Q. Code:939163

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Sixth-Semester

CS18601 – ARTIFICIAL INTELLIGENCE

(Computer Science and Engineering)

(Regulation 2018/2018A)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Students will be able to identify problems that are amenable to solution by AI methods.	**3**
CO 2	Students will be able to identify appropriate AI methods to solve a given problem.	**4**
CO 3	Students will be able to formalize a given problem in the language/framework of different AI methods.	**4**
CO 4	Students will be able to implement basic AI algorithms	**4**
CO 5	Students will be able to design and carry out an empirical evaluation of different algorithms on a problem formalization, and state the conclusions that the evaluation supports	**4**

PART- A (10 x 2 = 20 Marks)

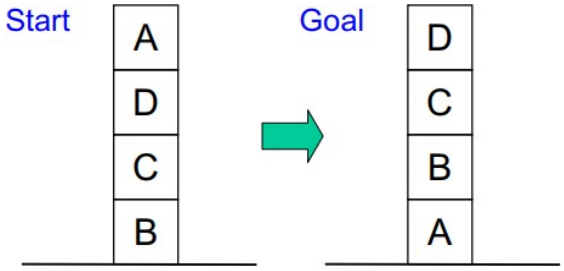
(Answer all Questions)

		CO	RBT LEVEL
1.	Differentiate greedy best first search and A* algorithm	**1**	**2**
2.	List the 7 characteristic of production system used for any problem.	**1**	**2**
3.	Apply semantic network representation for the proposition “Mary gave the green flowered vase to her favorite cousin”	**2**	**3**
4.	Formulate predicate logic statement for “All cats like fish, cats eat everything they like, and Tom is a cat”.	**2**	**3**
5.	Give the significance of using alpha and beta in game playing problems.	**3**	**3**
6.	Is the minmax algorithm procedure a depth first or breath first search procedure	**3**	**3**
7.	Compare and contrast Winston learning theory and the version space algorithm.	**4**	**3**
8.	Analyze the role of activation function in Artificial Neural Network?	**4**	**3**
9.	What is meta knowledge? how is represented in rule-based expert systems?	**5**	**3**

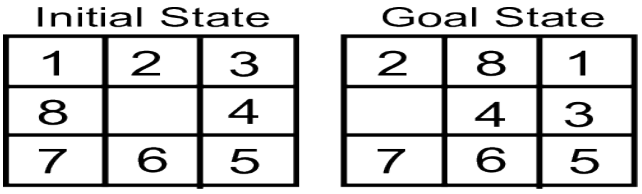
			Marks	CO	RBT LEVEL
10.	Give the importance of developing the expert systems. With an example.		**5**	**3**	

PART- B (5 x 14 = 70 Marks)

			Marks	CO	RBT LEVEL
11. (a)	**(i)**	Apply **Hill Climbing algorithm** for the given block world problem	**(7)**	**1**	**3**

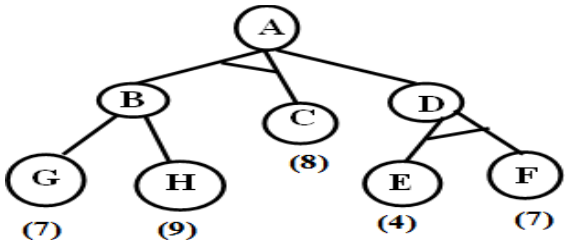


	(ii)	Solve the given 8-puzzle problem using the A* search algorithm	**(7)**		**3**



(OR)

(b)	**(i)**	Compute the next move of node **A** for the given AND-OR graph	**(7)**	**1**	**3**



	(ii)	Illustrate Means-Ends Analysis with a suitable example.	**(7)**		**3**
12. (a)		Consider the following sentences John likes all kinds of food	**(14)**	**2**	**4**

Apples are food

Chicken is food

Anything anyone eats and isn't killed by is food

Bill eats peanuts and is still alive

Sue eats everything bill eats

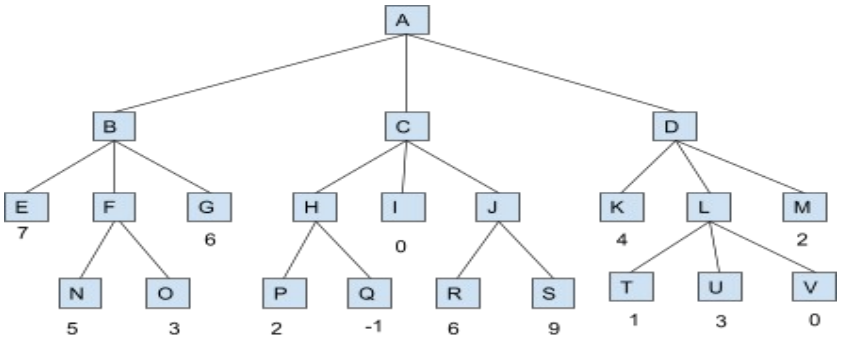
a) Translate these sentences into formulas in predicate logic

b) prove that john likes peanuts using backward chaining.

c) use resolution to answer the question, what food does sue eat?

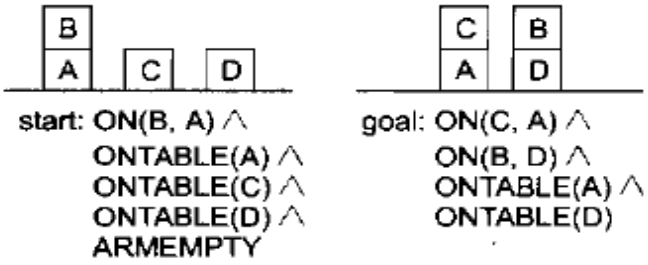
(OR)

(b)	**(i)**	Construct a script for going to a movie from the viewpoint of the movie goer	**(7)**	**2**	**4**
	(ii)	Consider the following set of propositions: • Patient has spots • Patient has measles • Patient has high fever Create a network that defines the causal connections among these nodes by constructing the conditional probability table.	**(7)**		**4**
13. (a)		Consider the following game tree in which static scores are all from first player's point of view. Suppose the first player is the maximizing player, what move should be chosen Also discuss on the variants of Minimax algorithm. What nodes would not need to be examined using the alpha beta pruning?	**(14)**	**3**	**4**



(OR)

(b)	solve the given block world problem using goal stack planning based on STRIPS Approach	**(14)**	**3**	**3**



14. (a)	**(i)**	Construct a decision tree to decide upon Whether to buy a laptop or not with appropriate attributes.	**(7)**	**4**	**4**
	(ii)	Examine candidate elimination algorithm for learning the concept of "Japanese Economy Car".	**(7)**		**4**
		(OR)			
(b)	**(i)**	Construct the artificial neural network to handwriting recognition.	**(7)**	**4**	**4**
	(ii)	Examine how does Winston's learning program play a major role in Blocks World Learning.	**(7)**		**4**
15. (a)		How do you examine performance measure in knowledge acquisition?	**(14)**	**5**	**4**
		(OR)			
(b)		Illustrate the distinguishing features of expert systems like DART, MYCIN, and XOON.	**(14)**	**5**	**4**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Devise the constraint satisfaction procedure solving the following Cryptarithmetic puzzle D O N A L D G E R A L D ********** R O B E R T	**(10)**	**1**	**5**

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