


<b>Name:</b>  <b>Enrolment No:</b>	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
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**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**Online End Semester Examination, Jan. 2021**

**Course: Principles of Programming Languages**  
**Program: B TECH (CSE) LLB (CL)/ (IPR)**  
**Course Code: CSEG1009**

**Semester: I**  
**Time 03 hrs.**  
**Max. Marks: 100**

**SECTION A**

- 1. Each Question will carry 5 Marks**  
**2. Instruction: Complete the statement / Write True or False/ Write direct answers asked**

S. N.	Question	CO
Q1	Name any five programming languages.	CO1
Q2	Indicate True or false for each of the following statements: <span style="float: right;"><b>(1 mark each)</b></span> a) A programming language is considered to be strongly typed if every variable must be associated with a single primitive data type. b) Two case constants within the same switch statement can have the same value. c) A file opened for writing already exists its contents would be overwritten. d) Pointers are useful for accessing memory locations. e) Associative arrays have strings as keys and behave more like two-column tables.	CO2
Q3	a) What will this program print? <span style="float: right;"><b>(2.5 marks each)</b></span> <pre> main() {   int i = 2;   {     int i = 4, j = 5;     printf("%d%d", i, j);   }   printf("%d%d", i, j); } </pre> b) What will the result of num variable after execution of the following statements? <pre> int num = 58; num % = 11; </pre>	CO2
Q4	Fill in the following blanks: <span style="float: right;"><b>(2.5 marks each)</b></span> (a) The two varieties of a subprogram are _____ and _____. (b) An _____ subprogram is one that has the same name as another subprogram in the same referencing environment.	CO3

Q5	<p>a) Fill in the following blanks: <span style="float: right;"><b>(1+4) marks</b></span></p> <p>An _____ translates a program written in assembly language into machine language.</p> <p>b) Indicate True or False for each of the following statements:</p> <p>i) ROM is secondary memory.</p> <p>ii) A compiler changes high-level-language source code into HTML.</p> <p>iii) The CU is divided into CPU and ALU.</p> <p>iv) Installing extra RAM will speed up your PC.</p>	<b>CO1</b>
Q6	<p>a) What is (cdr '((2) (3) (4)))?</p> <p>b) What is (cons '2 '(2 3 4))?</p> <p>c) Which element does (car (cdr '(x y z))) extract from the list?</p> <p>d) What is the length of the list '(0000)?</p>	<p><b>1 mark</b></p> <p><b>1 mark</b></p> <p><b>1.5 marks</b></p> <p><b>1.5 marks</b></p>
<p><b>SECTION B</b></p> <p><b>1. Each question will carry 10 marks</b></p> <p><b>2. Instruction: Write short / brief notes</b></p>		
Q7	<p>(a) What are the different factors that influences the evolution of programming languages?</p> <p>(b) What is a flowchart? Define decision box and terminal box and draw their symbols.</p> <p style="text-align: right;"><b>(5 marks each)</b></p>	<b>CO1</b>
Q8	Define the scope, visibility and lifetime of variables. Illustrate to support your answer.	<b>CO2</b>
Q9	What are the advantages of subprograms? Explain different parameter modes for subprogram calls with suitable examples.	<b>CO3</b>
Q10	What is inheritance? Define the various types of inheritance. Also highlight the limitations of inheritance.	<b>CO4</b>
Q11	Explain the difference between Bagof/3 And Setof/3 Predicate in Prolog. Give an example for both to support your answer.	<b>CO4</b>
<p><b>SECTION C</b></p> <p><b>1. Each Question carries 20 Marks.</b></p> <p><b>2. Instruction: Write long answer.</b></p>		

Q12	<p>(a) Explain with example about Lazy evaluation in functional programming language.</p> <p>(b) Define Lambda expressions in Scheme programming language. Define following functions using lambda expressions. <b>(8+12) marks</b></p> <p>(i) Factorial                      (ii) Square                      (iii) GCD (Greatest Common Divisor)</p> <p style="text-align: center;"><b>OR</b></p> <p>(a) How functional programming is different with object oriented programming? Support your answer with at least five differences.</p> <p>(b) Explain <b><u>Lists</u></b> with respect to the Scheme programming language. Also define following built in list handling functions along with at least two examples for each. <b>(6+14) marks</b></p> <p>(i)      car                                      (iv) reverse (ii)     cdr                                      (v) append (iii)    cons                                      (vi) list</p>	<b>CO4</b>
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