Program: BE Computer Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: CSDLO6021 and Course Name: Machine Learning

Time: 1 hour Max. Marks: 50

==============================================================================

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

|  |  |
| --- | --- |
| Q1.  | A software designed to evaluate whether a customer account is hacked or not is an example of: |
| Option A: | Unsupervised Learning  |
| Option B: | Supervised classification  |
| Option C: | Supervised Regression |
| Option D:  | Optimization |
|  |  |
| Q2. | Which categories of machine learning techniques are supervised? |
| Option A: | classification and regression  |
| Option B: | regression and association analysis |
| Option C: | classification and cluster analysis |
| Option D: | cluster analysis and association analysis |
|  |  |
| Q3. | What is the sequence of the steps in the machine learning process? |
| Option A: | Acquire -> Prepare -> Analyze -> Report -> Act  |
| Option B: | Acquire -> Prepare -> Analyze -> Act -> Report |
| Option C: | Prepare -> Acquire -> Analyze -> Report -> Act |
| Option D: | Prepare -> Acquire -> Analyze -> Act -> Report |
|  |  |
| Q4. | After training the ML model, we see how accurately it predicts the answer/responds. What is it called? |
| Option A: | Recognition |
| Option B: | Predictive models |
| Option C: | Testing  |
| Option D: | Training |
|  |  |
| Q5. | Dendrites are |
| Option A: | fibers of nerves  |
| Option B: | nuclear projections |
| Option C: | other name for nucleus |
| Option D:  | axon |
|  |  |
| Q6. | Does backpropagation learning is based on gradient descent along error surface? |
| Option A: | cannot be said |
| Option B: | Yes  |
| Option C: | no |
| Option D:  | it depends on gradient descent but not error surface |
|  |  |
| Q7.  | 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 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  |
|  |  |
| Q8.  | Which one is not Derivative free optimization method? |
| Option A: | Random search method |
| Option B: | Downhill Simplex method |
| Option C: | Genetic Algorithm |
| Option D:  | Gradient based methods  |
|  |  |
| Q9. | Downhill simplex method is an example of : |
| Option A: | Derivative based optimization |
| Option B: | Derivative free optimization  |
| Option C: | Genetic optimization |
| Option D:  | Random search optimization |
|  |  |
| Q10.  | Steepest Descent method is an example of : |
| Option A: | Derivative based optimization  |
| Option B: | Derivative free optimization  |
| Option C: | Genetic optimization |
| Option D:  | Random search optimization |
|  |  |
| Q11.  | Optimization is the process of  |
| Option A: | Training the model |
| Option B: | Obtaining the best results under any given circumstances.  |
| Option C: | Finding principal components from the dataset |
| Option D:  | Splitting dataset into training and testing set |
|  |  |
| Q12.  | Other names for 'variable' are |
| Option A: | categorical, nominal |
| Option B: | feature, column, attribute  |
| Option C: | sample, row, observation |
| Option D: | numerical, quantitative |
|  |  |
| Q13. | This sentence is FALSE regarding regression? |
| Option A: | It relates inputs to outputs. |
| Option B: | It is used for prediction. |
| Option C: | It may be used for interpretation. |
| Option D:  | It discovers causal relationships.  |
|  |  |
| Q14.  | In linear regression, the least squares method is used to |
| Option A: | Determine the distance between two pairs of samples. |
| Option B: | Determine whether the target is categorical or numerical. |
| Option C: | Determine the regression line that best fits the samples.  |
| Option D:  | Determine how to partition the data into training and test sets. |
|  |  |
| Q15. | A correlation between age and health of a person found to be -1.09 . On the basis of this you would tell the doctors that : |
| Option A: | Age is good predictor of health and is positively correlated. |
| Option B: | Age is poor predictor of health and is negatively correlated.  |
| Option C: | Age is good predictor of health and is negatively correlated.  |
| Option D:  | Age is poor predictor of health and is positively correlated.  |
|  |  |
| Q16.  | How many coefficients you need to estimate a simple linear model(one independent variable)? |
| Option A: | 1 |
| Option B: | 2  |
| Option C: | 3 |
| Option D:  | 4 |
|  |  |
| Q17. | Decision trees are an algorithm for which machine learning task? |
| Option A: | Clustering |
| Option B: | Dimensionality reduction |
| Option C: | Classification  |
| Option D: | Regression |
|  |  |
| Q18. | Below are the 8 actual values of target variable in the train file.[0,0,0,1,1,1,1,1]What is the entropy of the target variable?  |
| Option A: | -(5/8 log(5/8) + 3/8 log(3/8))  |
| Option B: | 5/8 log(5/8) + 3/8 log(3/8)  |
| Option C: | 3/8 log(5/8) + 5/8 log(3/8) |
| Option D:  | 5/8 log(3/8) – 3/8 log(5/8) |
|  |  |
| Q19.  | Suppose you have trained an SVM with linear decision boundary after training SVM, you correctly infer that your SVM model is under fitting. Which of the following option would you more likely to consider iterating SVM next time? |
| Option A: | You want to increase your data points |
| Option B: | You want to decrease your data points |
| Option C: | You will try to calculate more variables  |
| Option D:  | You will try to reduce the features |
|  |  |
| Q20. | Identifying fraudulent or criminal activity is an example of: |
| Option A: | Regression |
| Option B: | Clustering  |
| Option C: | Classification |
| Option D: | Reinforcement |
|  |  |
| Q21. | Which of the following statements about Naive Bayes is incorrect? |
| Option A: | Attributes are equally important. |
| Option B: | Attributes are statistically dependent of one another given the class value.  |
| Option C: | Attributes are statistically independent of one another given the class value. |
| Option D:  | Attributes can be nominal or numeric |
|  |  |
| Q22.  | Which technique would perform better for reducing dimensions of a data set? |
| Option A: | Removing columns which have too many missing values  |
| Option B: | Removing columns which have high variance in data |
| Option C: | Removing columns with dissimilar data trends |
| Option D:  | Adding columns with dissimilar data trends |
|  |  |
| Q23. | If eigenvalues are roughly equal |
| Option A: | PCA will perform outstandingly |
| Option B: | PCA will perform badly  |
| Option C: | PCA will perform moderately |
| Option D:  | Can't say |
|  |  |
| Q24.  | Which algorithm is used for solving temporal probabilistic reasoning? |
| Option A: | Hill-Climbing |
| Option B: | Hidden Markov Model  |
| Option C: | Depth-first search |
| Option D:  | Breadth-first search |
|  |  |
| Q25. | What does K represents in K-means ? |
| Option A: | Number of clusters  |
| Option B: | Number of principal components |
| Option C: | Number of nodes in decision tree |
| Option D:  | Number of outliers |