

<b>Name:</b>	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, Dec 2021**

<b>Course: Principal of Programming Language</b> <b>Program: B.Tech CSE</b> <b>Course Code: CSEG 1010</b>	<b>Semester: I</b> <b>Time: 03 hrs.</b> <b>Max. Marks: 100</b>
---	--

**Instructions:**

**SECTION A**

1. Each Question will carry 4 Marks
2. Instruction: Write short answers for the following questions. (60-70 words)

S. No.	Question	Marks	CO
Q1	Write an algorithm and draw a flowchart to find the LCM of two numbers (2+2 =4)	4	CO1
Q2	Differentiate between (two differences) (2+2 =4) a) compilers and interpreters b) gets() and scanf()	4	CO1
Q3	Explain, in brief the purpose of the following string handling functions (1+1+1+1 =4) (i) strcat (ii) strcmp (iii) strncpy (iv) strstr	4	CO2
Q4	Explain the term syntax errors and logical errors ? (2+2 =4)	4	CO1
Q5	Consider the following C function named multiply. Trace the call multiply(4,5). Show how you reached the return value of this call by drawing a function call tree. <pre>int multiply(int m, int n) {     if (n == 0) return 0;     return (m + multiply(m, n-1)); }</pre>	4	CO3

**SECTION B**

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

Q6	Draw the flow chart to represent 'do while' loop. Write a program to display the below pattern. (3+7=10) <pre style="margin-left: 40px;"> * ** *** **** *****           </pre>	10	CO2
Q7	Explain the term exception? Explain the exception handling mechanism using suitable examples. (4+6 =10) <p style="text-align: center;">OR</p>	10	CO3

	We have a class of 60 students who study five subjects (100 Mark Each). Minimum passing of each subject is 35 marks & overall Passing is 40%. A student failed in more than 2 subjects is considered failed. You need to write a code to take input of all students & all subject. Calculate & print Number of students passed & failed.		
Q8	Discuss the following features of OOPS with suitable examples: (2*5 = 10) (a) Object (b) Class (c) Abstraction (d) Polymorphism (e) Inheritance	10	CO4
Q9	Explain the basic building blocks of LISP language. What will the value returned by the following expressions written in LISP: (2+2+2+2+2 = 10) > (print "( / (+ 3 5) (- 4 2) )") > (print ( / (+ 3 5) (- 4 2) ) ) > (print (' (+ 1 3))) > (print (- (+ (mod 10 4) 5) 2) )	10	CO3
<b>SECTION-C</b>			
<b>1. Each Question carries 20 Marks.</b>			
<b>2. Instruction: Write long answer. (Up to 350 words while explaining)</b>			
Q11.	Define a class Student with the attributes: Name, Roll_no, Mobile_no, Marks, Address. The program should be able to handle the details of $n$ Students with the following member functions: a) input() to receive input for each student b) display() to display details of each student c) topper() to print the Name and Roll_no of topper of the batch d) average() to print the average marks of the batch  Use appropriate datatype for each attribute. Also use a valid return type and list of suitable parameters for each function. Your program must contain main() function that shows proper calls of these functions. (5*4 =20)  OR Write a C program in which main() gets a number and calls the following two functions: (10+10 =20) a) "void armstrong(int)" checks if the given number is a Armstrong number or not. b) "int factorial(int)" computes the factorial of the given number using recursion and returns to main().	20	CO4
Q12.	Differentiate between the following and give examples of each: (12+3+5= 20) a) Call by Value vs. Call by Reference b) Local variables vs. Global variables c) Procedural Language vs. Object Oriented Language.	20	CO2