PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc (SS) DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Branch – **SOFTWARE SYSTEMS (Five Years Integrated)**

ARTIFICIAL INTELLIGENCE

Time: Three Hours   Maximum: 75 Marks

SECTION-A (10 Marks)
Answer ALL questions

ALL questions carry EQUAL marks   (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Artificial Intelligence is defined as: a) The study of computer hardware b) The study of making computers behave intelligently c) The study of internet protocols d) The study of algorithms only	K1	CO1
	2	Which of the following is a key characteristic of a rational agent? a) It acts randomly b) It maximizes expected performance measure c) It minimizes computational cost only d) It avoids making decisions	K2	CO1
2	3	Uninformed search is also known as: a) Heuristic search b) Blind search c) Optimal search d) Intelligent search	K1	CO2
	4	Which search algorithm uses a heuristic function? a) Breadth First Search b) Depth First Search c) A* algorithm d) Uniform Cost Search	K2	CO2
3	5	The main components of a knowledge-based agent are: a) Sensors and actuators only b) Knowledge base and inference engine c) Memory and processor d) Input and output devices	K1	CO3
	6	Propositional logic in AI is used for: a) Mathematical calculations only b) Representing simple facts and reasoning c) Image processing d) Network communication	K2	CO3
4	7	A Bayesian network is: a) A type of neural network b) A directed acyclic graph representing probabilistic relationships c) A search algorithm d) A sorting technique	K1	CO4
	8	The key difference between exact and approximate inference is: a) Speed of execution only b) Exact gives precise probabilities, approximate gives estimates c) Memory usage only d) Both are identical	K2	CO4
5	9	Utility theory in AI deals with: a) Power consumption of computers b) Preferences and decision-making under uncertainty c) Network utilities d) Software utilities	K1	CO5
	10	Value iteration is used for: a) Sorting algorithms b) Finding optimal policies in MDPs c) Database queries d) File compression	K2	CO5

SECTION - B (35 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the history and evolution of Artificial Intelligence.	K2	CO1
		(OR)		
	11.b.	Illustrate the architecture and components of an intelligent agent.		
2	12.a.	Build an example to illustrate the working of Hill climbing search algorithm.	K3	CO2
		(OR)		
	12.b.	Apply the Minimax algorithm for adversarial search problems.		
3	13.a.	Apply Forward Chaining inference method to solve a given problem.	K3	CO3
		(OR)		
	13.b.	Apply Backward Chaining inference to first Order Logic example.		
4	14.a.	Analyze the semantics and structure of Bayesian networks.	K4	CO4
		(OR)		
	14.b.	Compare exact inference and approximate inference methods in Bayesian networks.		
5	15.a.	Examine the value iteration algorithm for sequential decision problems.	K4	CO5
		(OR)		
	15.b.	Analyze the policy iteration method in Markov Decision Processes.		

SECTION -C (30 Marks)
Answer ANY THREE questions
ALL questions carry EQUAL Marks   (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyze the different types of agent-based systems with suitable examples.	K4	CO1
2	17	Compare and contrast uninformed search strategies with informed search strategies.	K4	CO2
3	18	Examine the differences between Propositional Logic and First Order Logic with suitable examples.	K4	CO3
4	19	Analyze the inference mechanisms in Bayesian networks and Hidden Markov Models with appropriate examples.	K4	CO4
5	20	Inspect about game theory and mechanism design in multi-agent decision scenarios.	K4	CO5

Z-Z-Z   END