R22 Regulation *Subject code:4O7HA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Supplementary Examinations, May 2026

FUNDAMENTALS OF AI

(CSE(DS))

Maximum Marks: 60 Date:13.05.2026 · 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	Bloom Tx
1.a)	Differentiate between Strong AI and Weak AI.	1M	1	2
b)	Describe the structure of an intelligent agent.	1M	1	2
c)	What is Iterative Deepening Search and why is it useful?	1M	2	1
d)	Explain the concept of Bidirectional Search.	1M	2	2
e)	What is First-Order Logic (FOL)?	1M	3	1
f)	Discuss the role of knowledge representation in AI problem-solving.	1M	3	2
g)	How is knowledge represented in an uncertain domain?	1M	4	1
h)	Define the concept of independence in probability theory.	1M	4	1
i)	List common tasks performed in Natural Language Processing.	1M	5	1
j)	Explain the concept of model selection in machine learning.	1M	5	2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	Explain the concept of machine thinking capability in AI.	10	1	2
	OR			
3	What is an Agent? Explain Types of Agents in AI.	10	1	2
4	Explain the operations of Breadth-First Search with a simple example.	10	2	2
	OR			
5	Demonstrate how the absence of path cost consideration in Greedy Best-First Search affects the search outcome.	10	2	3
6	Describe the difference between a simple reflex agent and a knowledge-based agent.	10	3	2
	OR			
7	Examine how ontological engineering can improve reasoning in AI systems.	10	3	4

8	Apply a Naive Bayes model to classify a set of test instances and explain the reasoning for each prediction.	10	4	3
	OR			
9	Analyze a real-world scenario and explain how knowledge can be represented in an uncertain domain.	10	4	4
10	Assess the advantages and limitations of ensemble learning methods for improving model accuracy.	10	5	4
	OR			
11	Compare different application domains of robotics and justify which domain benefits most from AI integration.	10	5	4