



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.												
----------	--	--	--	--	--	--	--	--	--	--	--	--

End - Term Examinations –May/June 2026

Date: 19-05-2026

Time: 09:30am – 12:30pm

School: SOE	Program: Civil/Mechanical/Petroleum	
Course Code : CSE2282	Course Name: Computational Thinking and AI Programming	
Semester: IV	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	24	24	26	26	----

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Relate the diamond symbol in a flowchart to an "if" statement.	2 Marks	L2	C01
2.	Summarize what "State" means and why variables are called "memory."	2 Marks	L2	C01
3.	Identify the "Base Case" needed to plan a recursive function.	2 Marks	L3	C02
4.	Model "String Immutability" through a simple code experiment.	2 Marks	L3	C02
5.	Identify the difference between a state and a state space, and give a short explanation	2 Marks	L3	C03
6.	Organize any four data structures used in search algorithms in a list.	2 Marks	L3	C03
7.	Construct the formal notation for a transition model and state its purpose.	2 Marks	L3	C03
8.	Illustrate with a small example how arc consistency reduces variable domains.	2 Marks	L3	C04
9.	Compare CNF and DNF in terms of their logical structure.	2 Marks	L3	C04

10.	Interpret the constraint in the N Queens problem that prevents diagonal attacks.	2 Marks	L3	CO4
-----	--	---------	----	-----

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Compare and contrast Iteration (loops) and Recursion, providing a code example for each.	20 Marks (10+10)	L2	CO1
	b.	Classify the different "Practical Paradigms" (like Guard Clauses) and illustrate one with a Python code snippet.		L2	CO1
Or					
12.	a.	Extend simple decision-making into a "Tiered Decision" or a "Nested Hierarchy" using a Customer Loyalty or Access Control example.	20 Marks (10+10)	L2	CO1
	b.	Demonstrate string manipulation by showing f-strings, concatenation, and three different string methods.		L2	CO1
13.	a.	Organize a comparison of Python’s four data structures and choose the right one for a specific task.	20 Marks (10+10)	L3	CO2
	b.	Construct a program to identify the differences between local and global scopes using a function		L3	CO2
Or					
14.	a.	Develop unique code snippets that utilize break, continue, and pass to organize program flow.	20 Marks (10+10)	L3	CO2
	b.	Make use of string slicing to build a script that reverses text and extracts substrings.		L3	CO2
15.	a.	Model the working of Depth First Search (DFS) including its algorithm steps, example traversal order, and complexity analysis.	20 Marks (10+10)	L3	CO3
	b.	Develop a detailed explanation of state space search and its basic concepts and key components with suitable examples		L3	CO3
Or					
16.	a.	Explain the Minimax algorithm for two-player, zero-sum games. Describe MAX and MIN players, utility values at terminal nodes, and show how values are backed up in the game tree using a neat example	20 Marks (10+10)	L3	CO3

	b.	Describe Alpha–Beta Pruning. Define α and β , list the steps of the algorithm, and using a small game tree, show where and why pruning occurs. Briefly explain how ideal ordering improves pruning efficiency.		L3	C03
--	-----------	---	--	-----------	------------

17.	a.	Compare arc consistency and path consistency, highlighting their scope and limitations.	20 Marks (10+10)	L3	C04
	b.	Interpret the truth table for implication ($p \rightarrow q$) and explain its logical meaning.		L3	C04

Or

18.	a.	Extend the N Queens problem to generalized CSPs and discuss how constraints scale with N.	20 Marks (10+10)	L3	C04
	b.	Relate cryptarithmic puzzles to CSPs by modeling SEND + MORE = MONEY with variables, domains, and constraints.		L3	C04