Reg. No.:

Name :

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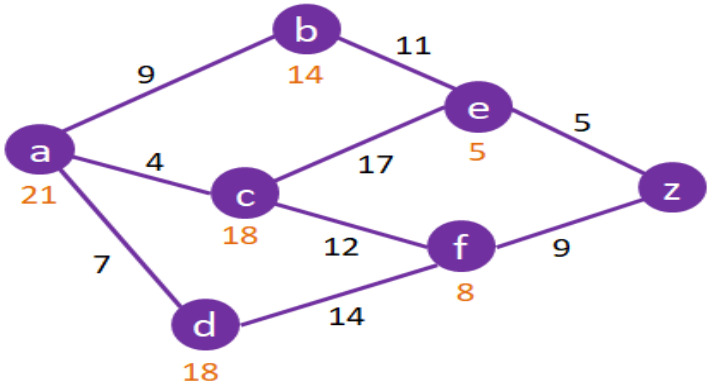
TERM END EXAMINATIONS (TEE) – December 2021- January 2022					
Programme	:	**B.Tech.[BCE,BCY]**	Semester	:	**Fall 2021-2022**
Course	:	**Fundamentals in AI & ML**	Code	:	**CSA 2001**
Faculty	:	**Dr. Nidhi Mishra**	Slot/Class No.	:	**E11+E12+E13/0040**
Time	:	**1½ hours**	Max. Marks	:	**50**

Answer ALL the Questions

Q. No.		Question Description	Marks
		PART - A (30 Marks)	
1	(a)	Examine the performance of Simple-reflex and Model based reflex with architecture. Also write an agent program for a simple reflex agent in the two-state vacuum environment.	10
		OR	
	(b)	Perform A* Algorithm to find the goal node z. (Start Node a). H(n) value of each node is written in red color. Explicitly write down the step at each stage.	10



2	(a)	Consider the following Statements a. **Nita likes all kind of Food.** a. **Potatoes and Tomatoes are Food** b. **Anything anyone eats and not killed is food.** c. **Amit eats Burgers and still alive** d. **Pankaj eats everything that Amit eats.** Using Resolution principle in Predicate Logic write all the required steps to Prove that: **John likes Burgers .** Also Draw the Resolution Graph.	10
		OR	
	(b)	Discuss Blackboard based agent Communication with an architecture and example.	10

3 (a) Discuss Backtracking in PROLOG with example. Also Implement Cut and Cut with Failure Predicate in PROLOG with example. 10

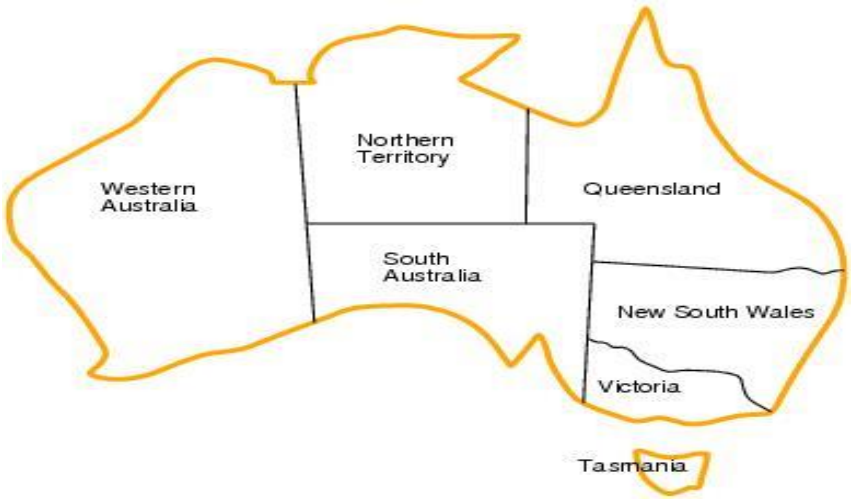
OR

(b) Apply FIND-S algorithm to generate the most specific hypothesis on given dataset to decide **if a person wants to go for a walk.** Write all the required steps to generate final hypothesis. 10

Time	Weather	Temperature	Company	Humidity	Wind	Goes
Morning	Sunny	Warm	Yes	Mild	Strong	Yes
Evening	Rainy	Cold	No	Mild	Normal	No
Morning	Sunny	Moderate	Yes	Normal	Normal	Yes
Evening	Sunny	Cold	Yes	High	Strong	Yes

PART - B (20 Marks)

4 Apply Constraint satisfaction approach(write all required steps) to implement Map-Coloring Problem for the given figure 10



5 10

a) Find the least square regression line for the following set of data {(-1, 0), (0, 2),(1 , 4),(2 , 5)}

b) Plot the given points and the regression line in the same rectangular system of axes.

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