R22 Regulation *Subject code: 4E7GA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Supplementary Examinations, May 2026

KNOWLEDGE REPRESENTATION AND REASONING

(CSE(AI&ML))

Maximum Marks: 60 Date:05.05.2026 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)	State any one reason for knowledge representation.	1M	1	1
b)	What do you mean by "Unity Amidst Diversity" in logic?	1M	1	1
c)	List any two examples of physical entities.	1M	2	1
d)	What is the philosophical background of ontology?	1M	2	1
e)	Define Knowledge Engineering.	1M	3	1
f)	List any two advantages of frame-based systems	1M	3	1
g)	What is an event?	1M	4	1
h)	Define modal reasoning.	1M	4	1
i)	Define randomness.	1M	5	1
j)	What is a conceptual schema?	1M	5	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Explain the key concepts of Knowledge, Representation, and Reasoning with examples. b) Summarize the historical development of logic and its importance in AI.	5M 5M	1 1	2 4
	OR			
3	a) Describe the role of logic in knowledge representation and reasoning. b) Compare and contrast the varieties of logic used in AI.	5M 5M	1 1	3 4
4	a) Describe various ontological categories with suitable examples. b) Explain how abstractions are defined and represented in ontology.	5M 5M	2 2	2 4
	OR			
5	a) Explain the concept of top-level categories and their significance. b) Discuss the role of sets, collections, and types in organizing ontological knowledge.	5M 5M	2 2	3 4

6	a) Explain the use of rules and data in knowledge representation systems. b) Discuss the principles of object-oriented systems for knowledge representation.	5M 5M	3 3	3 4
	OR			
7	a) Explain the various levels of knowledge representation in Artificial Intelligence. b) Describe the role of Natural Language Semantics in knowledge representation.	5M 5M	3 3	2 4
8	a) Discuss the classification of processes with examples. b) Explain the syntax and semantics of contexts in knowledge representation.	5M 5M	4 4	3 4
	OR			
9	a) Describe procedures and their role in process representation. b) Discuss constraint satisfaction problems (CSPs) and give suitable examples.	5M 5M	4 4	3 4
10	a) Describe non monotonic reasoning and its applications in AI. b) Discuss the relationship between theories, models, and the real world.	5M 5M	5 5	3 4
	OR			
11	a) Describe the process of sharing ontologies among intelligent systems. b) Explain the concept of fuzzy logic with a suitable example.	5M 5M	5 5	3 3