R20 Regulation *Subject code: 3E5EF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, November 2025

ARTIFICIAL INTELLIGENCE

(CSE)

Maximum Marks: 70 Date: 12.11.2025 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 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 (10X2M=20 Marks)		Marks	CO	BTL
1	Write the four components of state space search?	2M	1	L1
2	What is the use of Heuristic Functions?	2M	1	L1
3	Can you represent the resolution in predicate logic?	2M	2	L1
4	For the given sentence "All Pompeian's were romans" write a well-formed formula in predicate logic.	2M	2	L1
5	Write about logic for Non-Monotonic Reasoning?	2M	3	L1
6	What is Depth First Search	2M	3	L1
7	What are Weak Slot Filler Structures	2M	4	L1
8	What are Semantic Networks?	2M	4	L1
9	What is Iterative Deepening search?	2M	5	L1
10	What is Planning?	2M	5	L1
	Part-B			
Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Solve the following crypt arithmetic puzzle. Write constraint equations and find one solution using DFS by showing the steps involved in finding the solution. B A S E +B A L L ---------- G A M E S ----------	10M	1	L2
	OR			
12	Explain the state space representation of water – jug problem.	10M	1	L2
13	a)Convert the following sentences to wff in first order predicate logic. (i) No coat is water proof unless it has been specially treated. (ii) A drunker is enemy of himself. (iii) Any teacher is better than a lawyer.	5M	2	L2

	(iv) If x and y are both greater than zero, so is the product of x and y. (v)Every one in the purchasing department over 30 years is married. b) Determine whether each of the following sentence is satisfiable, contradictory or valid S1: $(p \vee q) \wedge (p \vee \sim q) \vee p$ S2: $p \rightarrow q \rightarrow \sim p$	5M		
	OR			
14	Difference between forward and backward reasoning.	10M	2	L2
15	What are problems in implementing non-monotonic reasoning in problem solving process?	10M	3	L2
	OR			
16	Explain the Bayesian belief network with example.	10M	3	L2
17	Explain about CYC 216 in detail.	10M	4	L2
	OR			
18	Explain about Strong slot and filler structures.	10M	4	L2
19	Discuss Planning Techniques in detail.	10M	5	L2
	OR			
20	Discuss in detail about the Blocks world planning.	10M	5	L2