**Department of CSE - Artificial Intelligence & Data Science**

**SUBJECT : MACHINE LEARNING YEAR / SEM : III-I B. TECH**

**OBJECTIVE BITS**

**UNIT -03**

1. In \_\_\_\_\_\_\_\_training model has only input parameter values. [ ]

A) supervised learning  
B) Unsupervised learning  
C) reinforcement learning  
D) None of these

1. Which of the following is type of unsupervised learning? [ ]

A) clustering  
B) association  
C) both a and b  
D) None of these

1. \_\_\_\_lies between Supervised and Unsupervised techniques. [ ]

A) clustering  
B) association  
C) semi supervised  
D) reinforcement

1. A \_\_\_\_\_\_\_\_ problem is when the output variable is a category [ ]

A) clustering  
B) reinforcement learning  
C) semi supervised  
D) classification

1. A \_\_\_\_\_\_\_\_ problem is when the output variable is a real value. [ ]

A) regression  
B) reinforcement learning  
C) semi supervised  
D) classification

1. \_\_\_\_\_is Computationally complex. [ ]

A) Unsupervised learning   
B) reinforcement learning  
C) semi supervised  
D) classification

1. Both supervised learning and unsupervised learning require at least one \_\_\_\_\_\_\_\_\_ .

a) output variable.

b) input variable.

c) hidden variable.

d) categorical variable.

1. Considering single-link and complete-link hierarchical clustering, is it possible for a point to be closer to the points in other clusters than to the points in its own cluster? If so, in which approach will this tend to be observed?

a) No

b) Yes, single-link clustering

c) Yes, complete-link clustering

d) Yes, both single-link and complete-link clustering

1. Which of the following is a disadvantage of decision trees? [ ]

A. Factor analysis  
B. Decision trees are robust to outliers  
C. Decision trees are prone to be overfit  
D. None of the above

1. When performing regression or classification, which of the following is the correct way to preprocess the data?

A. Normalize the data -> PCA -> training  
B. PCA -> normalize PCA output -> training  
C. Normalize the data -> PCA -> normalize PCA output -> training  
D. None of the above

1. Which of the following statements about regularization is not correct? [ ]

A. Using too large a value of lambda can cause your hypothesis to underfit the data.  
B. Using too large a value of lambda can cause your hypothesis to overfit the data  
C. Using a very large value of lambda cannot hurt the performance of your hypothesis.  
D. None of the above

1. In which of the following cases will K-means clustering fail to give good results?  
   1) Data points with outliers  
   2) Data points with different densities  
   3) Data points with nonconvex shapes

A. 1 and 2  
B. 2 and 3  
C. 1 and 3  
D. All of the above

1. Which of the following is a reasonable way to select the number of principal components "k"?

A. Choose k to be the smallest value so that at least 99% of the varinace is retained.  
B. Choose k to be 99% of m (k = 0.99\*m, rounded to the nearest integer).  
C. Choose k to be the largest value so that 99% of the variance is retained.  
D. Use the elbow method

1. How do you handle missing or corrupted data in a dataset? [ ]

A. Drop missing rows or columns  
B. Replace missing values with mean/median/mode  
C. Assign a unique category to missing values  
D. All of the above

1. Which of the following is a widely used and effective machine learning algorithm based on the idea of bagging? [ ]

A. Decision Tree  
B. Regression  
C. Classification  
D. Random Forest

UNIT- 04

1. What is the field of Natural Language Processing (NLP)? [ ]  
   a) Computer Science  
   b) Artificial Intelligence  
   c) Linguistics  
   d) All of the mentioned
2. NLP is concerned with the interactions between computers and human (natural) languages.  
   a) True  
   b) False
3. What is the main challenge/s of NLP?  
   a) Handling Ambiguity of Sentences  
   b) Handling Tokenization  
   c) Handling POS-Tagging  
   d) All of the mentioned
4. Modern NLP algorithms are based on machine learning, especially statistical machine learning.  
   a) True  
   b) False
5. Choose form the following areas where NLP can be useful.  
   a) Automatic Text Summarization  
   b) Automatic Question-Answering Systems  
   c) Information Retrieval  
   d) All of the mentioned
6. Using TF-IDF (Term Frequency - Inverse Document Frequency) values for features in a uni-gram bag-of-words model should have an effect most similar to which of the following?

a) Lowercasing the data

b) Dropout regularization

c) Removing stop words

d) Increasing the learning rate

1. Suppose you have the following training data for Naïve Bayes:

*I liked the dish* [LABEL = POS]

*I disliked the dish because it contains sugar* [LABEL = NEG]

*Really tasty dish* [LABEL = POS]

What is the unsmoothed Maximum Likelihood Estimate (MLE) of *P(POS)* for this data?

a) 1/3

b) 1/2

c) 1

d) 2/3

1. What are the input and output of an NLP system? [ ]

A. Speech and noise  
B. Speech and Written Text  
C. Noise and Written Text  
D. Noise and value

1. How many Components of NLP are there? [ ]

A. 2  
B. 3  
C. 4  
D. 5

1. What is full form of NLU? [ ]

A. Nature Language Understanding  
B. Natural Long Understanding  
C. Natural Language Understanding  
D. None of the Above

1. Which of the following includes major tasks of NLP? [ ]

A. Discourse Analysis  
B. Automatic Summarization  
C. Machine Translation  
D. All of the above

1. What is Morphological Segmentation? [ ]

A. Does Discourse Analysis  
B. is an extension of propositional logic  
C. Separate words into individual morphemes and identify the class of the morphemes  
D. None of the Above

1. Which of the following is used to mapping sentence plan into sentence structure? [ ]

A. Text planning  
B. Sentence planning  
C. Text Realization  
D. None of the Above

1. Which of the following is used study of construction of words from primitive meaningful units? [ ]

A. Phonology  
B. Morphology  
C. Morpheme  
D. Shonology

1. How many steps of NLP is there? [ ]

A. 3  
B. 4  
C. 5  
D. 6

1. Parts-of-Speech tagging determines \_\_\_\_\_\_\_\_\_\_\_ [ ]

A. part-of-speech for each word dynamically as per meaning of the sentence  
B. part-of-speech for each word dynamically as per sentence structure  
C. all part-of-speech for a specific word given as input  
D. All of the above

1. Many words have more than one meaning; we have to select the meaning which makes the most sense in context. This can be resolved by \_\_\_\_\_\_\_\_\_\_\_\_

A. Fuzzy Logic  
B. Shallow Semantic Analysis  
C. Word Sense Disambiguation  
D. All of the above

1. In linguistic morphology \_\_\_\_\_\_\_\_\_\_\_\_\_ is the process for reducing inflected words to their root form. [ ]

A. Rooting  
B. Stemming  
C. Text-Proofing  
D. Both Rooting & Stemming

1. **Which of the following is an example of a natural language processing tool? [ ]**

a) Microsoft Excel  
b) Google Maps  
c) Python’s NLTK library  
d) Adobe Photoshop

1. **What is the purpose of a corpus in natural language processing? [ ]**

a) To represent a language model  
b) To store and organize large amounts of text data  
c) To measure the accuracy of a language model  
d) To train a machine learning algorithm

1. **Which of the following is an example of a machine translation system? [ ]**

a) Google Translate  
b) Siri  
c) Amazon Alexa  
d) Microsoft Word

1. **What is the purpose of word embeddings in natural language processing? [ ]**

a) To represent words as numerical vectors  
b) To identify the tone or emotion expressed in a text  
c) To identify and categorize named entities in a text  
d) To generate new text based on input

1. **Which of the following is an example of a pre-processing step in natural language processing? [ ]**

a) Creating a language model  
b) Identifying named entities in a text  
c) Tokenization  
d) Text classification

1. **Which of the following is an example of a language model that uses a probabilistic approach? [ ]**

a) Hidden Markov model (HMM)  
b) Rule-based model  
c) Decision tree  
d) Convolutional neural network (CNN)

1. **Which of the following is an example of a natural language understanding task?**

a) Machine translation  
b) Sentiment analysis  
c) Named entity recognition  
d) Text classification

1. **Which of the following is an example of a deep learning architecture commonly used in natural language processing? [ ]**

a) Support vector machine (SVM)  
b) Random forest  
c) Recurrent neural network (RNN)  
d) K-nearest neighbors (KNN)

1. **Which of the following is an example of a text classification task? [ ]**

a) Named entity recognition  
b) Sentiment analysis  
c) Part-of-speech tagging  
d) Tokenization

1. **Which of the following is an example of a text normalization technique used in natural language processing? [ ]**

a) Stop word removal  
b) Lemmatization  
c) Stemming  
d) Tokenization

1. **Which of the following is an example of a text generation task in natural language processing? [ ]**

a) Machine translation  
b) Named entity recognition  
c) Text summarization  
d) Chatbot response generation

1. **Which of the following is an example of a common evaluation metric used for machine translation? [ ]**

a) Precision  
b) Recall  
c) F1 score  
d) BLEU score

UNIT-05

1. 1. Why do we need biological neural networks? [ ]  
   a) to solve tasks like machine vision & natural language processing  
   b) to apply heuristic search methods to find solutions of problem  
   c) to make smart human interactive & user friendly system  
   d) all of the mentioned
2. 2. What is the trend in software nowadays? [ ]  
   a) to bring computer more & more closer to user  
   b) to solve complex problems  
   c) to be task specific  
   d) to be versatile
3. 4. What is auto-association task in neural networks? [ ]  
   a) find relation between 2 consecutive inputs  
   b) related to storage & recall task  
   c) predicting the future inputs  
   d) none of the mentioned
4. 6. In pattern mapping problem in neural nets, is there any kind of generalization involved between input & output? [ ]  
   a) yes  
   b) no
5. What is plasticity in neural networks? [ ]  
   a) input pattern keeps on changing  
   b) input pattern has become static  
   c) output pattern keeps on changing  
   d) output is static
6. What is the use of MLFFNN? [ ]  
   a) to realize structure of MLP  
   b) to solve pattern classification problem  
   c) to solve pattern mapping problem  
   d) to realize an approximation to a MLP
7. What is the advantage of basis function over mutilayer feedforward neural networks?  
   a) training of basis function is faster than MLFFNN [ ]  
   b) training of basis function is slower than MLFFNN  
   c) storing in basis function is faster than MLFFNN  
   d) none of the mentioned
8. Why is the training of basis function is faster than MLFFNN? [ ]  
   a) because they are developed specifically for pattern approximation  
   b) because they are developed specifically for pattern classification  
   c) because they are developed specifically for pattern approximation or classification  
   d) none of the mentioned
9. In which type of networks training is completely avoided? [ ]   
   a) GRNN  
   b) PNN  
   c) GRNN and PNN  
   d) None of the mentioned
10. What is the objective of backpropagation algorithm? [ ]  
    a) to develop learning algorithm for multilayer feedforward neural network  
    b) to develop learning algorithm for single layer feedforward neural network  
    c) to develop learning algorithm for multilayer feedforward neural network, so that network can be trained to capture the mapping implicitly  
    d) none of the mentioned
11. The backpropagation law is also known as generalized delta rule, is it true?[ ]  
    a) yes  
    b) no
12. What is true regarding backpropagation rule? [ ]  
    a) it is also called generalized delta rule  
    b) error in output is propagated backwards only to determine weight updates  
    c) there is no feedback of signal at nay stage  
    d) all of the mentioned
13. There is feedback in final stage of backpropagation algorithm? [ ]  
    a) yes  
    b) no
14. What is true regarding backpropagation rule? [ ]  
    a) it is a feedback neural network  
    b) actual output is determined by computing the outputs of units for each hidden layer  
    c) hidden layers output is not all important, they are only meant for supporting input and output layers  
    d) none of the mentioned
15. What is meant by generalized in statement “backpropagation is a generalized delta rule” ? [ ]  
    a) because delta rule can be extended to hidden layer units  
    b) because delta is applied to only input and output layers, thus making it more simple and generalized  
    c) it has no significance  
    d) none of the mentioned
16. What are general limitations of back propagation rule? [ ]  
    a) local minima problem  
    b) slow convergence  
    c) scaling  
    d) all of the mentioned
17. What are the general tasks that are performed with backpropagation algorithm?  
    a) pattern mapping [ ]  
    b) function approximation  
    c) prediction  
    d) all of the mentioned
18. Does backpropagaion learning is based on gradient descent along error surface?  
    a) yes [ ]  
    b) no  
    c) cannot be said  
    d) it depends on gradient descent but not error surface
19. How can learning process be stopped in backpropagation rule? [ ]  
    a) there is convergence involved  
    b) no heuristic criteria exist  
    c) on basis of average gradient value  
    d) none of the mentioned
20. Which application out of these of robots can be made of single layer feedforward network? [ ]  
    a) wall climbing  
    b) rotating arm and legs  
    c) gesture control  
    d) wall following
21. Which is the most direct application of neural networks? [ ]  
    a) vector quantization  
    b) pattern mapping  
    c) pattern classification  
    d) control applications
22. What are pros of neural networks over computers? [ ]  
    a) they have ability to learn b examples  
    b) they have real time high computational rates  
    c) they have more tolerance  
    d) all of the mentioned
23. What is the primary purpose of a Convolutional Neural Network (CNN)? [ ]

a) Object detection

b) Image classification

c) Text generation

d) Reinforcement learning

1. Which layer type is typically used to extract local features in a CNN? [ ]

a) Convolutional layer

b) Pooling layer

c) Fully connected layer

d) Activation layer

1. What is the purpose of the pooling layer in a CNN? [ ]

a) To reduce the spatial dimensions of the feature maps

b) To introduce non-linearity to the network

c) To adjust the weights and biases of the network

d) To compute the gradients for backpropagation

1. Which activation function is commonly used in the convolutional layers of a CNN?

a) ReLU (Rectified Linear Unit) [ ]

b) Sigmoid

c) Tanh (Hyperbolic Tangent)

d) Softmax

1. Which layer type is used to reduce the spatial dimensions in a CNN? [ ]

a) Convolutional layer

b) Pooling layer

c) Fully connected layer

d) Activation layer

1. Which layer type is responsible for backpropagating the gradients and updating the network's parameters in a CNN? [ ]

a) Convolutional layer

b) Pooling layer

c) Fully connected layer

d) Activation layer

1. What is the purpose of the receptive field in a convolutional layer? [ ]

a) To determine the number of filters in the layer

b) To determine the size of the feature maps

c) To specify the size of the local region for the convolution operation

d) None of the above

1. Which layer type is commonly used in CNNs to introduce non-linearity? [ ]

a) Convolutional layer

b) Pooling layer

c) Fully connected layer

d) Activation layer