



R22 Regulation

Subject code:4P5EG&4E5GC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Regular Examinations, December 2024

Artificial Intelligence

(Common to CSE & CSE(AI&ML))

Maximum Marks: 60

Date:06.01.2025

Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A		CO	Bloom Tx
All the following questions carry equal marks (10X1M=10 Marks)			
1.a)	Define Artificial Intelligence.	1	BL 1
b)	Define intelligent agents.	1	BL 2
c)	Identify the types of search strategies in AI.	2	BL 1
d)	Mention the role of propositional logic in AI.	2	BL 2
e)	List the key components of a knowledge-based agent.	3	BL 1
f)	What is Alpha-Beta pruning.	3	BL 2
g)	Distinguish between propositional logic and first-order logic in terms of their structure and capabilities.	4	BL 4
h)	Define Mental event.	4	BL 4
i)	Define Bayesian network.	5	BL 2
j)	List the importance of probabilistic reasoning in AI applications.	5	BL 2
Part-B			
Answer All the following questions. (5X10M=50Marks)		CO	Bloom Tx
2	Describe the different uninformed search strategies with examples. [10M]	1	BL 3
OR			
3	Explain the A* search algorithm and its components. [10M]	1	BL 4
4	Discuss the concept of adversarial search and its application in games, including how optimal decisions are made. [10M]	2	BL 4
OR			
5	Solve a sample Constraint Satisfaction Problem (CSP) using backtracking. Illustrate your solution with an example. [10M]	2	BL 3
6	Explain the syntax and semantics of First-Order Logic with examples. [10M]	3	BL 3
OR			
7	Describe the process of unification in First-Order Logic and its significance in inference. [10M]	3	BL 4
8	Define ontological engineering and explain its importance in AI applications.	4	BL 2

	Provide examples of how it is used in real-world systems. [10M]		
	OR		
9	Illustrate the concept of forward state space search and backward relevant state search. [10M]	4	BL 4
10	Explain Bayes' Rule and how it is applied in probabilistic reasoning. Provide an example to demonstrate its application. [10M]	5	BL 4
	OR		
11	Discuss the Dempster-Shafer theory and its relevance in uncertain reasoning, including its advantages and limitations compared to traditional probabilistic methods. [10M]	5	BL 4