R22 Regulation *Subject code:4O7HA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Regular Examinations, November 2025

FUNDAMENTALS OF AI

(CSE(DS))

Maximum Marks: 60 Date: 28.11.2025 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

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BloomTx
1.a)	What are the major risks and benefits of Artificial Intelligence?	1M	1	1
b)	Describe different environments for AI agents.	1M	1	2
c)	Explain the working principle of Breadth-First Search.	1M	2	2
d)	Principle of informed search strategy?	1M	2	1
e)	What is unification in First-Order Logic?	1M	3	1
f)	How are events represented in AI systems?	1M	3	1
g)	State Bayes' Rule and explain its significance in AI.	1M	4	1
h)	Explain the semantics of Bayesian Networks.	1M	4	2
i)	Define grammar and parsing in the context of Natural Language Processing.	1M	5	1
j)	Discuss the role of linear regression in supervised learning.	1M	5	2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom x
2	What is AI? Explain Risks and Benefits of AI.	10M	1	2
	OR			
3	Explain with examples how an intelligent agent differs from a simple reflex agent. Illustrate the concept using a vacuum cleaner agent.	10M	1	2
4	Explain the difference between a problem and a solution in the context of AI search.	10M	2	2
	OR			
5	Discuss the significance of the evaluation function in A* Search.	10M	2	3
6	Compare the expressive power of FOL and propositional logic with examples.	10M	3	4
	OR			
7	Examine a reasoning scenario and explain how first-order inference improves expressiveness over propositional inference.	10M	3	4

8	Illustrate a real-world problem using probability notation to represent multiple possible outcomes.	10M	4	3
	OR			
9	Analyze the impact of adding or removing edges in a Bayesian Network on inference outcomes.	10M	4	4
10	Evaluate the effectiveness of different forms of learning in solving real-world AI problems.	10M	5	4
	OR			
11	Examine how decision-making capabilities in autonomous robots affect task outcomes.	10M	5	4