Daffodil International University

Faculty of Science and Information Technology
Department of Computer Science & Engineering
Midterm Examination, Semester: Spring 2024
Course Code: CSE221 Course Title: Object Oriented Programming II
Level_Term: L3_T1 Batch: 61 Section: All

Time: 01:30H [Answer all the Questions. Obtain marks in the right side] Full marks: 25

1.	a.	Illustrate the various methods for defining function parameters in Python, furnishing examples for each scenario, demonstrating a comprehension of the diverse approaches avail.	[2.5]	CO1
	b.	Demonstrate the role of expressions and sequence processing functions in Python sequences, and exemplify their usage, showcasing a comprehension of their functions within the context of sequences.	[2.5]	
2.	a.	Develop a Python code to determine the count of vowels in a given string, applying the concept of string manipulation and character analysis.	[3]	CO2
	b.	Construct a Python program for a small bookstore that utilizes conditionals to calculate the total cost of book purchases, incorporating various discounts based on the quantity of books bought, showcasing an application of conditional logic in a real-world scenario:	[6]	

Sample Input	Sample Output
`Enter a sentence: Object Oriented Programming`	`The number of vowels in the sentence is 9`

i. Input the number of books the customer wants to purchase, along with the price of each book.
ii. Calculate the total cost based on the following discount scheme:
   - If the user purchases 1 to 3 books, there is no discount.
   - If the user purchases 4 to 10 books, apply a 10% discount.
   - If the user purchases more than 10 books, apply a 20% discount.
iii. Displays the total cost with the applied discount.

Sample Input	Sample Output

`Enter the number of books: 4`
`Price of book-1: 200`
`Price of book-2: 350`
`Price of book-3: 250`
`Price of book-4: 200`
	`Total Cost: 1000tk`
	`Total Payable Cost: 900tk`
	`(10% discount applied for purchasing 4 to 10 books)`

	c.	You're to develop a movie recommendation system. You have dictionary named as movies, where each key is a movie title and the value is a list of genres (e.g., "action", "comedy", "thriller"). You also have a user's favorite genres stored in a list of user genres.
		
		Create a function that recommends movies (movies, user genres) that takes the movies dictionary and the user genres list as input and returns a list of movie titles recommended for the user. The recommendation logic should prioritize movies that share the most genres with the user's favorites.
		
		Sample Input
		`movies = { "The Shawshank Redemption": ["drama"], "The Godfather": ["crime", "drama"], "The Dark Knight": ["action", "crime", "thriller"], "Fight Club": ["drama", "thriller"] }`
		`user_genres = ["action", "thriller"]`
		
		Sample Output
		`Recommendations = ["The Dark Knight", "Fight Club"]`
			[6]	

3.	a.	Evaluate the following code for potential errors. If any, identify the location of the error. If the code is correct, provide the expected output.
		
		`1 numbers = (1, 2, 3)`
		`2 numbers[1] = 5`
		`3 print(numbers)`
			[2]	

	b.	Determine the output of the given code, exhibiting a comprehension of the code's execution.
		
		`1 import random`
		`2`
		`3 n = []`
		`4 for v in range(0, 11):`
		`5 n.append(random.randint(0, 100))`
		`6`
		`7 for i in range(50, 100):`
		`8 for j in n:`
		`9 if j == i:`
		`10 print(j, end=" ")`
		`11`
		
		Note: Consider, the following list of integer values for the **randint()** function: [64, 19, 100, 6, 68, 92, 62, 5, 15, 98, 55]
			[3]	CO1