


Name:			
Enrolment No:			
<b>UPES</b> <b>End Semester Examination, May 2024</b>			
<b>Programme Name: BTech CSE Big Data</b>		<b>Semester : VI</b>	
<b>Course Name : Advanced Functional Thinking</b>		<b>Time : 03 hrs</b>	
<b>Course Code : CSBD3005</b>		<b>Max. Marks: 100</b>	
<b>Instructions: Attempt All questions</b>			
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.		Marks	CO
Q 1	Explain the concept of immutability in Scala. Why is it important during Big Data analytics?	4	CO1
Q 2	Define companion object with example.	4	CO2
Q 3	What are the different primitive data types available in Scala?	4	CO1
Q 4	How can you achieve polymorphism in Scala?	4	CO2
Q 5	Create a Scala function that returns the average of the digits of a given integer number.	4	CO1
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Write a scala code to create a counter using the singleton object.	10	CO4
Q 7	List the features of SCALA. Why is SCALA considered better than other programming languages?	10	CO1
Q 8	Explain the concept of partially applied functions in Scala and provide an example of its use.	10	CO3
Q 9	Design a Scala program that simulates a simple banking application that handles clients and provides functionalities like deposits, withdrawals, and balance inquiries. It also can create new clients and accessing their information.  Or  Given a scenario where a class needs functionalities from two traits that have conflicting methods, how would you approach resolving this conflict? Explain with an example.	10	CO2
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			

Q10	<p>What are lazy sequences? Write a code to create a finite and an infinite sequence of integers. Also, demonstrate some methods of lazy sequences.</p> <p>Or</p> <p>Create anonymous functions isEven, isOdd, isPositive, isNegative, isZero. Create a higher order function filterList that takes a list of numbers and any one filter function created above.</p>	20	CO3
Q11	<p>a. Define Proxy Pattern. Illustrate the features and need for proxy pattern.</p> <p>b. Give code snippet for following questions</p> <ol style="list-style-type: none"> <li>i. You are given a list of names (strings). Write a function using map that returns a new list with all names capitalized.</li> <li>ii. You have a list of integers. Write a function using filter that returns a new list containing only numbers within a specified range.</li> <li>iii. You are given a list of lists of integers. Write a function that returns a single list containing all the elements from the nested lists.</li> <li>iv. You have a list of integers. Write a function that return a new list containing only the squares of even numbers.</li> <li>v. Create two scala sets and merge them to obtain a single set.</li> </ol>	20	CO4