

Name:		 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:		

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, December 2021	
Course: Advanced Functional Thinking Program: B.Tech CSE Bigdata Course Code: CSBD 3005	Semester: V Time: 03 hrs. Max. Marks: 100

SECTION A	
1. Each Question will carry 4 Marks 2. Instruction: Explain in short. (60-70 words)	

S. No.		Marks	CO
Q 1	In what ways Scala is better than other programming language.	4	CO2
Q 2	Describe the concept of functions in Scala.	4	CO3
Q 3	Explain the term closure in Scala.	4	CO2
Q 4	Discuss the advantage of Scala.	4	CO1
Q 5	Briefly discuss the concept of Scala class.	4	CO4

SECTION B	
1. Each question will carry 10 marks 2. Instruction: Write brief notes. (100-150 words)	

Q 6	Write a Scala program to check whether a given string starts with 'UPES' or not.	10	CO2
Q 7	Create a class name 'Student' with string variable 'name' and an integer variable 'roll_no'. Assign the value of roll_no as 2 and that of name as 'john' by creating an object of the class 'Student'.	10	CO3
Q 8	"Scala is a Scalable language", What is the meaning of scalable language? List at least five advanced features of scala programming. What do you mean by boilerplate code and name at least two programming language that are very much useful to reduce boiler plate code? (5+5)	10	CO1
Q 9	Write a Scala program to find contiguous subarray within a given array of integers which has the largest sum. OR Write a Scala program to find the two elements from a given array of positive and negative numbers such that their sum is closest to zero.	10	CO3

SECTION-C

- 1. Each question will carry 20 marks**
- 2. Instruction: Write long answer (Up to 350 words while explaining)**
- 3. Attempt any part of question no.10 as there is an option “a” or “b”.**
- 4. There is no choice for question no. 11. This is mandatory to answer.**

Q 10	<p>a). Define trait in scala. What is trait mixing. Create a trait name "student_records" having five trait variables say,name(str), department (str), roll (int), subject_name (string) ,marks (int). Also create a trait method to display the marks of a particular student and store the records for all students. Now, create a class name "student_details" which inherit the properties of trait "student_records", and print the name of the student who scored highest marks in any subject. Create one more trait “student_project”, trait method "proj_details" which includes trait variables as project_name(str), project_credit(int), marks (int) and status (str type having only values pass fail), now through student details class print the marks and status of individual students.</p> <p style="text-align: center;">OR</p> <p>b). Differentiate between Functions and Methods using suitable examples. Also explain briefly the concept of Higher Order Functions. Write a Scala program to check whether a given positive number is a multiple of 3 or a multiple of 7. (5+10+5)</p>	20	CO4
Q 11	<p>Create a class called Employee whose objects are records for an employee. This class will be a derived class of the class person which you will have to copy into a file of your own and compile. An employee record has an employee's name (inherited from the class person), an annual salary represented as a single value of type double, a year the employee started work as a single value of type int and a national insurance number, which is a value of type string. Your class should have a reasonable number of constructors and accessor methods, as well as an equals method. Write another class containing a main method to fully test your class definition.</p>	20	CO4