TOTAL PAGES: 2

22CAP316N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCA DEGREE EXAMINATION DECEMBER 2025
(Third Semester)

Branch - **COMPUTER APPLICATIONS**

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	What does PEAS stands in describing an intelligent agent? a) Performance, Environment, Actuators, Sensors b) Programs, Environment, Actions, States c) Processing, Encoding, Algorithms, Systems d) Performance, Execution, Applications, Solutions	K1	CO1
	2	Interpret which method explores all nodes level by level in uninformed search strategies. a) Breadth-first search b) Uniform-cost search c) Depth-first search d) Bidirectional search	K2	CO1
2	3	Define Knowledge-based agent. a) Uses trial and error to learn b) Stores and uses knowledge to make decisions c) Works only in dynamic environments d) To Create an agents	K1	CO2
	4	Interpret which one of the following is a key component for all first-order inference algorithms. a) Lifting b) Propositional c) Unification d) Forward Chaining	K2	CO2
3	5	How the algorithm is trained in unsupervised learning? a) Labeled data b) Unlabeled data c) Reinforced signals d) Intelligent Agents	K1	CO3
	6	Relate which learning algorithm is most commonly used for training ANNs? a) Decision tree induction b) K-means clustering c) Backpropagation d) Support vector machines	K2	CO3
4	7	Which among the following is primarily used for Phrase structure grammars? a) Semantic interpretation b) Syntactic analysis c) Image classification d) Speech synthesis	K1	CO4
	8	Relate how Early image processing operations includes _____ a) Edge detection and noise reduction b) Semantic segmentation c) Object recognition d) Text-to-speech conversion	K2	CO4
5	9	Which component of a robot is responsible for its movement? a) Sensor b) Actuator c) Controller d) CPU	K1	CO5
	10	Relate which robot type are primarily used in medical surgeries? a) Humanoid robots b) Autonomous mobile robots c) Surgical robots d) Industrial manipulators	K2	CO5

Cont...

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.	Interpret the steps for well-defined problem and solutions in problem-solving agent.	K4	CO1
		(OR)		
	11.b.	Simplify the 8-puzzle heuristic search problem with neat sketch.		
2	12.a.	Explain briefly about the alpha beta pruning algorithm with a suitable example.	K5	CO2
		(OR)		
	12.b.	Determine the use of forward chaining algorithm.		
3	13.a.	Inspect the decision tree representation for the restaurant domain.	K4	CO3
		(OR)		
	13.b.	Examine the back-propagation algorithm for learning in multilayer network.		
4	14.a.	Explain the concept of Page Rank algorithm in information retrieval.	K5	CO4
		(OR)		
	14.b.	Determine the process of finding a parse for the string "The Wumpus is dead" in semantic analysis.		
5	15.a.	Discuss about the Monte carlo localization algorithm in robotic perception.	K6	CO5
		(OR)		
	15.b.	Elaborate a various types of controls in robotic moving.		

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	Examine the stages in an A* search with neat sketch.	K4	CO1
2	17	Evaluate the inference rules for quantifiers in first-order inference.	K5	CO2
3	18	Classify and explain various types of regression with an example.	K4	CO3
4	19	Develop a parse tree with semantic interpretation for the string "3+(4+2)".	K6	CO4
5	20	Measure the use of robotics functions in various domains.	K5	CO5

Z-Z-Z END