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Mid-Term Examinations – October 2021

Programme	:	B.Tech	Semester	:	Fall 2021-22
Course	:	Fundamentals in AI and ML	Code	:	CSA2001
Faculty	:	Suryakanta Panda	Slot/ Class No.	:	C11+C12+C13/0587
Time	:	1 ½ hours	Max. Marks	:	50

Answer all the Questions

Q.No.	Question Description	Marks
1	Consider the problem of driving a car from one place to another. Assume that route is not known. Consider this as a search problem with three operators: R1: Travel to the next crossing and keep going straight, if possible R2: Travel to the next crossing and turn to right, if possible R3: Travel to the next crossing and turn to left, if possible Which control strategy is better: depth first or breadth first ?	10
2	Consider a state space where start space is numbered as 1 and the successor function for state numbered as 'n' returns two states numbered as 3n and 3n-1. Suppose the goal state is 24. List the order in which nodes will be visited using following searches. Draw search trees in each case. i. Depth First Search ii. Iterative deepening search	10
3	Algorithm A* does not terminate until a goal node is selected for expansion. However, a path to the goal node might be reached long before that node is selected for expansion. Why does not it terminate as soon as goal node has been found ? Illustrate your answer with an example.	10
4	Solve the following crypt arithmetic puzzle. S E N D + M O R E ---------------- M O N E Y	10
5	Represent the following in predicate logic Every boy or girl is a child. Every child gets a doll or a train or a lump of coal. No boy gets any doll. No child who is good gets any lumps of coal. Alice is a girl.	10

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