



Galgotias College of Engineering and Technology, Greater Noida

Pre University Test (PUT) : Odd / Even Semester 20..... -

Course/Branch : B.Tech (CSE, CSD, IT) Semester : 7th
 Subject Name : Artificial Intelligence Max. Marks : 100
 Subject Code : KCS-071 Time : 180min

CO-1 : Understand the basics of the theory and practice of Artificial Intelligence as a discipline and about intelligent agents.

CO-2 : Understand search techniques and gaming theory.

CO-3 : The student will learn to apply knowledge representation techniques and problem solving strategies to common AI applications.

CO-4 : Student should be aware of techniques used for classification and clustering.

CO-5 : Student should aware of basics of pattern recognition and steps required for it.

Section – A# 20 Marks(Short Answer Type Questions)

Attempt **ALL** the questions. Each Question is of 2 marks (10 x 2 = 20 marks)

Q. No.	COx	Question Description # Attempt ALL the questions. Each Question is of 2 marks
1	a	CO1 Describe structure of an agent with suitable example. (K2)
	b	CO1 Define perception and action. (K2)
	c	CO2 Explain challenges arise when dealing with partial observations in search problems. (K2)
	d	CO2 Define heuristic function with suitable example. (K2)
	e	CO3 Describe the process of resolution in logic programming. (K2)
	f	CO3 Describe the First-order logic model. (K2)
	g	CO4 Explain the importance of communication among intelligent agents in a multi- agent system. (K2)
	h	CO4 Discuss the key differences between the artificial intelligence and machine learning. (K2)
	i	CO5 Provide examples of real-world applications where information extraction is essential.(K2)
	j	CO5 Differentiate supervised and unsupervised learning. (K2)

Section – B# 30 Marks (Long / Medium Answer Type Questions)

Attempt **ALL** the questions. Each Question is of 6 marks(5 x 6 = 30 marks)

Q.2 (CO-1): Explain the role of sensors and effectors in the functioning of intelligent agents. (K2)

OR

Discuss how AI systems approach problem-solving, considering search algorithms and heuristics. (K2)

Q.3 (CO-2): Explain the basic principles of uninformed search strategies. Provide examples of algorithms falling under this category. (K2)

OR

Describe the concept of local search algorithms. Provide an example of an optimization problem and explain how local search algorithms can be applied to solve it. (K2)

Q.4 (CO-3) : Explain the concept of First Order Predicate Logic and how it is utilized in Prolog programming. (K2)

OR

Compare and contrast forward chaining and backward chaining in the context of rule-based reasoning systems. Provide examples to illustrate each. (K3)

Q.5 (CO-4) : Explain clustering and differentiate between supervised and unsupervised learning. (K2)

OR

Describe the learning with complete data-Naïve model. (K3)

Q.6 (CO-5) : Explain the importance of pre-trained language models in various AI applications. (K3)

OR

Describe the N-queens problem in detail. Also explain with an example. (K3)

Section – C# 50 Marks (Medium / Long Answer Type Questions)

Attempt ALL the questions. Each Question is of 10 marks.

Q.7 (CO-1) : Attempt any ONE question. Each question is of 10 marks.

- Define role of agent in AI. Describe various types of intelligent agents with the help of their structure. (K2)
- Describe the foundation and history of AI. (K2)

Q.8 (CO-2) : Attempt any ONE question. Each question is of 10 marks.

- Discuss Branch-and-bound search algorithm. (K3)
- Define informed search and heuristics. How do heuristics contribute to improving the efficiency of search algorithms? (K2)

Q.9 (CO-3) : Attempt any ONE question. Each question is of 10 marks.

- Define forward chaining and backward chaining with examples. (K3)
- Explain the role of Hidden Markov Model (HMM) in probabilistic reasoning. (K3)

Q.10 (CO-4) : Attempt any ONE question. Each question is of 10 marks.

- Describe the learning with hidden data with suitable example. (K3)
- Define the term reinforcement learning. How does the passive reinforcement learning differ from active reinforcement learning? (K2)

Q.11 (CO-5) : Attempt any ONE question. Each question is of 10 marks.

- Write short notes on Bayesian classifier. (K2)
- Describe the nearest neighbor rule in pattern recognition. Explain its mathematical formulation also. (K4)

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