SET-2

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY- M.SC (CS)

Term End Examination (2025 Pattern) December – 2025 - Semester – I

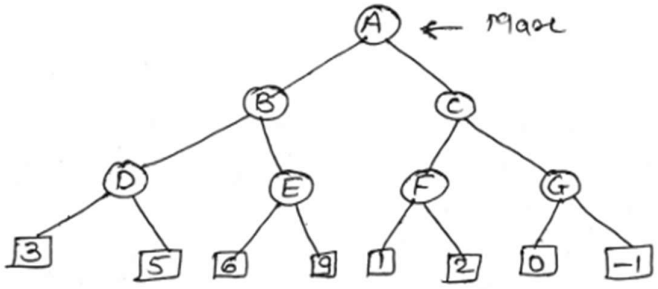
Subject Name: Artificial Intelligence **Max. Marks: 25**
Subject Code: 25PSC106T **Time: 1:30 Hrs.**

Instructions

- All Questions are Compulsory.
- Draw Neat Diagrams

CO #	Cognitive Ability	Course Outcome
CO1	**Remember**	Describe fundamental concept, scope of AI related applications and its history, foundations, and early work in relevant fields.
CO2	**Understand**	Classify and distinguish the basic concepts of problem solving using Artificial Intelligence.
CO3	**Apply**	Apply various types of algorithms used in Artificial Intelligence(AI) to solve real world problem.

Q1.	**Attempt any 5 out of 7. (1 mark each) (5 Marks)**	
a)	State any two applications of Artificial Intelligence.	CO1
b)	Define Uniform Cost Search.	CO1
c)	What is Predicate Logic?	CO1
d)	Give the syntax for python SET	CO1
e)	What is Semi-Supervised Learning?	CO1
f)	State the advantages of Breadth First Search (BFS).	CO1
g)	Define the Hill-climbing ?	CO1
Q2.	**Attempt any 2 out of 4. (5 marks each) (10 Marks)**	
a)	Explain the Water Jug Problem with example using production rules	CO2
b)	Explain the types of functions in Python: built-in, user-defined, and anonymous functions.	CO2
c)	Illustrate the concept of Regression with suitable examples.	CO2

d)	Explain the different types of control flow statements in Python with suitable examples	CO2
Q.3.	**Attempt all questions. (5 marks each) (10 Marks)**	
a)	Construct the following sentences in First Order Logic (FOL). i) All dogs are animals. ii) Some animals are not pets. iii) Bruno is a dog. iv)Therefore, Bruno is an animal.	CO3
b)	Solve given search tree problem using Mini-Max algorithm  Show final search tree after applying algorithm, show min value at the root node. **OR**	CO3
Q.3	**Answer the following - (10 marks)**	
a)	STUDY + MORE = MARKS Using Constraint Satisfaction Problem in terms of variables(V), domains(D) and Constraints (C) 1)Identify the initial solution, initial constraints. 2)Describe any one step of reducing the domain and creating additional constraints. (Note- The aim is to assign each letter a unique integer in the range 0-9 so that the sum is correct.)	CO3
b)	Complete and Explain the Depth First Search (DFS) algorithm with a neat tree diagram.	CO3

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