AI CT3 B1 Answer Key - note

Artificial Intelligence (SRM Institute of Science and Technology)

RegNo														

SRM Institute of Science and Technology
College of Engineering and Technology
School of Computing
DEPARTMENT OF NETWORKING AND COMMUNICATIONS
SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu
Academic Year: 2022-23 (EVEN) **Batch 1**

Test: CLAT-3 **Date:** 09-05-2023
Course Code & Title: 18CSC305J Artificial Intelligence
Duration: 10 Minutes
Year & Sem: III / VI **Max. Marks:** 5

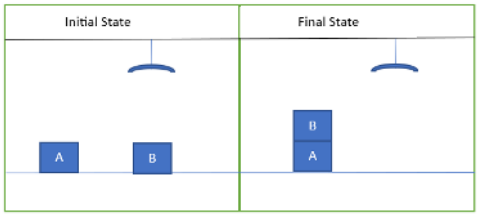
Course Articulation Matrix (CAM)

Course Learning Outcomes (CLO)	At the end of this course, learners will be able to:	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CLO-5	Design an expert system and implement natural language processing techniques	M	H	H	H	H	-	-	-	M	L	-	H
CLO-6	Implement advance techniques in Artificial Intelligence	L	H	M	M	H				H	L		H

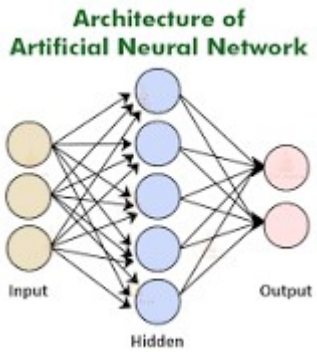
Part – A
(5 x 1 = 5 Marks)
Answer all questions

Q. No	Question	Marks	BL	CO	PO	PI Code
1.	A student who prepares for the exam by considering the facts such as the number of days left for the exam, number of chapters to study, subject category, notes availability, priority given to the chapters, etc., What does the student really do in this scenario? a) Identifying Constraints b) Searching **c) Planning** d) Learning	1	BL1	4	1	1.1.1
2.	---------- algorithm is used to represent non linear functions and efficient classification a) Linear Regression b) Logistic Regression c) **Support Vector Machine** d) Non Linear Regression	1	BL1	4	1	1.1.1
3.	Identify the type of learning which includes multiple nodes to scale larger data inputs a) Supervised Learning b) Ensemble Learning **c) Distributed Learning** d) Unsupervised Learning	1	BL2	5	2	2.1.2
4.	Recognize the type of ambiguity in the given sentence “Ram loves his pet and Rama does too” **a) Semantic** b) Syntactic c) Lexical d) Pragmatic	1	BL1	5	2	2.1.2
5.	In Rule based systems ---------- algorithm is used to update, only the dynamic data during the compilation of rules. a) Markov Algorithm b) Mean End Analysis **c) Rete Algorithm** d) Matching Finding Algorithm	1	BL2	5	2	2.1.3

Part – B
(2 x 5= 10 Marks) Answer any 2 questions

6	Answer the given queries for the given block world problem using STRIPS language  a. Initial and Final State representation (1 Mark) on(A,table)^on(B,table)^clear(A)^clear(B)^empty_hand on(A,table)^on(B,A)^clear(B)^empty_hand b. What are all the possible actions to bring the final state from the initial state (1 Mark) Unstack (B, A) Stack (B, A) Lift (B) Place (B) c. Explain the representation structure of all the actions in terms of pre and post-conditions (3 Marks) Unstack (B, A): Pre-condition: empty_hand^on(B,A)^clear(B)^on(A,table) Post-condition: Delete-list: empty_hand^on(B,A)^clear(B) Add-list: holding(B)^clear(A)^on(A,table) Stack (B, A): Pre-condition: holding(B)^clear(A)^on(A,table) Post-condition: Delete-list: holding(B)^clear(A) Add-list: on(B,A)^clear(B)^empty_hand^on(A, table) Lift (B): Pre-condition: on(B,table)^clear(B)^empty_hand^on(A,table)^clear(A) Post-condition: Delete-list: on(B,table)^clear(B)^empty_hand Add-list: holding(B)^on(A,table)^clear(A) Place (B): Pre-condition: holding(B)^on(A,table)^clear(A) Post-condition: Delete-list: holding(B) Add-list: on(B,table)^clear(B)^empty_hand^on(A,table)^clear(A)	5	BL2	4	1	1.1.2

7	Compare Deep Learning and Machine Learning along with its real world use cases. Deep learning is a subset of Machine learning that mimics the working of the human brain. It is inspired by the human brain cells, called neurons, and works on the concept of neural networks to solve complex real-world problems. It is also known as the deep neural network or deep neural learning. Some real-world applications of deep learning are: ○ Adding different colors to the black&white images ○ Computer vision ○ Text generation ○ Deep-Learning Robots, etc.	5	BL 2	5	2	2.1.3
8	Consider a scenario to use business analytics and business intelligence to help franchise owners to choose their players through auction for IPL. State some stratergies and data analysis techniques for the same. Previous and Current IPL Scenario analysis as an Individual Player,Team Performance (Metrics can be mentioned) can be perceived using Business Intelligence. Based on the business Intelligence business analytics can be done to forecast the future auction amount for the players. Business Analytics is used to bring some insights and stratergies to improve the choice of players for the franchise owner.	5	BL 3	4	2	2.1.1
	Part – C (1x 10= 10 Marks)					
9.a	A credit card company has to choose an algorithm to identify the fradulent and reliable transactions based on the credit score and transaction amount.Explain the working of the chosen Algorithm. Classification Algorithm Identification - SVM /Logistic Regression (2 Marks) Working of the Algorithm (8 Marks) Objective Function Loss Function	10	BL 3	4	2	2.1.1
	(OR)					
9.b	List the different Natural Language Pre-processing techniques with suitable examples. **(5 Marks)** The NLP meta model used to gain insight into the underlying structure of language, in order to optimally process and interpret any given input. It outlines a set of linguistic categories that can be used to accurately distinguish and represent the different parts of speech, syntax and semantics. It helps to identify how the components of language are structures and how they interact. This is in turn leads to more effective communication and writing. Common Techniques • Part-of-Speech Tagging • Named Entity Recognition • Semantic Role Labelling • Word Sense Disambiguation • Concept extraction • Syntactic Parsing Sketch and explain the Architecture of Artificial Neural Networks. **(5 Marks)**	10	BL 2	5	2	2.1.3



A neural network consists of three layers. The first layer is the input layer. It contains the input neurons that send information to the hidden layer. The hidden layer performs the computations on input data and transfers the output to the output layer. It includes weight, activation function, cost function.

The connection between neurons is known as weight, which is the numerical values. The weight between neurons determines the learning ability of the neural network. During the learning of artificial neural networks, weight between the neuron changes.

Working of ANN

Firstly, the information is feed into the input layer. Which then transfers it to the hidden layers, and interconnection between these two layers assign weights to each input randomly at the initial point. Then bias is add to each input neuron and after this, the weight sum which is a combination of weights and bias is pass through the activation function. Activation Function has the responsibility of which node to fire for feature extraction and finally output is calculate. Therefore this whole process is known as Forward Propagation. After getting the output model to compare it with the original output and the error is known and finally, weights are updates in backward propagation to reduce the error and this process continues for a certain number of epochs (iteration). Finally, model weights get updates and prediction is done.