R22 Regulation *Subject code:4P5EG & 4E5GC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, April 2026

ARTIFICIAL INTELLIGENCE

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

Maximum Marks: 60 Date:24.04.2026 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 (10×1M=10 Marks)		Marks	CO	BTL
1.a)	Define heuristic search.	1M	1	L1
b)	List types of uninformed search.	1M	1	L1
c)	What is backtracking search?	1M	2	L1
d)	Define definite clause.	1M	2	L1
e)	What is knowledge engineering?	1M	3	L2
f)	Define Unification.	1M	3	L1
g)	Define classical planning.	1M	4	L1
h)	Define mental events and mental objects.	1M	4	L1
i)	State Bayes' Theorem.	1M	5	L1
j)	What is Bayesian Network?	1M	5	L1

Part-B

Answer All the following questions. (5×10M=50Marks)		Marks	CO	BTL
2	Explain Uninformed Search strategies with examples.	10M	1	L2
	OR			
3	a) Analyze A* Search and its optimality. b) Evaluate Local Search in continuous spaces.	5M 5M	1 1	L3 L5
4	a) Explain Alpha–Beta Pruning with a neat game tree example. b) Discuss Constraint Satisfaction Problems and their structure.	5M 5M	2 2	L1 L3
	OR			
5	a) Explain Propositional Logic and its components. b) Evaluate Effective Propositional Model Checking.	5M 5M	2 2	L5 L2
	OR			
6	a) Explain FOL representation and semantics. b) Describe Forward and Backward chaining in First-Order Logic.	5M 5M	3 3	L2 L2
	OR			

7	a) Analyze the process of Unification and Lifting. b) Differentiate between Propositional and First-Order inference.	5M 5M	3 3	L4 L2
8	Explain Classical Planning Approaches.	10M	4	L1
	OR			
9	a) Explain Categories, Objects, Events, and Mental Events. b) Discuss Algorithms for Planning with State-Space Search.	5M 5M	4 4	L1 L3
10	a) Explain Inference using Full Joint Distributions. b) Design a Bayesian Network for medical diagnosis.	5M 5M	5 5	L2 L6
	OR			
11	a) Analyze Probabilistic Reasoning in uncertain domains. b) Evaluate Relational and First-Order Probability models.	5M 5M	5 5	L4 L5