Total No. of Printed Pages: 2

PRN No.	

PAPER CODE	U314-211-(ESE)

(AY:2024-25) December 2024 (ENDSEM) EXAM

TY (SEMESTER - I)

COURSE NAME: Artificial Intelligence Branch:AI&DS COURSE CODE: ADUA31201

(T.Y PATTERN 2020R1)

Time: [1Hr 30 Min] **[Max. Marks: 40]**

(*) Instructions to candidates:

1) **Figures to the right indicate full marks. Use of scientific calculator is allowed**
2) **Use suitable data wherever required**
3) **All questions are compulsory. Solve any two sub question each from Questions 1 and 2**
4) **Solve any one sub question (2 marks) from Questions 3 ,4 ,5 and 6 and sub question of 4 marks is compulsory from questions 3,4,5,and 6**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a)Explain the difference between an accessible and an inaccessible environment with an example of each in real-world AI applications.	[4]	CO1	Understand
	b) Explain the role of intelligent agents in AI applications with examples from real-world systems.	[4]	CO1	Understand
	c) Describe the key features that distinguish single-agent systems from multi-agent systems. Use examples from AI applications like autonomous vehicles and swarm robotics.	[4]	CO1	Understand
Q.2	a) Explain the vacuum cleaner problem as a simple AI problem and how it can be framed using goal and problem formulation concepts.	[4]	CO2	Understand
	b) Explain the importance of solution execution in AI problem-solving. How does the solution execution phase integrate with the search phase?	[4]	CO2	Understand
	c) Describe the process of goal formulation in artificial intelligence. How does it differ from problem formulation?	[4]	CO2	Understand
Q.3	a) Define heuristic search in artificial intelligence.	[2]	CO3	Remember
	OR			
	b)What is the purpose of a heuristic function in search algorithms?	[2]	CO3	Remember
	c)What is a Constraint Satisfaction Problem (CSP)? Illustrate with an example of a real-world problem that can be modeled as a CSP.	[4]	CO3	Apply

Q4	a)List the three types of hill climbing algorithms. **OR** b)Name a disadvantage of using Steepest Ascent Hill Climbing. c)Using an example, explain the plateau problem in hill climbing. How can stochastic hill climbing overcome this problem?	[2] [2] [4]	CO4 CO4 CO4	Remember Remember Apply
Q.5	a)Define inference rules in the context of knowledge inference in AI. Provide an example. **OR** b) What are the different types of knowledge used in Artificial Intelligence? c) Using an example, illustrate the difference between forward chaining and backward chaining in knowledge inference. When would you choose one approach over the other?	[2] [2] [4]	CO5 CO5 CO5	Remember Remember Apply
Q.6	a)Define rote learning & Reinforcement learning in the context of machine learning. **OR** b) Define Induction, Clustering in AI? c)Explain with Neat Diagram Machine learning Components?	[2] [2] [4]	CO6 CO6 CO6	Remember Remember Understand