Question Paper

Exam Date & Time: 30-Dec-2022 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATION - DECEMBER 2022
III SEMESTER B.Sc. (Applied Sciences) in Engg.

ARTIFICIAL INTELLIGENCE [ICS 236]

Marks: 50 **Duration: 180 mins.**

Answer all the questions.

Missing data may be suitable assumed.

1)		Suppose you design a machine to pass the Turing test. What are the capabilities such a machine must have? Explain.	(3)
	A)		
	B)	List and explain all the characteristics of a hardest environment. Distinguish it from simpler environment characteristics with an example for each.	(5)
	C)	Consider a vacuum cleaner agent environment, in which the geography of the environment - its extent, boundaries, and obstacles - is unknown, as is the initial dirt configuration. (The agent can go Up and Down as well as Left and Right.) i) Can a simple reflex agent be perfectly rational for this environment? Explain. ii) Can a simple reflex agent with a randomized agent function outperform a simple reflex agent? Explain.	(2)
2)		Compare breadth first, depth first, uniform cost and bidirectional search strategies based on completeness, optimality, time complexity and space complexity.	(4)
	A)		
	B)	Consider a directed graph shown Figure 1, where S is the start node and G is the goal node. Use tree based Breadth-first search and Uniform cost search techniques for traversal from start node to goal node. Show the contents of open and closed lists at each step. Compute cost path for both and advice if any changes to be made to above techniques.	(4)