Program: BE Computer Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: CSDLO6021 and Course Name: Department Level Optional Course -II:-Machine Learning

Time: 2 hours Max. Marks: 80

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	In ------ the computer is provided with example inputs that are labeled with their desired outputs
Option A:	Supervised Learning
Option B:	Reinforcement Learning
Option C:	Unsupervised Learning
Option D:	Semi supervised Learning
Q2.	According to which researcher definition of Machine Learning is "A computer program is said to learn from experience (E) with respect to some class of tasks (T) and performance measure (P), if its performance at tasks in T, as measured by P, improves with experience E."
Option A:	McKinsey
Option B:	Pedro Domingos
Option C:	Carnegie Mellon
Option D:	Tom Mitchell
Q3.	Predicting credit approval based on historical data is example of ?
Option A:	Supervised Learning
Option B:	Reinforcement Learning
Option C:	Unsupervised Learning
Option D:	Semi supervised Learning
Q4.	Predicting if a cricket player is a batsman or bowler given his playing records.
Option A:	Regression
Option B:	Linear regression
Option C:	Classification
Option D:	clustering

Q5.	In feedback ANN network , if the feedback of the output layer is connected back to the same layer, It is called -------- feedback
Option A:	feed forward
Option B:	recurrent
Option C:	lateral
Option D:	proximal
Q6.	Learning in Neuron takes place by changing effectiveness of --------- so that the influence of one neuron on another
Option A:	Dendrite
Option B:	Axon
Option C:	Nucleous
Option D:	Synapses
Q7.	In ANN----- number of hidden layers makes the network more complex
Option A:	less
Option B:	more
Option C:	limited
Option D:	small
Q8.	Which implementation of function require hidden layer in McCulloch-pits neuron model?
Option A:	AND
Option B:	AND NOT
Option C:	OR
Option D:	XOR
Q9.	In steepest Descent, Minimization occurs in the ---------- direction of the gradient vector
Option A:	Positive
Option B:	Negative
Option C:	forward
Option D:	recurrent
Q10.	For what value of x is the function x^2-4x-6 minimized ?
Option A:	0
Option B:	1
Option C:	2
Option D:	3
Q11.	Which Optimization method is derivative based method?
Option A:	Newton's Method
Option B:	Downhill Simplex
Option C:	Genetic algorithm
Option D:	Simulated Annealing

Q12.	Which optimization method is derivative free ?
Option A:	Newton's Method
Option B:	Downhill Simplex
Option C:	Steepest ascent
Option D:	Steepest descent
Q13.	How Many coefficients do you need to estimate a simple Linear Regression
Option A:	1
Option B:	2
Option C:	3
Option D:	4
Q14.	A correlation between age and health of a person found to be -1.09. On the basis of this what is the conclusion
Option A:	Age is good predictor of health and its positively correlated
Option B:	Age is poor predictor of health and is negatively correlated
Option C:	Age is good predictor and is negatively correlated
Option D:	Age is Poor predictor of health and it is positively correlated
Q15.	Suppose you applied a logistic regression model on a given data and got a training accuracy X and testing accuracy Y. Now , You want to add a few features in the same data. Select the options which is the correct in such case
Option A:	Training accuracy decreases
Option B:	Training accuracy increases or remains the same
Option C:	Testing accuracy decreases
Option D:	Testing accuracy increases or remains the same
Q16.	In Confusion Matrix, TP/(TP + FP) is known as.....
Option A:	Negative predictive rate
Option B:	Sensitivity
Option C:	Specificity
Option D:	Precision
Q17.	In EM algorithm E-step is .....
Option A:	Enhancement
Option B:	Enrichment
Option C:	Expectation
Option D:	Experiment
Q18.	The basis of Radial Basis function is based on ----------.
Option A:	McCulloch model
Option B:	ANN model
Option C:	SVM
Option D:	Cover's Theorem

Q19.	Probabilities in Baye's theorem that are changed with the help of new available information are classified as
Option A:	Independent probabilities
Option B:	Posterior probabilities
Option C:	Interior probabilities
Option D:	Dependent probabilities
Q20.	In Principal Component Analysis (PCA) dimensionality reduction technique , What are PCA components?
Option A:	Set of all eigen vectors for the projection space
Option B:	Standard deviation
Option C:	Result of the multiplication matrix
Option D:	Covariance matrix

Option 2

Q2 (20 Marks)	**Solve any Two Questions out of Three** **10 marks each**
A	Illustrate Support Vector machine with neat labeled sketch and also show how to derive optimal hyper-plane?
B	Using k-means clustering, cluster the following data into two clusters. Show each step. {2, 4, 10, 12, 3, 20, 30, 11, 25}
C	At a state university, 60% are undergraduates, 35% graduates and 5% are in special program. Also, 20% of the undergraduates are married, 40% of the graduates are married and 70% of the special program are married. Draw the tree and find the following probabilities that: a) a selected student is married and undergraduate b) a selected student is married c) a selected married student is an undergraduate

Option 3

Q3. (20 Marks)	**Solve any Two Questions out of Three** **10 marks each**
A	Illustrate the idea of PCA for a two dimensional data using suitable diagram.
B	List some advantages of derivative-based optimization techniques. Explain Steepest Descent method for optimization.

C	Explain Radial Basis function with example.