Sl. No	NOS	Questions	Option A	Option B	Option C	Option D	orrect Answ	Difficulty Level	Marks
1	ELE/N1420.Introduction to Artificial Intelligence	Which component of AI enables systems to improve from experience without being explicitly programmed?	Expert Systems	Machine Learning	Database Management	Rule-based Logic	B	E	5
2	ELE/N1420.Introduction to Artificial Intelligence	A researcher in 1956 organized a workshop at Dartmouth College that coined the term 'Artificial Intelligence.' Who was this pioneer?	Alan Turing	John McCarthy	Geoffrey Hinton	Marvin Minsky	B	D	20
3	ELE/N1420.Introduction to Artificial Intelligence	In the automotive industry, AI is primarily used for which application?	Inventory management only	Autonomous vehicle navigation	Employee attendance tracking	Building construction	B	M	15
4	ELE/N1420.Introduction to Artificial Intelligence	_____ in AI refers to systematic errors in algorithm outputs that unfairly favor certain groups over others.	Transparency	Privacy	Bias	Encryption	C	E	10
5	ELE/N1420.Introduction to Artificial Intelligence	What is the fundamental difference between symbolic AI and sub-symbolic AI?	Symbolic AI uses explicit rules while sub-symbolic AI learns patterns from data	Symbolic AI is faster than sub-symbolic AI	Sub-symbolic AI requires less computing power	Symbolic AI was developed after sub-symbolic AI	A	E	10
6	ELE/N1420.Introduction to Artificial Intelligence	A model learns to classify emails as spam or not spam using labeled training data. Which AI technique is being used?	Unsupervised Learning	Reinforcement Learning	Supervised Learning	Transfer Learning	C	D	20
7	ELE/N1420.Introduction to Artificial Intelligence	Which deep learning framework was developed by Google and is known for its computational graph approach?	PyTorch	Keras	TensorFlow	Scikit-learn	C	M	15
8	ELE/N1420.Introduction to Artificial Intelligence	_____ is preferred for statistical computing and graphics in data science due to its extensive package ecosystem.	Julia	Python	R	MATLAB	C	E	5
9	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	A data scientist needs to solve the equation 3x + 7 = 22 to find the optimal threshold value. What is x?	3	5	7	15	B	M	11
10	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	Which mathematical tool is most effective for visualizing the relationship between variables to identify trends?	Histograms	Function graphs	Pie charts	Frequency tables	B	E	7
11	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	A _____ variable is one whose value is determined by chance and can take on different values with associated probabilities.	discrete	random	continuous	dependent	B	E	7
12	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	A quality control system needs to model defect rates with two possible outcomes (defective/non-defective). Which distribution should be used?	Normal distribution	Binomial distribution	Poisson distribution	Uniform distribution	B	D	16
13	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	In machine learning, what primary purpose do matrix operations serve in data transformation?	Storing data in databases	Converting between different data formats	Applying linear transformations to feature vectors	Encrypting sensitive information	C	M	11
14	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	_____ is used to find the rate of change of a loss function with respect to model parameters during optimization.	Integration	Differentiation	Probability	Summation	B	E	7
15	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	Two vectors A = [3 4] and B = [2 1] need to be combined to find their dot product. What is the result?	5	7	10	14	C	M	11
16	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	Which matrix operation is essential for solving systems of linear equations in feature engineering?	Matrix addition	Matrix transposition	Matrix inversion	Matrix scalar multiplication	C	E	7
17	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	_____ are used in Principal Component Analysis (PCA) to identify directions of maximum variance in data.	Determinants	Eigenvalues and eigenvectors	Traces	Cofactors	B	E	7
18	ELE/N1421.Advanced Mathematics and Exploratory Data Analysis for Artificial Intelligence	A developer needs to extract every third column from a 100×50 matrix efficiently. Which NumPy feature is most appropriate?	Looping through columns	Array slicing with step notation	Matrix multiplication	Random sampling	B	D	16
19	ELE/N1422.Machine Learning	Which learning paradigm involves an agent learning optimal actions through trial and error with rewards and penalties?	Supervised Learning	Unsupervised Learning	Reinforcement Learning	Semi-supervised Learning	C	M	11
20	ELE/N1422.Machine Learning	In the machine learning pipeline _____ involves selecting the most relevant attributes that contribute to prediction accuracy.	data preprocessing	feature selection	model deployment	hyperparameter tuning	B	E	7
21	ELE/N1422.Machine Learning	A binary classifier correctly identifies 85 true positives and 10 false positives out of 100 positive predictions. What is the precision?	75%	85%	89.47%	95%	B	D	16
22	ELE/N1422.Machine Learning	Which regression technique models the relationship between variables as an nth degree polynomial?	Linear Regression	Polynomial Regression	Ridge Regression	Lasso Regression	B	M	11
23	ELE/N1422.Machine Learning	_____ regression uses a sigmoid function to output probabilities for binary classification problems.	Linear	Logistic	Polynomial	Multiple	B	E	7
24	ELE/N1422.Machine Learning	A decision tree model achieves 99% accuracy on training data but only 65% on test data. What problem is occurring?	Underfitting	Overfitting	Class imbalance	Feature scaling issue	B	D	16
25	ELE/N1422.Machine Learning	What is the primary advantage of Random Forest over a single decision tree?	Faster training time	Lower memory usage	Reduced variance through ensemble averaging	Simpler interpretation	C	E	7
26	ELE/N1422.Machine Learning	Naïve Bayes assumes that features are _____ independent given the class label.	conditionally	completely	partially	mutually	A	E	7
27	ELE/N1422.Machine Learning	An SVM needs to classify non-linearly separable data. Which technique transforms the data to a higher dimension?	Feature scaling	Kernel trick	Principal Component Analysis	Gradient descent	B	M	11
28	ELE/N1422.Machine Learning	In SVM what does the margin represent?	Distance between support vectors	Distance between hyperplane and nearest data points	Number of misclassifications	Sum of all distances to hyperplane	B	E	7
29	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	_____ involves breaking down text into smaller units such as words or sentences for further processing.	Lemmatization	Tokenization	Stemming	Parsing	B	E	3
30	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	Which text preprocessing technique reduces words to their root form by removing suffixes?	Tokenization	Lemmatization	Stemming	Stop-word removal	C	M	5
31	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	A language model predicts the next word in a sequence based on probability distributions learned from training data. Which type of model is this?	Rule-based model	Statistical language model	Dictionary-based model	Grammar-based model	B	D	6
32	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	_____ analysis determines whether text expresses positive negative or neutral opinions.	Entity	Sentiment	Syntax	Topic	B	E	3
33	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	What function introduces non-linearity in neural networks allowing them to learn complex patterns?	Loss function	Activation function	Cost function	Objective function	B	M	5
34	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	During training a neural network adjusts weights by propagating errors backward through layers. What is this algorithm called?	Forward propagation	Gradient descent	Backpropagation	Batch normalization	C	D	6
35	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	In Keras the _____ layer type is used to create fully connected layers in neural networks.	Convolutional	Dropout	Pooling	Dense	D	E	3

36	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	Which metric is commonly used to monitor neural network training progress and detect overfitting?	Training accuracy only	Validation loss and accuracy	Number of epochs	Learning rate	B	M	5
37	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	_____ layers in CNNs reduce spatial dimensions while retaining important features through operations like max or average.	Pooling	Convolutional	Dense	Embedding	A	E	3
38	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	A CNN model needs to identify edges and textures in images. Which layers are primarily responsible for feature extraction?	Fully connected layers	Dropout layers	Pooling layers	Convolutional layers	D	M	5
39	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	What is the primary limitation that LSTMs address in standard RNNs?	Slow training speed	Vanishing gradient problem	High memory consumption	Limited output classes	B	E	3
40	ELE/N1423.NLP, Neural Networks, Deep Learning, and AI Capstone	_____ gates in LSTM networks control what information to keep or discard from the cell state.	Activation	Output	Sigmoid	Forget	D	E	3