SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

QUESTION BANK

SUBJECT : 18CSC305J – ARTIFICIAL INTELLIGENCE
SEM/YEAR : VI/III

Course Outcomes

CO1: Formulate a problem and build intelligent agents
CO2: Apply appropriate searching techniques to solve a real world problem
CO3: Analyze the problem and infer new knowledge using suitable knowledge representation schemes
CO4: Develop planning and apply learning algorithms on real world problems
CO5: Design an expert system and implement natural language processing techniques
CO6: Implement advance techniques in Artificial Intelligence

UNIT I

Introduction to AI-AI techniques, Problem solving with AI, AI Models, Data acquisition and learning aspects in AI, Problem solving- Problem solving process, Formulating problems, Problem types and characteristics, Problem space and search, Intelligent agent, Rationality and Rational agent with performance measures, Flexibility and Intelligent agents, Task environment and its properties, Types of agents, Other aspects of agents, Constraint satisfaction problems(CSP), Crypto arithmetic puzzles, CSP as a search problem-constrains and representation, CSP-Backtracking, Role of heuristic, CSP-Forward checking and constraint, propagation,CSP-Intelligent backtracking.

PART-A (Multiple Choice Questions)

Q. No	Questions	Course Outcome	Competence BT Level
1	A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the___ a)Boolean Algebra **b)Turing Test** c)Logarithm d)Algorithm Answer: **b)Turing Test**	CO1	1
2	What Model deal with the computer knowledge based model for Artificial Intelligence? a) Logistic b)Linear **c)Cognitive** d)Learning Vector Answer: **c)Cognitive**	CO1	1
3	Identify the person who insisted and made AI topic for conference at Dartmouth in 1956 a)Allan Turing b)Zuse c)Aristotle **d)John McCarthy** Answer: **d)John McCarthy**	CO1	1
4	To solve the Decision Problems, AI can be defined in Broad Categorization (i) Machines can think and have capability to react like humans (ii) Systems that not respond intelligently in the same way as the humans do (iii) Computational models to solve various complex decision making problems (iv) Study of intelligent agents. a) Statement (i),(ii),(iii) are correct **b) Statement (i),(iii),(iv) are correct** c) Statement (ii),(iii),(iv) are correct d) Statement (i),(ii),(iv) are correct Answer: **b) Statement (i),(iii),(iv) are correct**	CO1	2

5	Identify the problems that yield a right answer when an appropriate algorithm is applied. a)Structured **b)Well Structured** c)ill-Structured d) Unstructured Answer: **b)Well Structured**	CO1	1
6	Identify the problem that has the possibility of more than one answer and even a particular situation decides the correctness of the answer. a)Structured b)Well Structured **c)ill-Structured** d) Unstructured Answer: **c)ill-Structured**	CO1	1
7	The following problems are right inference when we can choose the well-structured algorithm is given below (i) Calculating the path of trajectory when a missile is fired (ii) Solving a quadratic equation to find out the value of X (iii)Network flow analysis problem (iv) Identifying the security threats in big social gathering **a) Statement (i),(ii),(iii) are correct** b) Statement (ii),(iii),(iv) are correct c) Statement (i),(ii),(iv) are correct d) Statement (i),(ii),(iv) are correct Answer: **a) Statement (i),(ii),(iii) are correct**	CO1	2
8	Which Models are based on sign processes or signification and communication? a)Syntactic b)Semantic **c)Semiotic** d)Statistical Answer: **c)Semiotic**	CO1	1
9	The different types of problems can be categorized that can be used in problem solving is given below (i) Deterministic (ii) Formulating Problems (iii) Unknown state space (iv) Non Deterministic a) Statement (i),(ii),(iii) are correct b) Statement (ii),(iii),(iv) are correct **c) Statement (i),(iii),(iv) are correct** d) Statement (i),(ii),(iv) are correct Answer: **c) Statement (i),(iii),(iv) are correct**	CO1	2
10	The extraction of meaningful information that is previously unknown and can be very useful potential ahead is known as _____ **a)Knowledge Discovery** b)Machine Learning c)Learning Theory d)Neural Computation Answer: **a)Knowledge Discovery**	CO1	1
11	Select the one which finds its application from the telecom domain to the financial decision making with optimization as the base criterion. a)Mining b)Neural **c)Evolutionary** d)Discovery Answer: **c)Evolutionary**	CO1	1
12	An_____ is the one which is flexible in terms to get the desired outcome. **a)Intelligent agent** b)Multi-agent c)Multi-Perspective agent d)Decision-Making agent Answer: **a)Intelligent agent**	CO1	1
13	Which Process consists of sequence of well-defined method that can handle doubts, uncertainty, ambiguity and help in achieving the desired goal?	CO1	1

	a)Problem-solving b)Problem-Understanding c)Problem Representation d)Problem Formulation Answer: **a)Problem-solving**		
14	The steps to be followed for finding the formulating problems (i) Problem Identification and problem definition (ii) Problem space (iii) Task Knowledge and State Space (iv) Problem Analysis **a) Statement (i),(ii),(iii) are correct** b) Statement (ii),(iii),(iv) are correct c) Statement (i),(iii),(iv) are correct d) Statement (i),(ii),(iv) are correct Answer: **a) Statement (i),(ii),(iii) are correct**	CO1	2
15	Problem _____ precisely tells us what the achievable goal is and what the information is to be used during the solution process. a)Definition **b)Identification** c)Analysis d)Representation Answer: **b)Identification**	CO1	1
16	Which State is fully observable and it goes to one definite after any action. **a)Deterministic** b)Non-Observable c) Partially Observable d)Unknown State Space Answer: **a)Deterministic**	CO1	1
17	Name the State that has a solution which is based on searching the tree and finding out the path for solution. a)Deterministic b)Non-Observable **c) Partially Observable** d)Unknown State Space Answer: **c) Partially Observable**	CO1	1
18	The following issues are observed while designing the search problem (i) Rule Selection (ii) State Representation and Identifying Relationships among the states (iii) Proper Selection of forward and backward moment to find the goal state (iv) The goal of state space search is clearly indicated. **a) Statement (i),(ii),(iii) are correct** b) Statement (ii),(iii),(iv) are correct c) Statement (i),(iii),(iv) are correct d) Statement (i),(ii),(iv) are correct Answer: **a) Statement (i),(ii),(iii) are correct**	CO1	2
19	Which problem analysis that deals the reasoning with the representation efficiency? a)Compactness b)Utility c)Completeness **d)Transparency** Answer: **d)Transparency**	CO1	1
20	A general approach for solving a large and complex problem is to decompose it into some smaller problems is known as _____ a)Problem Analysis b)Problem Identification c)Problem Representation **d)Problem Reduction** Answer: **d)Problem Reduction**	CO1	1
21	Which problem are the ones which definitely have a solution and there will not be any solution. a)Structured b)Well Structured **c)Linear** d) Non-Linear	CO1	1

	Answer: **c)Linear**		
22	Identify problem analysis that must be able to restrict and define boundaries clearly? **a)Compactness** b)Utility c)Completeness d)Transparency Answer: **a)Compactness**	CO1	1
23	Select the method which is applicable to a wide variety of problems and its means-ends analysis. a) Register purpose b)Planning purpose c)Special purpose **d)General purpose** Answer: **d)General purpose**	CO1	1
24	Which one may become very difficult in all the problems and also there is very little commonality among different problems. **a)Generalisation** b)Localization c)Patronization d)Modularization Answer: **a)Generalisation**	CO1	1
25	Which Model employs probabilistic approaches and typically a collection of probability density functions and distribution functions. a)Syntactic b)Semantic c)Semiotic **d)Statistical** Answer: **d)Statistical**	CO1	1
PART B (4 Marks)			
1	Describe various AI models	CO1	4
2	List milestones in AI evolution	CO1	2
3	What are the statistical models?	CO1	1
4	Give example of one ill structured problem with description and elaborate the method for solving that problem.	CO1	3
5	Explain the model building concept in AI.	CO1	2
6	List various equipments in day to day life where AI is used.	CO1	2
7	Differentiate between the semiotic model and statistical model.	CO1	3
8	Can forward checking and back jumping go together for a same problem? Discuss.	CO1	3
9	Explain about problem solving process with neat diagram.	CO1	2
10	Discuss the local search in CSP with examples.	CO1	3
PART C (12 Marks)			
1	Write a program and explain about simple intelligent system for Tic-Tac-Toe	CO1	6
2	With suitable diagrams explain in detail about types of agents.	CO1	2
3	Discuss the forward checking and constraint propagation technique with an example.	CO1	4
4	Develop a program to solve the N queen puzzle using forward checking. Show in steps how the constraints are handled.	CO1	6
5	Describe the problem formulation steps with example.	CO1	4