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 **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:** 40 Minutes

**Year & Sem:** III / VI **Max. Marks:** 20

**Course Articulation Matrix (CAM)**

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| **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-4** | Develop planning and apply learning algorithms on real world problems | M | H | M | H | H | - | - | - | M | L | - | H |
| **CLO-5** | Design an expert system and implement natural language processing techniques | M | H | H | H | H | - | - | - | M | L | - | H |

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| **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     1. 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   1. 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)   1. 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 | BL 2 | 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 | BL3 | 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)**  IMG_256  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. | 10 | BL2 | 5 | 2 | 2.1.3 |

**\*Program Indicators are available separately for Computer Science and Engineering in AICTE examination**

**reforms policy.**

**Course Outcome (CO) and Bloom’s level (BL) Coverage in Questions**