Name: Enrolment No:	

UPES
End Semester Examination, December 2023

Course: Principles of Programming Languages   Semester: I
Program: BTech CSE   Time: 03 hrs.
Course Code: CSEG1010   Max. Marks: 100

Instructions: Read all questions carefully.

SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Write an algorithm and draw a flowchart to find whether the given number is the prime number or not?	4	CO1
Q 2	Describe the concept of type checking? Differentiate between static type checking and dynamic type checking and give their relative advantages.	4	CO2
Q 3	Analyse the fundamental principles that distinguish procedural programming languages like C from other paradigms?	4	CO3
Q 4	Discuss about the various attributes of a good language and explain the process of evaluating attributes with example.	4	CO1
Q 5	Define static, stack-dynamic, explicit heap-dynamic, and implicit heap dynamic variables.	4	CO2
SECTION B (4Qx10M= 40 Marks)			
Q 6	a) Differentiate between static and dynamic typing in programming languages. b) Discuss the significance of type checking and type inference in programming languages.	10	CO4
Q 7	a) Explain the differences between the "++i" and "i++" increment operators in C. b) Provide examples illustrating their usage and discuss potential scenarios where their behavior might differ.	10	CO5
Q 8	a) Define and differentiate between call by value and call by reference. b) Write a function to find the factorial of a given number using recursion. c) Explain the concept of pointers in C and illustrate with an example.	10	CO2
Q 9	Define *narrowing* and *widening conversions*. Differentiate between type conversion and type coercion.	10	CO3
SECTION-C1 (2Qx20M=40 Marks)			

Q 10	Write algorithm and C program to design a structure 'subject' to store the details of the subject like subject name and subject code. Using structure pointer allocate memory for the structure dynamically so as to obtain details of 'n' subjects using for loop. **Or** Describe the steps to pass an array to a function. Write a program to reverse a string without using any library function. Explain the difference between a string and a character array in C.	**20**	**CO5**
Q 11	Differentiate between the following and give examples of each: a) static vs dynamic dynamic memory allocation b) Local variables vs. Global variables c) pointers vs arrays	**20**	**CO4**