Time: 1 hour   Max. Marks: 50

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

Q1.	Which of the following is NOT the type of machine learning?
Option A:	Supervised Learning
Option B:	Expert Systems
Option C:	Unsupervised Learning
Option D:	Reinforcement Leaning
Q2.	Which statement is Not correct definition of Machine Learning?
Option A:	Program can adapt to new data independently of human action.
Option B:	Input data and output are fed to an algorithm to create a program.
Option C:	Manually creating program that uses input data and runs on a computer to produce the output.
Option D:	The ability to automatically learn and improve from experience without being explicitly programmed.
Q3.	Determine the gradient of the function $2x^2 - y^2 - 4y + 8$ at point (0, 0)?
Option A:	$\nabla f = 2i - 4j$
Option B:	$\nabla f = 0i - 4j$
Option C:	$\nabla f = 1i - 3j$
Option D:	$\nabla f = 2i - 8j$
Q4.	Which of the following statement is False for Newton Raphson Method in Machine Learning?
Option A:	It is rarely used in ML, because it is not practical to store the Hessian of large problems.
Option B:	Newton's method would always takes fewer iterations than the gradient method.
Option C:	When Newton's method is started from a point near the solution, it will converge very quickly.
Option D:	It makes use of second order derivate of the objective function.
Q5.	Using steepest descent algorithm, determine the minimum of the function f(x, y) = $25x^2 + y^2$? Use the point (1, 3) as the initial estimate and α as 0.5 for the optimal solution. Conduct one iteration.
Option A:	(0.9, 1.3) .
Option B:	(0.5, 2.9)
Option C:	(2, 0.5)

Option D:	(1, 2)
Q6.	Which of the following is INCORRECT?
Option A:	Direct search methods are useful when the optimization function is not differentiable.
Option B:	The gradient of f(x,y) is the a vector pointing in the direction of the steepest slope at that point.
Option C:	The Hessian is the Jacobian Matrix of second-order partial derivatives of a function.
Option D:	The second derivative of the optimization function is used to determine if we have reached an optimal point.
Q7.	In artificial Neural Network interconnected processing elements are called -------
Option A:	nodes or neurons
Option B:	weights
Option C:	axons
Option D:	Soma
Q8.	Neuron can send ---------- signal at a time.
Option A:	multiple
Option B:	one
Option C:	none
Option D:	any number of
Q9.	Each connection link in ANN is associated with --------- which has information about the input signal.
Option A:	Neurons
Option B:	Weights
Option C:	Bias
Option D:	activation function
Q10.	Following artificial neural network does not have feedback Loop:
Option A:	Feedforward network
Option B:	Recurrent network
Option C:	Hopfield network
Option D:	Jordon network
Q11.	Chance Nodes are represented by _____
Option A:	Disks
Option B:	Squares
Option C:	Circles
Option D:	Triangles
Q12.	Which of the following are the advantage/s of Decision Trees?
Option A:	Possible Scenarios can be added
Option B:	Use a white box model, If given result is provided by a model

Option C:	Worst, best and expected values can be determined for different scenarios
Option D:	a small change in the data can lead to a large change in the structure of the optimal decision tree
Q13.	Which of the following evaluation metrics can be used to evaluate a model while modelling a continuous output variable?
Option A:	AUC-ROC
Option B:	Accuracy
Option C:	Logloss
Option D:	Mean-Squared-Error
Q14.	Which of the following is true about Residuals?
Option A:	Lower is better
Option B:	Higher is better
Option C:	Mixed is better
Option D:	Residuals have no effects
Q15.	In SVM the relationship between the norm and the margin is
Option A:	The bigger the norm the bigger the margin
Option B:	The bigger the norm the smaller the margin
Option C:	The smaller the norm the smaller the margin
Option D:	Margin and norm are not related to each other
Q16.	Regression Problems where the parameter values are unknown and are capable of being estimated from the training set is called as
Option A:	Parametric Regression Problems
Option B:	Non Parametric Regression Problems
Option C:	Prediction problems
Option D:	Binary Classification Problems
Q17.	RBF has _____ hidden units
Option A:	One
Option B:	Two
Option C:	Many
Option D:	None
Q18.	Covers Theorem is used in
Option A:	Support Vector Machine
Option B:	Expectation Maximization
Option C:	Radial Basis Function
Option D:	Multi Layer Perceptron
Q19.	Hard Clustering has_____between cluster of data points
Option A:	Minimal Overlapping
Option B:	Maximum Overlapping

Option C:	Subjective Overlapping
Option D:	No Overlapping
Q20.	_____ are simple correlations between the variables and the factors
Option A:	Factor scores
Option B:	Factor loadings
Option C:	Correlation loadings
Option D:	Both a and b are correct
Q21.	Factor analysis may not be appropriate in all of the following situations except
Option A:	a small value for Barlett's test of sphericity is found
Option B:	small values of the KMO statistic are found
Option C:	the variables are not correlated
Option D:	the variables are correlated
Q22.	In outliers the _____ distance is less than the _____ distance
Option A:	Inter cluster, Intra cluster
Option B:	Intra cluster, Inter cluster
Option C:	Both a and b are correct
Option D:	There is no connection between outliers and distances (Inter and intra)
Q23.	Semantic Transformations
Option A:	Applied using formula or programs on the input values
Option B:	Mapping between input and output values
Option C:	Mapping between input and output values in a repository of reference data
Option D:	Applied using formula or programs based on the output values
Q24.	What is blind source separation
Option A:	Data points with no source
Option B:	Data points with no sink
Option C:	Extraction of original signal from a mixture of signals
Option D:	From a group of signals building a consolidated mixture of signals
Q25.	Feature of ANN in which ANN creates its own organization or representation of information it receives during learning time is
Option A:	Adaptive Learning
Option B:	Self Organization
Option C:	What-If Analysis
Option D:	Supervised Learning

"These are sample MCQs to indicate pattern, may or may not appear in examination"