R22 Regulation *Subject code:4P6GE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, April 2026

EXPERT SYSTEMS

(CSE(AI&ML))

Maximum Marks: 60 Date:21.04.2026 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 (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	What is Breadth first Search?	1M	1	L1
b)	What is a Alpha beta pruning?	1M	1	L1
c)	What techniques are there in the Knowledge representation?	1M	2	L1
d)	What is Inheritable Knowledge?	1M	2	L1
e)	What is an Expert system?	1M	3	L1
f)	Who is involved in Expert System Building?	1M	3	L1
g)	Define Backward Chaining.	1M	4	L1
h)	Define problem-oriented language.	1M	4	L1
i)	What is conceptualization in expert system building?	1M	5	L1
j)	Define metarule	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Describe the process of simulated annealing with an example. b) List of Heuristic Search Techniques in detail .	5M 5M	1	L2
	OR			
3	a) How predicate logic is helpful in knowledge representation? Give an example. b) Differentiate breadth first search with depth first search.	5M 5M	1	L2
4	a) Explain Representing Knowledge Using Rules . b) Discuss the representation of simple facts in logic using predicate logic.	5M 5M	2	L2
	OR			
5	a) Show the difference between forward and backward reasoning. b) Write short notes on procedural and declarative knowledge.	5M 5M	2	L2
6	a) Differentiate between Data processing and Knowledge engineering. b) Distinguish between conventional program and expert system.	5M 5M	3	L2

	OR			
7	Distinguish between human and artificial expertise. Write advantages and disadvantages.	10M	3	L2
8	a) Describe the process of knowledge representation using semantic nets with an example. b) Differentiate between forward chaining and backward chaining in rule-based systems.	5M 5M	4	L2
	OR			
9	a) Describe the stages in the evolution of expert system tools with a neat sketch. b) Differentiate between knowledge representation using frames and semantic nets.	5M 5M	4	L2
10	Will expert systems work for any problem area? Explain the general guidelines to consider expert systems for a problem.	10M	5	L2
	OR			
11	a) Analyze the difficulties in developing an expert system. Explain how to avoid them. b) Analyze the common issues in the planning phase of an expert system. Explain how to avoid them.	5M 5M	5	L2