



R22 Regulation

Subject code: 4P6GE

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B. Tech VI Semester Regular Examinations, May 2025

EXPERT SYSTEMS

(CSE(AI&ML))

Maximum Marks: 60

Date: 23.06.2025

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 the main difference between blind search and heuristic search. | 1M | CO1 | BL1 |
| b) | Which type of games is the Min-Max algorithm used for. | 1M | CO1 | BL2 |
| c) | What is the main goal of knowledge representation in AI. | 1M | CO2 | BL1 |
| d) | What does inheritance in frame-based systems allow. | 1M | CO2 | BL1 |
| e) | What is the role of the inference engine in an expert system. | 1M | CO3 | BL1 |
| f) | What kind of problems are best suited for expert systems | 1M | CO3 | BL1 |
| g) | Which tool helps create, edit, and manage the knowledge base in an expert system. | 1M | CO4 | BL3 |
| h) | In which stage is domain knowledge collected from human experts. | 1M | CO4 | BL3 |
| i) | What is the first step in developing an expert system. | 1M | CO5 | BL1 |
| j) | Why is maintaining expert systems difficult. | 1M | CO5 | BL3 |

Part-B

| Answer All the following questions. (5X10M=50Marks) | | Marks | CO | Bloom Tx |
|---|--|----------|-----|----------|
| 2 | a.Explain the role of programming languages in AI development. b.Compare and contrast the use of LISP, Prolog. | 5M 5M | CO1 | BL4 |
| OR | | | | |
| 3 | a.Describe heuristic search and how it differs from uninformed search. b.Explain Hill Climbing and Best-First Search algorithms with suitable examples. | 5M 5M | CO1 | BL3 |
| 4 | Explain the key issues in knowledge representation in Artificial Intelligence. | 10M | CO2 | BL4 |
| OR | | | | |
| 5 | a.Explain how knowledge can be represented using rules. b.Differentiate between declarative and procedural knowledge. | 5M 5M | CO2 | BL4 |
| 6 | Explain the architecture of an expert system. | 10M | CO3 | BL4 |
| OR | | | | |
| 7 | What are the key characteristics of expert systems? Explain features. | 10M | CO3 | BL2 |

| | | | | |
|----|---|-----|-----|-----|
| 8 | Discuss various techniques of knowledge representation used in expert systems. Explain rule-based, frame-based. | 10M | CO4 | BL2 |
| | OR | | | |
| 9 | Describe the stages in the development of an expert system. | 10M | CO4 | BL3 |
| 10 | Explain the stages involved in developing an expert system. | 10M | CO5 | BL4 |
| | OR | | | |
| 11 | Describe the typical problems faced when working with domain experts during expert system development. | 10M | CO5 | BL3 |