



# INSTITUTE OF AERONAUTICAL ENGINEERING (Autonomous)

Dundigal, Hyderabad - 500 043

## COMPUTER SCIENCE AND ENGINEERING(AI & ML)

### QUESTION BANK

Department	<b>COMPUTER SCIENCE AND ENGINEERING(AI &amp; ML)</b>				
Course Title	<b>ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS</b>				
Course Code	ACAC06				
Program	B.Tech				
Semester	V	CSE(AI & ML)			
Course Type	Core				
Regulation	IARE - UG20				
Course Structure	Theory			Practical	
	Lecture	Tutorials	Credits	Laboratory	Credits
	3	-	3	-	-
Course Coordinator	Dr. M.Nagaraju, Assistant Professor				

### COURSE OBJECTIVES:

The students will try to learn:

I	Gain a historical perspective of AI and its foundations.
II	Become familiar with basic principles of AI toward problem solving, inference, knowledge representation, and learning.
III	Investigate applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
IV	Experience AI development tools such as Prolog (AI language), expert system shell, and/or data mining tool.
V	Explore the current scope, potential, limitations, and implications of intelligent systems.

### COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	<b>Summarize</b> knowledge representation and issues in AI and Related fields.	Understand
CO 2	<b>Demonstrate</b> knowledge reasoning with predicate logic and inference rules in the presence of incomplete and/or uncertain information.	Understand
CO 3	<b>Choose</b> Heuristic, Adversarial search and game playing algorithms for addressing a particular AI problem and implement the selected strategy.	Remember

CO 4	<b>Experiment with</b> uncertainty issues by using statistical and symbolic reasoning approaches.	Apply
CO 5	<b>Analyze</b> the various algorithms used in the prediction and perception of things in an intelligent environment.	Analyze
CO 6	<b>Demonstrate</b> knowledge representation with the help of AI languages and tools.	Understand

### QUESTION BANK:

Q.No	QUESTION	Taxonomy	How does this subsume the level	CO's
<b>MODULE I</b>				
<b>INTRODUCTION TO SOFTWARE ENGINEERING</b>				
<b>PART A-PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS</b>				
1	Outline the Artificial Intelligence tools that can impact human safety in terms of their life style?	Understand	The learner can <b>Recall</b> how AI makes computers to think and <b>Understand</b> how it change human living.	CO 1
2	What happens if AI replaces humans in the workplace?	Understand	The learner will <b>Recall</b> how artificial intelligence performs creative and <b>Understand</b> the complex types of cognitive activities such as translation, writing texts, driving etc.	CO 1
3	How will machines affect human interaction and provides better experience at simulating natural speech?	Understand	The learner will <b>Recall</b> how difficult to distinguish whether you communicated with a real person or a robot, and <b>Understand</b> how especially it is different in the case of chatbots.	CO 1
4	How to protect Artificial Intelligence from hackers causing damage in different fields like faking data, inference with the work stealing passwords etc.?	Remember	The learner can able to <b>Find</b> how the cybersecurity is a major issue while accessing internet and becomes prone to hacker attacks.	CO 1
5	What is a Turing Test and how it assess the performance of a computer in terms of thinking like a human being?	Understand	The learner can able to <b>Recall</b> how to know the process of determining whether the computer is so efficient and <b>Understand</b> how it exhibits the behaviour of a human.	CO 1

6	Justify how the game theory is essential to enable the key capabilities of a program in the context of artificial intelligence?	Understand	The learner can able to <b>Recall</b> the need to have an interaction to accomplish a goal and <b>Understand</b> the key capabilities.	CO 1
7	A bank manager is given a data set containing records of 1000s of applicants who have applied for a loan. How can AI help the manager understand which loans he can approve? Explain?	Understand	The learner can <b>Recall</b> how AI algorithms can perform the classification based on the features of its data points and <b>Understand</b> the bank application.	CO 1
8	John and Mike took a plane from Paris to Baghdad. On the way, the plane stopped in Rome, where John was arrested. Represent the knowledge and apply the reasoning with your own examples?	Understand	The learner will <b>Recall</b> how the representation of knowledge to specific problem statements and <b>Understand</b> how they can be framed and apply reasoning.	CO 1
9	How the representation of knowledge about the real world to the AI agents is provided to solve AI related problems?	Understand	The learner will <b>Recall</b> the concerned of thinking of AI agents while representing the knowledge and <b>Understand</b> the application in the AI system.	CO 1
10	List out several issues in specifying the knowledge used to represent real-world applications like chess play?	Understand	The learner can <b>Recall</b> several issues that come across while discussion specific mechanisms to represent knowledge and <b>Understand</b> the real-world applications.	CO 1
<b>PART-B LONG ANSWER QUESTIONS</b>				
1	What is an AI Technique? Justify the statement 'Intelligence requires Knowledge with suitable examples?	Understand	The learner can <b>Recall</b> the knowledge about the desirable properties and <b>Understand</b> how that knowledge should possess.	CO 1
2	What are the problem characteristics of Artificial Intelligence?	Understand	The learner can <b>Recall</b> different characteristics that an AI system should possess and <b>Understand</b> the various characteristics of AI.	CO 1

3	Define the problem as a State Space Search using Chess Playing and Water Jug Problems?	Understand	The learner can <b>Recall</b> the detail knowledge about the structure of the state space representation and <b>Understand</b> how that forms the basis of most of the AI methods.	CO 1
4	Describe the difference between Informal and Formal Problem Statements by using simple water jug problem?	Understand	The learner will <b>Recall</b> exploring various issues that arise in converting informal problem statement and <b>Understand</b> how the problem is converted into a formal problem description.	CO 1
5	What is Production System. Explain about various control strategies using Breath-First Search and Depth-First Search Algorithms?	Understand	The learner can <b>Recall</b> the benefits of search algorithms and <b>Understand</b> the implementing breadth-first search and depth-first search algorithms in solving water jug problems.	CO 1
6	What is Heuristic Search and explain how this technique can improve the efficiency of the search process with suitable example.	Understand	The learner can <b>Recall</b> the importance of AI techniques and <b>Understand</b> how that can improve the search efficiency	CO 1
7	List out several problem characteristics and explain how these characteristics are necessary to analyze the problem.	Understand	The learner will <b>Recall</b> how to examine several problem characteristics and <b>Understand</b> how it is necessary to analyze the problem.	CO 1
8	Explain different issues in the design of search process with suitable example?	Understand	The learner will <b>Recall</b> the information about the knowledge representation and <b>Understand</b> the frame problems.	CO 1
9	Explain how knowledge representations and mappings solve the complex problems in artificial intelligence.	Understand	the learner can <b>Recall</b> the need of both a large amount of knowledge and <b>Understand</b> some mechanisms for manipulating that knowledge to create solutions to new problems.	CO 1

10	Explain different properties that are required to represent the knowledge in a particular domain with examples?	Understand	The learner can <b>Recall</b> four different properties needed for knowledge representation and <b>Understand</b> the various knowledge representation schemes.	CO 1
11	Explain the Property Inheritance algorithm in detail?	Understand	The learner will <b>Recall</b> the importance of property inheritance algorithm and <b>Understand</b> how to describe the basic mechanism of inheritance.	CO 1
12	Differentiate between Inferential Knowledge and Procedural Knowledge with example?	Understand	The learner will <b>Recall</b> how property inheritance is a powerful form of inference and procedural knowledge and <b>Understand</b> how it can be represented in programs.	CO 1
13	Explain how significant the instance and isa attributes are in supporting property inheritance?	Understand	The learner can <b>Recall</b> the importance of two and <b>Understand</b> how that can support variety of things in AI systems.	CO 1
14	At what level of detail should the world be represented while choosing the granularity of representation?	Understand	The learner can <b>Recall</b> the representation formalism and <b>Understand</b> how to select the representation while choosing the granularity.	CO 1
15	Explain several methods for representing knowledge that allows to form complex state descriptions for a search program?	Understand	The learner can <b>Recall</b> to know various methods of representing knowledge and <b>Understand</b> how to perform search process.	CO 1
16	Explore the spectrum from static to AI-based techniques for a problem?	Understand	The learner will <b>Recall</b> how the AI-based techniques are differentiated for the problems and <b>Understand</b> the techniques are used to resolve the problems.	CO 1
17	Find a good state space representation for chess and water jug problems.	Apply	The learner will <b>Recall</b> the state space and <b>Understand</b> how to <b>Apply</b> the AI problems with respect to seven problem characteristics.	CO 4

18	Give an example of a problem for which BFS would work better than DFS?	Apply	The learner will <b>Recall</b> the benefits of search techniques, <b>Understand</b> the breadth-first search algorithm and <b>Apply</b> to solve search problems	CO 4
19	Give an example of a problem for which DFS would work better than BFS?	Apply	The learner will <b>Recall</b> the benefits while using depth-first search algorithm, <b>Understand</b> how to solve complex problems using BFS and <b>Apply</b> to solve search problems	CO 4
20	Construct an algorithm to solve blocks world problem?	Apply	The learner can <b>Recall</b> how algorithms can be developed for a specific AI problem, <b>Understand</b> the blocks rearrangement problem and <b>Apply</b> to solve the problem.	CO4
<b>PART-C SHORT ANSWER QUESTIONS</b>				
1	What is an Artificial Intelligence?	Understand	The Learner will <b>Recall</b> the basic knowledge of artificial intelligence and <b>Understand</b> how it is more useful in solving complex problems.	CO 1
2	Why AI acronym has been reduced to Already Implemented?	Understand	The learner can <b>Recall</b> the basic knowledge about the assumption 'Already Implemented' and <b>Understand</b> how it is framed against Artificial Intelligence.	CO 1
3	What is Commonsense Reasoning?	Understand	The learner can <b>Recall</b> how AI focuses on common sense reasoning and <b>Understand</b> how to solve problems.	CO 1
4	What is Natural Language Understanding	Understand	The learner can <b>Recall</b> how the perceptual problems can be solved by understanding spoken language and <b>Understand</b> how it is useful to make purposeful communication.	CO 1

5	What is an Expert System?	Understand	The learner can <b>Recall</b> and <b>Understand</b> how the existing programs are useful in solving all areas of industry and government.	CO 1
6	What is Physical Symbol System hypothesis?	Understand	The learner can able to <b>Recall</b> how the PS system can produce collection of symbol structures and <b>Understand</b> the hypothesis.	CO 1
7	Describe why 'intelligence requires knowledge'?	Remember	The learner will able to <b>Find</b> the desirable properties that are required to define an AI technique.	CO 2
8	What is Turing Test?	Understand	The learner will <b>Recall</b> the knowldge how to come to a conclusion that the AI system has been developed and <b>Understand</b> how the approach tests its efficiency.	CO 1
9	What is Operationalization?	Understand	The learner will <b>Recall</b> the knowledge how to construct programs and <b>Understand</b> how operationalization can produce formal descriptions from informal ones.	CO 1
10	Define a State Space?	Understand	The learner can <b>Recall</b> all the possible configurations of the relevant objects and <b>Understand</b> the state space representation.	CO 1
11	What is a Production System?	Understand	The learner will <b>Recall</b> the various components of production system including the descriptions and <b>Understand</b> various AI-based problems.	CO 1
12	What is Chronological Backtracking?	Understand	The learner can <b>Recall</b> the need of backtracking and <b>Understand</b> when there are no possible moves towards goal state.	CO 1

13	What is Heuristic Search?	Understand	The learner will <b>Recall</b> how heuristic search is necessary and <b>Understand</b> when there is no longer guaranteed to find the best answer and finds a very good answer.	CO 1
14	Define a heuristic function?	Understand	The learner can able to <b>Recall</b> how heuristic function maps the problem state descriptions and <b>Understand</b> how to measure desirability using numbers.	CO 1
15	What is problem decomposition techniques?	Understand	The learner first <b>Recall</b> the how the problem of computing the expression is broken into smaller problem, and <b>Understand</b> how each of which can then solve by using a small collection of specific rules.	CO 1
16	Define Monotonic Production System?	Understand	The learner will able to <b>Recall</b> one class of production system and <b>Understand</b> the differences between monotonic and non-monotonic systems.	CO 1
17	Define NonMonotonic Production System?	Understand	The learner will able to <b>Recall</b> one class of production system and <b>Understand</b> the differences between monotonic and non-monotonic systems.	CO 1
18	Define Partially Commutative Production System?	Understand	The learner will able to <b>Recall</b> one class of production system and <b>Understand</b> how it is different with other production systems	CO 1
19	Define Commutative Production System?	Understand	The learner will able to <b>Recall</b> one class of production system and <b>Understand</b> the differences between monotonic and non-monotonic systems.	CO 1



20	Define forward and backward reasoning?	Understand	The learner get to <b>Recall</b> the different directions in which the search can be conducted and <b>Understand</b> through the search space.	CO 1
<b>MODULE II</b>				
<b>FIRST ORDER LOGIC AND INFERENCE</b>				
<b>PART-A PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS</b>				
1	List out some of the standard quantifiers of first order logic to represent "All elephants are mammals"?	Understand	The learner to <b>Recall</b> how the first order predicate logic contains two standard quantifiers and <b>Understand</b> that are used to represent the knowledge about the statement.	CO 2
2	Generate the knowledge representation for the statement "The king John has a crown on his head" using existential quantifier?	Understand	The learner able to <b>Recall</b> how universal quantifier are used and <b>Understand</b> they are used to make statements about every object in the universe without naming it.	CO 2
3	Justify the statement that "The first order logic is more powerful than propositional logic" in terms of objects and relations?	Understand	The learner will <b>Recall</b> how the FOL is more powerful in representing the knowledge and <b>Understand</b> the basics of propositional logic.	CO 1
4	Prove how propositional logic is a declarative language in terms of true relation between sentences and possible worlds?	Understand	The learner will <b>Recall</b> how to prove that the above statement is true in terms of possible world and <b>Understand</b> the propositional logic.	CO 1
5	What does it mean that "belief will lead to believe in some possibilities by bringing out some evidences" in DST?	Understand	The learner must <b>Recall</b> the uncertainty in the model and <b>Understand</b> the possibilities while extracting some evidences	CO 2
6	Discuss how Dempster-Shafer Theory combines all the possible outcomes of the problem to obtain a solution?	Understand	The learner must <b>Recall</b> the concepts of data transformation strategies and <b>Understand</b> the concept of Dempster-Shafer Theory	CO 1

7	Consider the following sentences: John likes all kinds of food. Apples are food. Chicken is food. Anything anyone eats and isn't killed by is food. Translate these sentences into formulas in predicate logic. Prove that John likes peanuts using backward chaining.	Apply	The learner will be able to <b>Recall</b> how to apply the concept of predicate knowledge, <b>Understand</b> the problem statement while representing the knowledge and <b>Apply</b> to solve search problems.	CO 4
8	Assume the following facts: Steve only likes easy courses. Science courses are hard. All the courses in the basket weaving department are easy. BK301 is a basket weaving course. Use resolution to answer the question, "What course would Steve like?"	Apply	The learner will <b>Recall</b> how to apply the concept of predicate knowledge, <b>Understand</b> how to use the same while representing the knowledge and <b>Apply</b> to give resolutions	CO 4
9	Let us consider a room where four people are present, A, B, C and D. Suddenly the lights go out and when the lights come back, B has been stabbed in the back by a knife, leading to his death. No one came into the room and no one left the room. We know that B has not committed suicide. Now Find out who is the murderer is?	Understand	The learner will <b>Recall</b> how to write the possible evidences, <b>Understand</b> how they measure the possibilities to prove the statement and <b>Apply</b> to solve real world problem .	CO 2
10	What does it mean that "Ignorance part such that probability of all events aggregate to 1"?	Apply	The learner will <b>Recall</b> how ignorance is reduced in the theory by adding more and more evidences, <b>Understand</b> the events aggregation and <b>Apply</b> to solve the probability of ignorance.	CO 2
<b>PART-B LONG ANSWER QUESTIONS</b>				
1	How does an inference engine work in frame based system?	Understand	The learner can <b>Recall</b> the knowledge of decision tree and <b>Understand</b> about the inference engine	CO 2

2	Distinguish between production based system and frame based system?	Understand	The learner will <b>Recall</b> the preprocessing steps and <b>Understand</b> the difference between the production-based and frame-based systems	CO 2
3	Discuss Bayesian Network in detail?	Understand	The learner can <b>Recall</b> the difference between these terms and <b>Understand</b> the basic principles of Bayesian Network	CO 2
4	Explore the use of propositional logic as a way of representing the world knowledge with suitable example?	Understand	The learner can <b>Recall</b> the knowledge about the representation schemes and <b>Understand</b> how the same knowledge is used propositional logic.	CO 2
5	Explore how the predicate logic is used to represent knowledge with a specific example by considering some of set of sentences?	Understand	The learner will <b>Recall</b> to know about the algorithms related to feature selection and <b>Understand</b> the knowledge representation using predicate logic	CO 2
6	Explain what are the three ways of representing class membership with suitable example?	Understand	The learner will <b>Recall</b> to know the discretization methods and <b>Understand</b> the class membership representation	CO 1
7	Explain Computable Functions and Predicates in detail?	Understand	The learner can <b>Recall</b> the basic concepts of data preprocessing and <b>Understand</b> the to frame predicates	CO 1
8	Explain the process involved in reasoning with statements in predicate logic?	Understand	The learner will <b>Recall</b> to know the process which gains efficiency from the fact that it operates on statements and <b>Understand</b> how they have been converted to a very convenient standard form.	CO 2
9	Explain the Convert to Clause Form algorithm?	Understand	The learner can <b>Recall</b> the steps involved to convert a wff into a clause form and <b>Understand</b> how to perform the conversions.	CO 2

10	Explain the resolution procedure involved in the Basics of Resolution?	Understand	The learner will <b>Recall</b> know that the procedure is an iterative one with two clauses at each step and <b>Understand</b> how to perform comparison yielding to a new clause.	CO 2
11	Explain the resolution procedure for propositional logic?	Remember	The learner will <b>Find</b> to know the procedure for producing a proof by resolution of proposition with respect to a set of axioms.	CO 3
12	Explain the Unification algorithm and its implementation with suitable examples?	Remember	The learner will <b>Find</b> the straight forward recursive procedure that unifies two literals.	CO 3
13	Determine how two literals are contradictory using resolution in predicate logic?	Remember	The learner can <b>Find</b> the concepts of determining the conflicts and how they can be unified with the negation of the other.	CO 3
14	Explain the difference between the Procedural versus Declarative Knowledge?	Remember	The learner can <b>Find</b> the how the knowledge is represented in two different ways.	CO 3
15	What is Logic Programming and explain how the paradigm in which logical assertions are viewed as programs?	Understand	The learner can <b>Recall</b> about the logical assertion and <b>Understand</b> how they are represented in Prolog Programming Language.	CO 2
16	Explain Forward Reasoning in detail with suitable example?	Remember	The learner will <b>Find</b> how forward reasoning can be used to solve search problems.	CO 3
17	Explain Backward Reasoning in detail with suitable example?	Remember	The learner will <b>Find</b> how backward reasoning can be used to solve search problems.	CO 3
18	What is matching. Explain the process of using search to solve problems as the application of appropriate rules?	Understand	The learner get to <b>Recall</b> how matching is used to generate new states and <b>Understand</b> how use the same to which the rules can be applied.	CO 2

19	Explain how to resolve the problem of conflicts in detail?	Understand	The learner will <b>Recall</b> the detail information about the result of matching process and <b>Understand</b> how the order in which the rules will be applied is decided.	CO 2
20	What factors determine the choice of direction for a particular problem to proceed either forward or backward?	Understand	The learner will <b>Recall</b> to know that which approach is used to solve a problem and <b>Understand</b> the differences between forward and backward.	CO 2
<b>PART-C SHORT ANSWER QUESTIONS</b>				
1	List out all the standard logic symbols used in representing predicate logic?	Remember	The learner will <b>Find</b> various standard logical symbols used in representing simple facts in logic.	CO 3
2	Explain well-formed formulas (wff's) in propositional logic?	Understand	The learner <b>Recall</b> and <b>Understand</b> how the real-world facts are represented as logical propositions.	CO 2
3	Explain how new knowledge can be derived from the old using predicate logic?	Understand	The learner is able to <b>Recall</b> about the logical formalism and <b>Understand</b> how it is appealing in suggesting a powerful way of deriving new knowledge.	CO 2
4	Explore the use of predicate logic?	Remember	The learner will <b>Find</b> how the predicate logic is used to represent knowledge and <b>Understand</b> the need of logic.	CO 3
5	What is predicate instance?	Understand	The learner will <b>Recall</b> the knowledge about the binary representation of arguments in a class to which the objects belongs and <b>Understand</b> the logic representations.	CO 1

6	What is a resolution?	Understand	The learner will <b>Recall</b> the knowledge that resolution is a procedure and <b>Understand</b> how it gains efficiency from the last fact that it operates on statements that have been converted to a very convenient standard form.	CO 2
7	Why resolution procedure is used?	Remember	The learner will <b>Find</b> to know that resolution procedure is an iterative process that yields a new clause inferred from the existing one and <b>Understand</b> the process of resolution.	CO 3
8	Explain how resolution works?	Understand	The learner can <b>Recall</b> the resolution procedure for propositional logic and <b>Understand</b> the process of resolution.	CO 1
9	Explain Unification Algorithm in brief?	Remember	The learner can <b>Find</b> to know how two literals can be unified using predicate symbols and <b>Understand</b> the unification process.	CO 3
10	How to determine that two literals are contradictory?	Understand	The learner can <b>Recall</b> unification with the negation of the other and <b>Understand</b> how it can be used to determine the contradictory among two literals.	CO 2
11	Describe when the theorem-proving technique can be applied?	Understand	The learner will <b>Recall</b> how the theorem proving techniques can be applied and <b>Understand</b> how they are useful while answering the questions.	CO 2
12	What is declarative representation?	Understand	The learner will <b>Recall</b> how the knowledge is specified and <b>Understand</b> to know what is to be done to the knowledge and how.	CO 1

13	What is procedural representation?	Understand	The learner can <b>Recall</b> how the control information is needed and <b>Understand</b> to use the knowledge is considered to be embedded in the knowledge itself.	CO 2
14	Define the mechanism Logic Programming?	Understand	The learner will <b>Recall</b> how logic programming can be used and <b>Understand</b> to produce flexible structures for rule-based systems.	CO 2
15	What is Logic Programming.	Understand	The learner can <b>Recall</b> that it is a programming language paradigm and <b>Understand</b> the logical assertions are viewed as programs.	CO 2
16	Define facts and rules with examples?	Understand	The learner can <b>Recall</b> how statements can be represented using relations, objects, and variables and <b>Understand</b> the differences between different clauses.	CO 2
17	What is an advantage of logic programming?	Understand	The learner will <b>Recall</b> that logic programming needs only specification of rules and <b>Understand</b> that a search engine is built directly into the language.	CO 2
18	What is Forward Reasoning?	Understand	The learner get to <b>Recall</b> how forward reasoning is applied to solve a particular problem and <b>Understand</b> the forward chaining process.	CO 1
19	What is Backward Reasoning?	Understand	The learner get to <b>Recall</b> how backward reasoning is applied to solve a particular problem and <b>Understand</b> the backward chaining process.	CO 1
20	When can a conflict resolution strategy can be applied?	Remember	The learner will <b>Find</b> the knowledge when to employ this strategy and <b>Understand</b> how to choose among the applicable rules.	CO 3

MODULE III				
SEARCH TECHNIQUES				
PART A-PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS				
1	Explain how heuristics refers to experience-based techniques for problem solving during exhaustive search?	Apply	The learner will be able to <b>Recall</b> the process of finding a satisfactory solution, <b>Understand</b> which is not possible in exhaustive search and <b>Apply</b> to perform exhaustive search.	CO 4
2	Identify the problems encountered during hill climbing and list the ways available to deal with these problems?	Apply	The learner can <b>Recall</b> , <b>Understand</b> the concepts related to probability and <b>Apply</b> to solve hill climbing problem	CO 4
3	Select the problem of 8 puzzles and discuss the essential properties required to apply search algorithms?	Understand	The learner will <b>Recall</b> how the search process is carried out and <b>Understand</b> how it is useful during AI problem solving.	CO 2
4	Discuss A* and AO* algorithm and the various observations about algorithm briefly?	Apply	The learner will <b>Recall</b> the step by step procedure of A* and AO* algorithms, <b>Understand</b> how to <b>Apply</b> implement the algorithms.	CO 4
5	How would you explain a confidence interval to a non-technical audience?	Remember	The learner will <b>Find</b> the concepts of statistics	CO 3
6	Illustrate in detail about the constraint satisfaction procedure with example?	Remember	The learner will <b>Find</b> the concepts of set theory	CO 3
7	Show how the steepest ascent hill climbing works during flat surface?	Apply	The learner will <b>Recall</b> the step by step process of solving hill climbing problem, <b>Understand</b> the procedure to <b>Apply</b> steepest hill climbing.	CO 4
8	Construct a tree to explain how iterative deepening technique is a combination of depth first search and breadth first search?	Apply	The learner will <b>Recall</b> how this technique is used to find the best depth limit by gradually adding, <b>Understand</b> the limit and <b>Apply</b> until the defined goal is reached.	CO 4



9	Execute two simultaneous searches like forward search and backward search and prove that the bidirectional search is better than the two?	Apply	The learner will <b>Recall</b> how birectional search uses branching factor, <b>Understand</b> the search process and <b>Apply</b> during search process.	CO 4
10	Prove the statement that "Uniform cost search can be implemented using a priority queue"?	Apply	The learner will able and <b>Recall</b> how to implement the uniform cost search algorithm, <b>Understand</b> how the algorithm performs the search process and <b>Apply</b> to solve search problems.	CO 4
<b>PART-B LONG ANSWER QUESTIONS</b>				
1	Which techniques are called weak techniques in AI?	Analyze	The Learner will <b>Recall</b> the techniques that are unable to overcome the combinational explosive, <b>Understand</b> which search processes are so vulnerable to <b>Apply</b> , in AI related problems and <b>Analyze</b> the systems limitations.	CO 5
2	What is the purpose of using Generate-and-Test algorithm?	Analyze	The learner can <b>Recall</b> how the algorithm can generate a possible solution in the problem space, <b>Understand</b> how to <b>Apply</b> in game playing and <b>Analyze</b> the algorithms performance.	CO 5
3	Explain the strategy plan, generate, and test used by a AI search program named DENDRAL?	Analyze	The learner will <b>Recall</b> and <b>Understand</b> the information about the planning process, <b>Apply</b> how that uses constraint-satisfaction technique, and <b>Analyze</b> how to create a lists of recommended and contraindicated substructures.	CO 5

4	Explain briefly the Hill Climbing Procedure?	Analyze	The learner will <b>Recall</b> how the procedure is used to help the generator decide and <b>Understand</b> which direction to move in the search space, <b>Apply</b> hill climbing procedure, and <b>Analyze</b> the overall performance.	CO 5
5	What are the two different steps used while designing a program to solve an AI problem?	Analyze	The learner will <b>Recall</b> the steps involved in defining a solution of a AI problem, <b>Understand</b> the program design process, <b>Apply</b> in various problem solving and <b>Analyze</b> the best design approaches.	CO 5
6	What are the states in the search process represents?	Remember	The learner will <b>Find</b> the the states represents the complete potential solutions.	CO 3
7	How many state descriptions must be maintained throughout the search process?	Remember	The learner can <b>Find</b> the different states of a search process.	CO 3
8	How to decide whether the good solution is absolute or relative?	Remember	The learner will <b>Find</b> the difference between the absolute solution and relative solution.	CO 3
9	What is steepest Ascent Hill Climbing approach?	Remember	The learner get to <b>Find</b> the how the approach is best in search process.	CO 3
10	What is local maximum?	Understand	The learner get to <b>Recall</b> that it is a state that is better than all its neighbors and <b>Understand</b> the local maximum in hill climbing problem.	CO 1
11	What is a plateau?	Understand	The learner will <b>Recall</b> that it is a flat area of the search space in which a whole set of neighboring states have the same value and <b>Understand</b> the others properties that comes in hill climbing.	CO 1

12	What is a ridge?	Understand	The learner will be able to <b>Recall</b> that it is a special kind of local maximum and <b>Understand</b> the difference between ridge and local maximum.	CO 3
13	What is backtracking?	Understand	The learner can be able to <b>Recall</b> the process of moving to some earlier node and <b>Understand</b> the different directions in backward chaining.	CO 1
14	Why an objective function is used in hill climbing process?	Remember	The learner will be able to <b>Find</b> how hill climbing process used to minimize rather than maximize the values.	CO 3
15	Describe how A* algorithm is the simplification of best-first search algorithm?	Analyze	The learner will <b>Recall</b> how A* algorithm performs the search process in a better way, <b>Understand</b> how it is better than the best-first search, <b>Apply</b> during game playing and <b>Analyze</b> the algorithm performance.	CO 5
16	Define the problem of constraint satisfaction?	Remember	The learner get to know that it is a goal to discover some problem state that satisfies a given set of constraints.	CO 3
17	What is Operator Subgoal in Means-Ends Analysis?	Understand	The learner get to <b>Recall</b> that it is the process of establishing the preconditions of the operators and <b>Understand</b> the subgoal in means-end analysis.	CO 3
18	What is Credit Assignment Problem in game playing?	Understand	The learner to <b>Recall</b> that it is a series of actions that are responsible for a particular outcome and <b>Understand</b> the credit assignments in game playing.	CO 3

19	Define MINIMAX search procedure?	Understand	The learner get to <b>Recall</b> that it is a depth-limited search procedure and <b>Understand</b> how it is useful in game playing	CO 1
20	What is called Alpha Beta Pruning in game theory?	Understand	The learner get to <b>Recall</b> that it is a search procedure used to handle maximizing and minimizing players and <b>Understand</b> the algorithm.	CO 1
<b>PART-C SHORT ANSWER QUESTIONS</b>				
1	Demonstrate the meaning of heuristic search?	Remember	The Learner will <b>Find</b> the techniques that are unable to overcome the combinational explosive to which search processes are so vulnerable.	CO 3
2	Compare Informed & Uninformed search with examples?	Remember	The learner will <b>Find</b> how the algorithm can generate a possible solution in the problem space.	CO 3
3	Analyze the logic behind–Hill climbing, Best-First Search, BFS and DFS?	Analyze	The learner will <b>Recall</b> the information about the planning process, <b>Understand</b> how that uses constraint-satisfaction technique which creates lists of recommended, <b>Apply</b> contraindicated substructures and <b>Analyze</b> the algorithms performance.	CO 5
4	Explain briefly the Hill Climbing Procedure?	Understand	The learner get to <b>Recall</b> how the procedure is used to help the generator decide which direction to move in the search space and <b>Understand</b> the procedure followed in hill climbing.	CO 2
5	Define Bayes theorem?	Understand	The learner get to <b>Recall</b> the steps involved in defining a solution and <b>Understand</b> a AI problem.	CO 1
6	What do you mean by Rule based system?	Remember	The learner will get to <b>Find</b> the the states represents the complete potential solutions.	CO 3

7	What is inference?	Understand	The learner can <b>Recall</b> about different states of a search process and <b>Understand</b> the inference engine.	CO 2
8	List some of the rules of inference?	Remember	The learner will <b>Find</b> the difference between the absolute solution and relative solution.	CO 3
9	What are knowledge based agents?	Understand	The learner get to <b>Recall</b> the how the approach is best in search process and <b>Understand</b> the concept of AI agents.	CO 1
10	What is credit assignment problem?	Understand	The learner get to <b>Recall</b> that it is a state that is better than all its neighbors and <b>Understand</b> the procedure to solve credit assignment problems.	CO 4
11	What is a plateau?	Understand	The learner can <b>Recall</b> that it is a flat area of the search space and <b>Understand</b> the whole set of neighboring states have the same value.	CO 1
12	What is a ridge?	Understand	The learner will <b>Recall</b> how to learn that it is a special kind of local maximum and <b>Understand</b> the concept of ridge in hill climbing.	CO 1
13	What is backtracking?	Understand	The learner can able to <b>Recall</b> it is a process of moving to some earlier node and <b>Understand</b> the process of going in a different direction.	CO 1
14	Differentiate the forward and backward chaining?	Remember	The learner will <b>Find</b> to know how chaining is used to minimize rather than maximize the values.	CO 3
15	What type of information that the frame contains?	Remember	The learner will <b>Find</b> how A* algorithm performs the search process in a better way that best-first search.	CO 3

16	Define Prior probability?	Understand	The learner get to <b>Recall</b> that it is a goal to discover some problem state that satisfies a given set of constraints and <b>Understand</b> the prior probability.	CO 1
17	What is the basic task of a probabilistic inference?	Remember	The learner will <b>Find</b> the process of establishing the preconditions of the operators and <b>Understand</b> the concept of inferencing.	CO 3
18	Define certainty factor?	Understand	The learner is able to <b>Recall</b> that it is a series of actions that are responsible for a particular outcome and <b>Understand</b> the certainty factors.	CO 1
19	Define Dempster-Shafter Theory?	Understand	The learner get to <b>Recall</b> that it is a depth-limited search procedure in game playing and <b>Understand</b> how the algorithm is used	CO 1
20	What is the need for utility theory in uncertainty?	Analyze	The learner will <b>Recall</b> , <b>Understand</b> that it is a search procedure which <b>Apply</b> while handling maximizing and minimizing players and <b>Analyze</b> the problem of uncertainty.	CO 4
<b>MODULE IV</b>				
<b>HANDLING UNCERTAINTY</b>				
<b>PART A- PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS</b>				
1	How can the knowledge base be extended to allow inferences to be made on the basis of lack of knowledge as well as on the presence of it?	Understand	The learner get to <b>Recall</b> how first-order predicate logic and <b>Understand</b> how it allows reasoning.	CO 6
2	How can the knowledge base be updated properly when a new fact is added to the system?	Understand	The Learner get to <b>Recall</b> how the addition of a fact can cause previously discovered proofs to be become invalid and <b>Understand</b> the knowledge representation.	CO 6

3	How can knowledge be used to help resolve conflicts when there are several inconsistent non-monotonic inferences that could be drawn?	Understand	The learner get to <b>Recall</b> how inferences are based on the lack of knowledge and <b>Understand</b> the concept of inferencing.	CO 6
4	Try to formulate the ABC Murder story in predicate logic and see how far you can get?	Understand	the learner will get to <b>Recall</b> the logic representation is done in case of a specific problem domain and <b>Understand</b> the concept of predicate logic.	CO 6
5	List out some of the ways in which the CWA was used several times while solving missionaries and cannibals problem?	Understand	The learner will get to <b>Recall</b> different ways of applying CWA and <b>Understand</b> how to solve the problems.	CO 6
6	Show how a JTMS could be used in medical diagnosis. Consider the rules such as, "If you have a runny nose, assume you have a cold unless it is allergy season."?	Understand	The learner get to <b>Recall</b> and <b>Understand</b> the implementation of JTMS in medical domain.	CO 6
7	Write a formal description of the algorithm that describes informally the JTML node labelling process?	Understand	The learner get to <b>Recall</b> and <b>Understand</b> the process is used to write the formal descriptions.	CO 6
8	Use one or more nonmonotonic reasoning systems that can answer the following questions: a. Does Tweety fly? b. Does Chirpy fly? c. Does Feathers fly? d. Does Paul fly?	Apply	The learner will able to <b>Recall</b> , <b>Understand</b> how answers can be framed using nonmonotonic reasoning systems and <b>Apply</b> the reasoning systems	CO 4
9	Derive an appropriate knowledge necessary to solve a problem of finding cloths to wear in the morning?	Apply	The learner will <b>Recall</b> how knowledge representation is so important, <b>Understand</b> how they <b>Apply</b> while solving some specific critical thinking problems.	CO 4

10	At what situations ATMS and JTMS are combined. Explain in detail?	Analyze	The learner will <b>Recall</b> , <b>Understand</b> why these techniques are combinley <b>Apply</b> to handle problem solving process and <b>Analyze</b> the individual performances.	CO 5
<b>PART-B LONG ANSWER QUESTIONS</b>				
1	Explain in detail about nonmonotonic reasoning?	Understand	The Learner get to <b>Recall</b> how this kind of reasoning is used to reason effectively and <b>Understand</b> how it is even used when a complete, consistent, and constant model of the world is not available.	CO 6
2	Explain nonmonotonic reasoning in detail?	Understand	The Learner will get to <b>Recall</b> how the axioms and the rules of inference ar extended to make it possible to reason with incomplete information and <b>Understand</b> the differences between monotonic and non-monotonic reasoning.	CO 6
3	Explain Statistical Reasoning in detail?	Understand	The learner will get to <b>Recall</b> the representation is extended to allow some kind of numeric measure of certainty and <b>Understand</b> the statistical reasoning.	CO 6
4	Explain Logics for Nonmonotonic Reasoning using default reasoning?	Understand	The learner get to <b>Recall</b> how first-order predicate logic is forced some alternative and <b>Understand</b> how it support nonmonotonic reasoning.	CO 6
5	Explain the terms nonmonotonic logic, default logic, and abduction with suitable example?	Understand	The Learner to <b>Recall</b> about different kinds of logics in symbolic reasoning and <b>Understand</b> the various applications.	CO 6
6	Explain how inheritance is a basis of nonmonotonic reasoning?	Understand	The Learner get to <b>Recall</b> the use of nonmonotonic reasoning for attribute values that are inherited and <b>Understand</b> the concept of different reasonings.	CO 6



7	Explain the Closed World Assumption in detail?	Understand	The learner will be able to <b>Recall</b> a simple kind of minimalist reasoning suggested by CWS.	CO 6
8	Explain the four important problems that arise in real systems while implementing nonmonotonic reasoning?	Understand	The Learner will <b>Recall</b> some weaknesses in logical systems and <b>Understand</b> the various problem statements.	CO 6
9	Explain the process to write programs that solve problems using the axioms?	Apply	The learner will <b>Recall</b> varieties of logical formalisms that describe the theorems, <b>Understand</b> how that can be derived from a set of axioms, and <b>Apply</b> in problem solving.	CO 4
10	Explain in detail how depth-first search can be implemented using the concept of backtracking?	Remember	The learner will <b>Find</b> how dependency directed backtracking can be used to take a depth-first approach to nonmonotonic reasoning.	CO 3
11	Explain the differences between chronological backtracking and dependency directed backtracking?	Remember	The learner will <b>Find</b> about two different backtracking methods and how they differ in their implementation.	CO 3
12	Explain in detail how breadth-first search can be implemented using the concept of backtracking?	Remember	The learner will <b>Find</b> how dependency directed backtracking can be used to take a depth-first approach to nonmonotonic reasoning.	CO 3
13	Explain Probability and Bayes Theorem?	Understand	The learner gets to <b>Recall</b> how these theorems are used as a basis of the evidence that there is a need for a statistical theory and <b>Understand</b> the theorem application.	CO 6
14	Explain certainty factors and rule-based systems in detail?	Understand	The learner gets to <b>Recall</b> the practical way of compromising on a pure bayesian system and <b>Understand</b> different certainty factors.	CO 6

15	What is MYCIN and explain how it is used?	Understand	The learner will get to <b>Recall</b> that the use of MYCIN is to represent most of its diagnostic knowledge as a set of rules and <b>Understand</b> how the system is used.	CO 6
16	Define Bayesian Networks and explain how it reduces the complexity of a bayesian reasoning system?	Understand	The learner get to <b>Recall</b> the mechanism behind the process of complexity reduction and <b>Understand</b> how it is useful in bayesian reasoning.	CO 6
17	Explain the conditional probabilities for a bayesian network with a suitable example?	Understand	The learner will get to <b>Recall</b> the mechanisms for computing and <b>Understand</b> the influence of any arbitrary node on any other.	CO 6
18	Explain the Dempster-Shafer Theory in detail?	Understand	The learner will <b>Recall</b> the alternative technique and <b>Understand</b> the sets of propositions and assigns to each of them an interval in which the degree of belief must lie.	CO 6
19	Explain the technique Fuzzy Logic in detail?	Understand	The learner will <b>Recall</b> how the motivation for fuzzy sets is provided and also <b>Understand</b> the need to represent the propositions.	CO 6
20	Make it a Bayesian network by constructing the necessary conditional probability matrix?	Understand	The learner will <b>Recall</b> how such networks can be constructed and <b>Understand</b> the network implementation.	CO 6
<b>PART C - SHORT ANSWER QUESTIONS</b>				
1	Which techniques are called weak techniques in AI?	Understand	The Learner will <b>Recall</b> how the techniques that are unable to overcome the combinational explosive and <b>Understand</b> how the search processes are so vulnerable in those cases.	CO 6

2	What is the purpose of using Generate-and-Test algorithm?	Remember	The learner will <b>Find</b> how the algorithm can generate a possible solution in the problem space and <b>Understand</b> the algorithm and its implementation.	CO 6
3	Explain the strategy plan, generate, and test used by a AI search program named DENDRAL?	Remember	The learner will <b>Find</b> the information about the planning process that uses constraint-satisfaction technique which creates lists of recommended and contraindicated substructures.	CO 3
4	Explain briefly the Hill Climbing Procedure?	Remember	The learner will <b>Find</b> how the procedure is used to help the generator decide which direction to move in the search space.	CO 3
5	What are the two different steps used while designing a program to solve an AI problem?	Understand	The learner get to <b>Recall</b> the steps involved in defining a solution of a AI problem and <b>Understand</b> how such systems are designed.	CO 6
6	Explain various axioms of probability?	Understand	The learner get to <b>Recall</b> how the axioms in propability are representing and <b>Understand</b> its application.	CO 6
7	Explain in detail about Bayes' Rule and Its Use?	Understand	The learner get to <b>Recall</b> about how to use bayes rules and <b>Understand</b> its applications.	CO 6
8	Explain the Semantics of Bayesian Networks?	Understand	The learner get to <b>Recall</b> about the various semantics of the network and <b>Understand</b> such networks.	CO 6
9	Explain how inference can be achieved in Bayesian Networks?	Understand	The learner can get to <b>Recall</b> the inference achieved in this network and <b>Understand</b> the inferencing concept.	CO 6
10	Explain in detail about Hidden Markov Models?	Understand	The learner can get to <b>Recall</b> about the implementation of the model and <b>Understand</b> its application.	CO 6

11	Explain how bayesian statistics provides reasoning under various kinds of uncertainty?	Understand	The learner can get to <b>Recall</b> about the kinds of uncertainty and <b>Understand</b> its types.	CO 6
12	Explain the method of hidden markov models in speech recognition?	Understand	The learner can get to <b>Recall</b> the implementation of the model at a particular applications and <b>Understand</b> how it is useful in speech recognition.	CO 6
13	Explain the method of handling approximate inference in Bayesian networks?	Understand	The learner can <b>Recall</b> how to handle inferences and <b>Understand</b> how the network inferences are handled.	CO 6
14	List the components of planning system?	Remember	The learner will <b>Find</b> various components of PS.	CO 3
15	What is learning? What are its types?	Understand	The learner can get to <b>Recall</b> about the learning process and <b>Understand</b> its categories.	CO 6
16	Where the Samuel's program is used?	Understand	The learner get to <b>Recall</b> the basics of the program and <b>Understand</b> its application.	CO 6
17	Define generalization?	Understand	The learner get to <b>Recall</b> about the generalization technique and <b>Understand</b> the generalization concept.	CO 6
18	Define STRIPS?	Understand	The learner will <b>Recall</b> and <b>Understand</b> the information about STRIPS.	CO 6
19	Define planning?	Understand	The learner can <b>Recall</b> and <b>Understand</b> to know about the definition?	CO 6
20	Examine nonlinear plan?	Understand	The learner can <b>Recall</b> and <b>Understand</b> the need of nonlinear plan.	CO 6

MODULE V				
PLANNING, LEARNING AND EXPERT SYSTEMS				
PART A-PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS)				
1	Solve expert system problem in terms of knowledge representation, knowledge acquisition and explanation. Give one domain in which the expert system approach would be more promising?	Apply	The learner will be able to <b>Recall, Understand</b> the concepts of effective communication and <b>Apply</b> in acquiring domain specific knowledge	CO 4
2	What are the different methods used to Manage Uncertainty in Expert System?	Remember	The learner will <b>Find</b> the problem related to certain uncertainty issues that impacts the performance of an expert system.	CO 3
3	Discuss different techniques that can be applied in a wide variety of task domain such as Blocks World?	Remember	The learner will <b>Find</b> how the rules are chosen and applied to solve some domain specific tasks.	CO 3
4	Explain Goal Stack Planning with a simple blocks world problem example?	Apply	The learner will <b>Recall</b> how the earliest techniques developed for solving compound goals, <b>Understand</b> how they may interact with the use of goal stack and <b>Apply</b> in solving blocks world problem.	CO 4
5	Explain some heuristics and algorithms for tackling nonlinear problems?	Remember	The learner will <b>Find</b> how a non linear plan is composed of a linear sequence of complete subplans.	CO 3
6	Would it be reasonable to apply Samuel's rote-learning procedure to chess? Why(not)?	Analyze	The learner will <b>Recall, Understand</b> the possibilities to <b>Apply</b> this procedure while playing chess and <b>Analyze</b> the learning performance.	CO 5

7	Implement the candidate elimination algorithm for version spaces. Choose a concept space with several features like space of books, computers, animals etc.,. Pick the concept and demonstrate learning by presenting positive and negative examples of the concept.	Apply	The learner will <b>Recall</b> the concepts of version space, <b>Understand</b> the working and <b>Apply</b> the algorithm.	CO 4
8	Consider the problem of building a program to learn a grammar for a language such as English. Assume that such a program would be provided as input with a set of pairs each consisting of a sentence and a representation of the meaning of the sentence. This is analogous to the experience of a child who hears a sentence and sees something at the same time. How could such a program be built using the technique.	Apply	The learner will <b>Recall</b> the idea about the developing a program, <b>Understand</b> some language grammar and <b>Apply</b> the same in natural language understanding.	CO 4
9	Rule-based systems often contain rules with several conditions in their left sides: Why is this true in MYCIN? Why is this true in RI?	Analyze	The learner <b>Recall</b> , <b>Understand</b> how the rule-based systems <b>Apply</b> for critical thinking and <b>Analyze</b> the performance of RBS.	CO 5
10	Contrast expert systems and neural networks in terms of knowledge representation, knowledge acquisition, and explanation.	Apply	The learner will <b>Recall</b> the some effective factors of neural networks that are different from both the systems, <b>Understand</b> how they are useful during knowledge representation and <b>Apply</b> during knowledge representation.	CO 4

<b>PART-B LONG ANSWER QUESTIONS</b>				
1	What is an expert system shell?	Understand	The learner can <b>Recall</b> the information about expert system shell and <b>Understand</b> the effective graph data visualization	CO 6
2	What are common pitfalls in planning an expert system?	Understand	The will <b>Recall</b> the characteristics of scatter plots and <b>Understand</b> the problems in expert systems	CO 6
3	What is knowledge acquisition? Explain in detail?	Understand	The learner will <b>Recall</b> about graphs and <b>Understand</b> the process of knowledge acquisition	CO 6
4	Discuss briefly about Meta knowledge	Understand	The learner will <b>Recall</b> and <b>Understand</b> about verbal communication in detail.	CO 6
5	Discuss briefly about the EMYCIN in detail a. Illustrate Heuristics with an example b. Classify the XOON and DART in detail and write its applications.?	Understand	The learner can <b>Recall</b> the presenting skills and <b>Understand</b> its applications	CO 6
6	Draw the schematic diagram of an expert system. Explain all the relevant components?	Understand	The learner can <b>Recall</b> about the uses of bar graphs and <b>Understand</b> about various diagrams in expert system	CO 6
7	Explain the various stages of expert system development?	Understand	The learner <b>Recalls</b> the knowledge of verbal communication and <b>Understand</b> its types	CO 6
8	Explain the tasks involved in building expert system?	Understand	The learner will able to <b>Recall</b> the line graph and <b>Understand</b> the expert system building process	CO 6
9	Explain the role of knowledge engineer, domain expert and an end user in an expert system?	Understand	The learner get to <b>Recall</b> how to improve your communication skills and <b>Understand</b> various roles	CO 6

10	Explain the difficulties involved in developing an expert system	Understand	The learner will <b>Recall</b> the basic idea about expert systems and <b>Understand</b> various issues that arises during the development of expert systems.	CO 6
11	Illustrate Heuristics with an example?	Remember	The learner get to <b>Find</b> the steps steps for presenting	CO 3
12	Classify the XOON and DART in detail and write its applications	Analyze	The learner will <b>Recall</b> , <b>Understand</b> the detail of verbal communication, <b>Understand</b> the expert system, <b>Apply</b> in developing the AI applications and <b>Analyze</b> their performances	CO 5
13	What are the capabilities of Expert system?	Understand	The learner get to <b>Recall</b> about persuasive communication and <b>Understand</b> the features of expert systems	CO 6
14	With neat sketch explain the architecture, characteristic features and roles of expert system.?	Understand	The learner will <b>Recall</b> the 5 P's of presentation and <b>Understand</b> the key characteristics of expert system	CO 6
15	Discuss about the Knowledge Acquisition process in expert systems	Understand	The learner can <b>Recall</b> and <b>Understand</b> about he effective speech	CO 6
16	Write notes on Meta Knowledge and Heuristics in Knowledge Acquisition	Understand	The learner can <b>Recall</b> and <b>Understand</b> the steps for creating the effective visualization	CO 6
17	Explain in detail about the expert system shell?	Understand	The learner get to <b>Recall</b> the keywords related to these terms and <b>Understand</b> the expert system shell	CO 6
18	Explain the need, significance and evolution of XCON expert system?	Understand	The learner can able to <b>Recall</b> the correlation with its types and <b>Understand</b> the need of XCON expert systems	CO 6



19	Design an expert system for Travel recommendation and discuss its roles?	Apply	The learner will <b>Recall</b> the skills for data presentation, <b>Understand</b> the design process and <b>Apply</b> during the development of an expert system	CO 4
20	Explain the expert system architectures: 1. Rule-based system architecture 2. Associative or semantic Network Architecture 3. Network architecture 4 Blackboard system Architectures	Understand	The learner will <b>Recall</b> the different parts of line graph	CO 6
<b>PART-C SHORT ANSWER QUESTIONS</b>				
1	What are Expert Systems? ?	Understand	The Learner will <b>Recall</b> the knowledge and <b>Understand</b> the definition of Expert Systems.	CO 6
2	List the characteristic features of a expert system?	Remember	The learner will <b>Find</b> the different characteristics of ES and <b>Understand</b> the various features of ES.	CO 3
3	What is the need for expert system tool while building expert system?	Understand	The learner will <b>Recall</b> the purpose of developing and <b>Understand</b> using ES	CO 6
4	Mention some of the key applications of ES?	Understand	The learners can <b>Recall</b> the major areas of ES and <b>Understand</b> how it is implemented successfully.	CO 6
5	Briefly explain the knowledge acquisition process?	Understand	The learner will <b>Recall</b> the basic information about the process of acquiring and <b>Understand</b> the knowledge while developing an expert systems	CO 6
6	Explain MOLE in Expert Systems?	Understand	The learner will <b>Recall</b> the information about the importance of MODEL and <b>Understand</b> the ES concepts.	CO 6

7	Explain Propose and revise strategy?	Understand	The learner will able to <b>Recall</b> different strategies that are being used in expert systems and <b>Understand</b> the various strategies	CO 6
8	What are the applications of EMYCIN?	Understand	The learner can <b>Recall</b> the information about the basic information and <b>Understand</b> about EMYCIN	CO 6
9	What are the applications of EXPERT SYSTEMS?	Understand	The Learner can <b>Recall</b> and <b>Understand</b> the idea about different applications where the ES is implemented.	CO 6
10	What are the typical components of an expert system support environment?	Understand	The learner can <b>Recall</b> about various tools available in the ES environments and <b>Understand</b> the helping while designing the ES.	CO 6
11	What is the use of expert system tools?	Understand	The learner can <b>Recall</b> about the usage of various tools and <b>Understand</b> how they are used while developing ES.	CO 6
12	Name the programming languages used for expert system applications?	Understand	The Learner can <b>Recall</b> different programming languages and <b>Understand</b> how they are used to develop ES based applications.	CO 6
13	What are the types of tools available for expert system building?	Understand	The learner get to <b>Recall</b> some of the tools and <b>Understand</b> how they are required to develop expert system.	CO 6
14	Name the programming methods supported by expert system tools?	Understand	The learner can <b>Recall</b> different methodologies and <b>Understand</b> how they are supported to develop ES.	CO 6
15	What are the knowledge representations supported by expert system tools?	Understand	The learner <b>Recall</b> the knowledge representation types where ES tools are used.	CO 6
16	What are the pitfalls in dealing with the domain expert?	Understand	The learner can <b>Recall</b> the drawbacks in certain areas where expert systems has been failed and <b>Understand</b> the concept of domain expert.	CO 6

17	Where is expert system work being done?	Remember	The learner will be able to <b>Find</b> about the application areas where the ES is being used.	CO 6
18	Explain XCON in Expert Systems?	Understand	The learner can <b>Recall</b> the concepts related to ES and <b>Understand</b> the using of XCON in expert systems.	CO 6
19	Name any three areas where expert system tools are used?	Understand	The learner will <b>Recall</b> and <b>Understand</b> the information about various applications of expert systems.	CO 6
20	List out some popular expert systems developed so far?	Understand	The learner will <b>Recall</b> about various organizations and <b>Understand</b> how they are already succeeded after using expert systems.	CO 6

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