{ title: 'Moby Dick', author: 'Herman Melville', pages: 720, genre: 'Adventure' },

{ title: 'The Great Gatsby', author: 'F. Scott Fitzgerald', pages: 180, genre: 'Classic' },

{ title: 'War and Peace', author: 'Leo Tolstoy', pages: 1225, genre: 'Historical' },

];

1. Print the titles of all books.

2. Find the book with the highest number of pages.

3. Find the total number of pages of all books.

4. Find all books in a specific genre (e.g., Fiction).

5. Print the names of authors who have written more than one book.

6. Sort books based on the number of pages (descending order).

7. Find the book with the smallest number of pages.

8. Find the book with the longest title.

9. Find the book with the shortest title.

10. Find the average number of pages of all books.